

**Instituto de  
Computação**

UNIVERSIDADE ESTADUAL DE CAMPINAS



**MC102 - Aula 06**

**Exemplos Sobre Comandos de Repetição**  
Algoritmos e Programação de Computadores

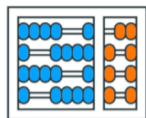
Turmas  
**OVXZ**

**Prof. Lise R. R. Navarrete**

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Terça-feira, 05 de abril de 2022

21:00h - 23:00h (CB06)



**Instituto de  
Computação**

UNIVERSIDADE ESTADUAL DE CAMPINAS



UNICAMP

**MC102** – Algoritmos e Programação de Computadores

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Turmas

**OVXZ**

<https://ic.unicamp.br/~mc102/>

Site da Coordenação de MC102

Aulas teóricas:

Terça-feira, 21:00h - 23:00h (CB06)

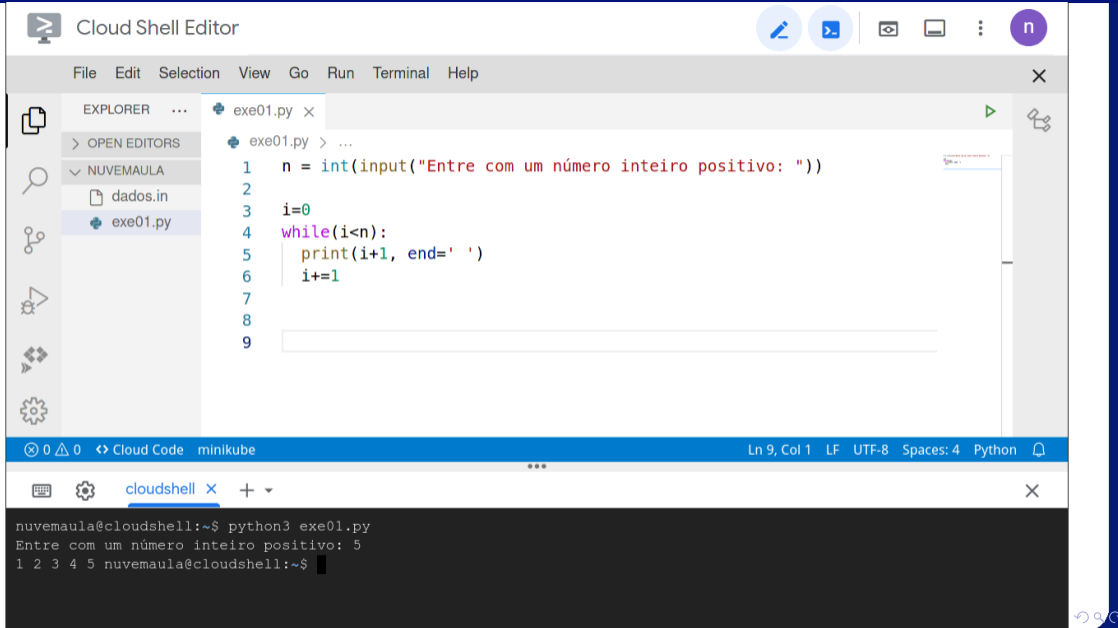
Quinta-feira, 19:00h - 21:00h (CB06)

# Conteúdo

- 01 - Sequências de Números
- 02 - Contadores e Acumuladores
- 03 - Máximo e Mínimo
- 04 - Percorrendo uma String
- 05 - Break e continue
- 06 - Laços Aninhados
- 07 - Divisores de um Número

# 01 - Sequências de Números

Queremos imprimir os números de 1 até um  $n$  dado.



The screenshot displays the Cloud Shell Editor interface. At the top, the title bar reads "Cloud Shell Editor" and includes a menu bar with "File", "Edit", "Selection", "View", "Go", "Run", "Terminal", and "Help". The Explorer sidebar on the left shows a file named "exe01.py" under the "NUVEMAULA" directory. The main editor area contains the following Python code:

```
1 n = int(input("Entre com um número inteiro positivo: "))
2
3 i=0
4 while(i<n):
5     print(i+1, end=' ')
6     i+=1
7
8
9
```

The status bar at the bottom of the editor indicates "Ln 9, Col 1 LF UTF-8 Spaces: 4 Python". Below the editor is a terminal window with the following output:

```
nuvemaula@cloudshell:~$ python3 exe01.py
Entre com um número inteiro positivo: 5
1 2 3 4 5 nuvemaula@cloudshell:~$
```



The image shows a Cloud Shell Editor window with a menu bar (File, Edit, Selection, View, Go, Run, Terminal, Help) and a toolbar. The Explorer sidebar on the left shows a file named 'exe01.py'. The main editor area contains the following Python code:

```
1 n = int(input("Entre com um número inteiro positivo: "))
2
3 i=0
4 while(i<n):
5     print(i+1, end=' ')
6     i+=1
7
8
9
```

The status bar at the bottom of the editor indicates 'Ln 9, Col 1 LF UTF-8 Spaces: 4 Python'. Below the editor is a terminal window with the following output:

```
nuvemaula@cloudshell:~$ python3 exe01.py
Entre com um número inteiro positivo: 10
1 2 3 4 5 6 7 8 9 10
nuvemaula@cloudshell:~$
```



The screenshot displays the Cloud Shell Editor interface. At the top, the title bar reads "Cloud Shell Editor" with a terminal icon on the left and several utility icons on the right. Below the title bar is a menu bar with options: File, Edit, Selection, View, Go, Run, Terminal, and Help. The main workspace is divided into three panes. The left pane is the Explorer, showing a file tree with "dados.in", "exe01.py", and "README...". The middle pane is the Open Editors, showing the current file "exe01.py" with line numbers 1 through 9. The right pane is the Terminal, showing the execution of the script. The code in the editor is as follows:

```
1 n = int(input("Entre com um número inteiro positivo: "))
2
3 i=0
4 while(i<n):
5     print(i+1, end=' ')
6     i+=1
7 print()
8
9
```

The terminal output shows the command `python3 exe01.py` being executed, followed by the prompt "Entre com um número inteiro positivo: 10" and the output "1 2 3 4 5 6 7 8 9 10".

At the bottom of the interface, there is a status bar showing "0 0" errors, "Cloud Code" mode, the user "minikube", and the current file's details: "Ln 9, Col 1 LF UTF-8 Spaces: 4 Python". Below the status bar is a browser-like tab labeled "cloudshell" and a terminal window showing the command prompt and the execution of the script.



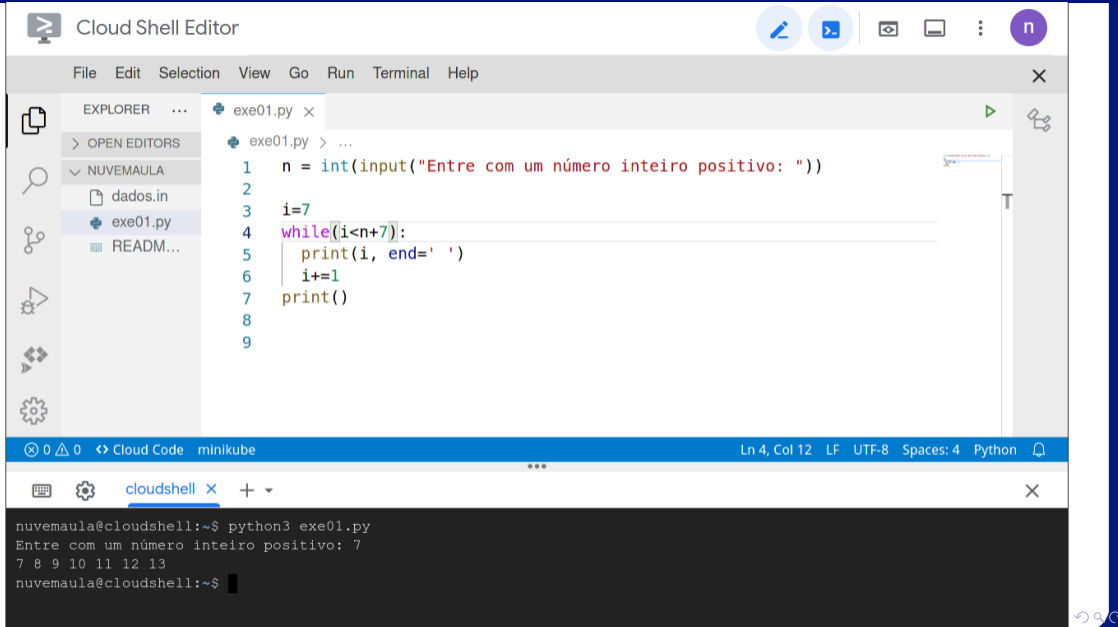


The image shows a Cloud Shell Editor window with a menu bar (File, Edit, Selection, View, Go, Run, Terminal, Help) and a toolbar. The Explorer sidebar on the left shows a file named 'exe01.py' selected. The main editor area displays the following Python code:

```
1 n = int(input("Entre com um número inteiro positivo: "))
2
3 i=7
4 while(i<n):
5     print(i, end=' ')
6     i+=1
7 print()
8
9
```

The status bar at the bottom of the editor indicates 'Ln 9, Col 1 LF UTF-8 Spaces: 4 Python'. Below the editor is a terminal window with the following output:

```
nuvemaula@cloudshell:~$ python3 exe01.py
Entre com um número inteiro positivo: 10
7 8 9
nuvemaula@cloudshell:~$
```



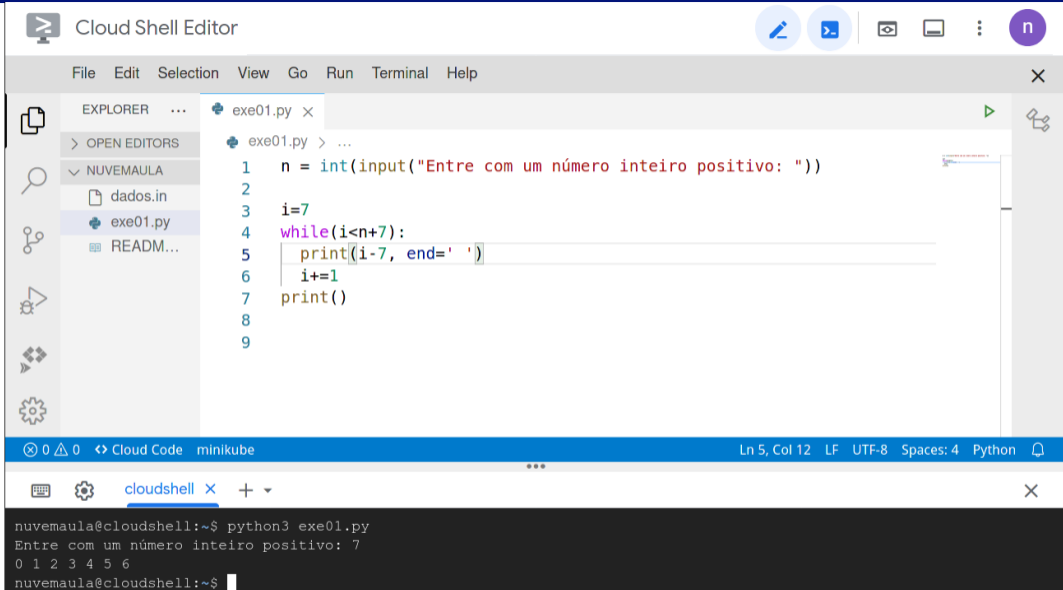
The image shows a Cloud Shell Editor interface. The main editor area displays a Python script named `exe01.py` with the following code:

```
1 n = int(input("Entre com um número inteiro positivo: "))
2
3 i=7
4 while(i<n+7):
5     print(i, end=' ')
6     i+=1
7 print()
8
9
```

The status bar at the bottom of the editor indicates the current position is `Ln 4, Col 12`, the file encoding is `LF UTF-8`, there are `Spaces: 4`, and the language is `Python`.

Below the editor, a terminal window shows the execution of the script:

```
nuvemaula@cloudshell:~$ python3 exe01.py
Entre com um número inteiro positivo: 7
7 8 9 10 11 12 13
nuvemaula@cloudshell:~$
```

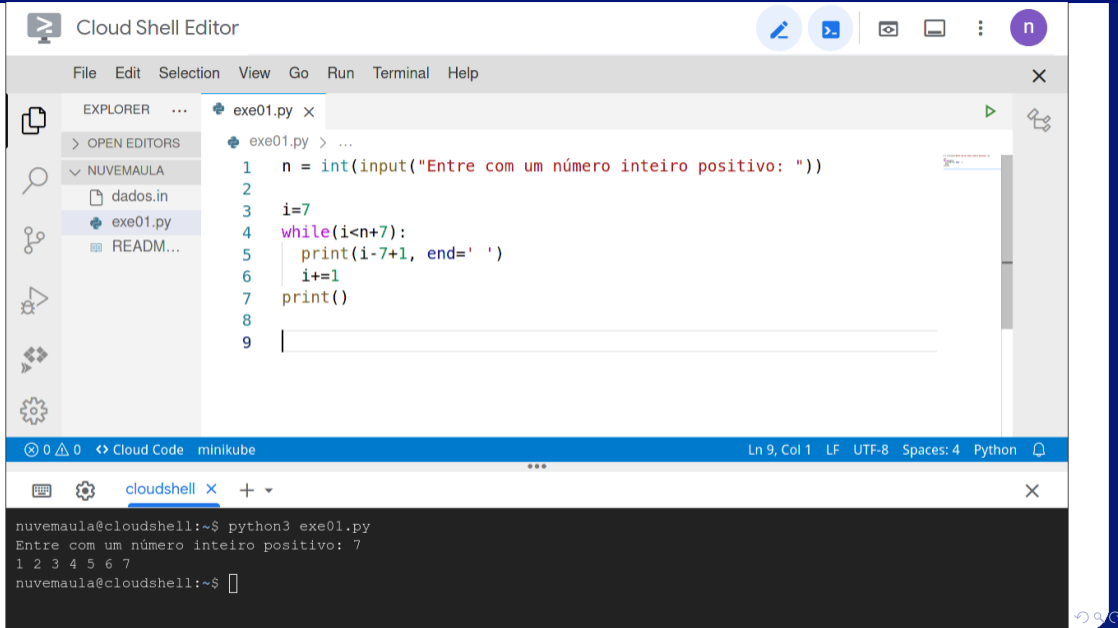


The image shows a Cloud Shell Editor window with a menu bar (File, Edit, Selection, View, Go, Run, Terminal, Help) and a toolbar. The Explorer sidebar on the left shows a file named 'exe01.py' under a folder named 'NUVEMAULA'. The main editor area displays the following Python code:

```
1 n = int(input("Entre com um número inteiro positivo: "))
2
3 i=7
4 while(i<n+7):
5     print(i-7, end=' ')
6     i+=1
7 print()
8
9
```

The status bar at the bottom of the editor indicates 'Ln 5, Col 12 LF UTF-8 Spaces: 4 Python'. Below the editor is a terminal window with the following output:

```
nuvemaula@cloudshell:~$ python3 exe01.py
Entre com um número inteiro positivo: 7
0 1 2 3 4 5 6
nuvemaula@cloudshell:~$
```

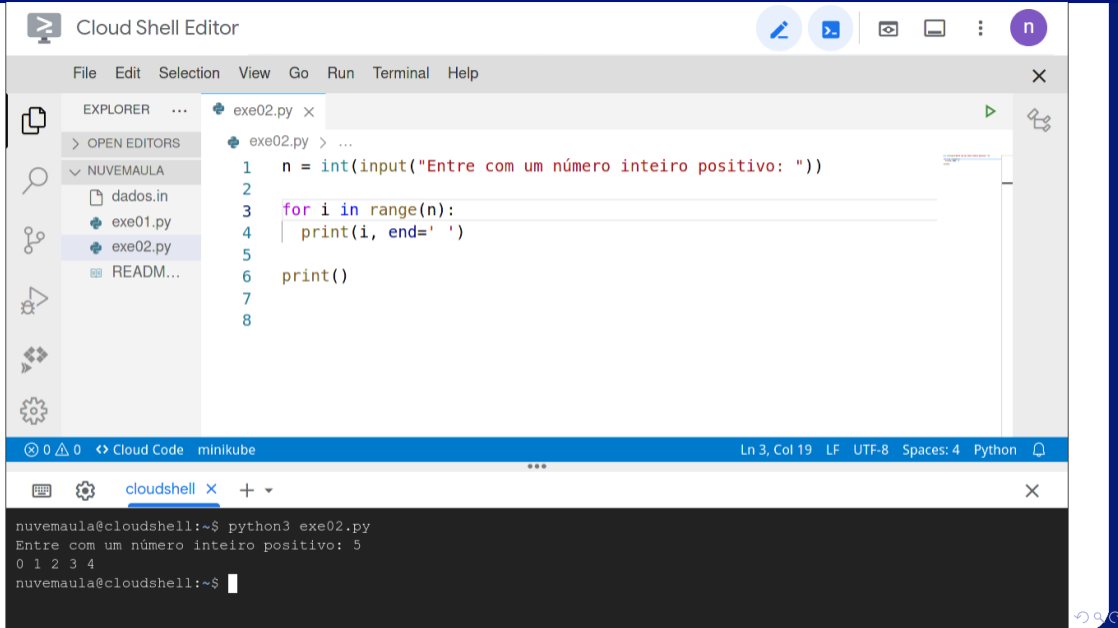


The image shows a Cloud Shell Editor window with a menu bar (File, Edit, Selection, View, Go, Run, Terminal, Help) and a toolbar. The Explorer sidebar on the left shows a file named 'exe01.py' under a folder named 'NUVEMAULA'. The main editor area displays the following Python code:

```
1 n = int(input("Entre com um número inteiro positivo: "))
2
3 i=7
4 while(i<n+7):
5     print(i-7+1, end=' ')
6     i+=1
7 print()
8
9
```

The status bar at the bottom of the editor shows 'Ln 9, Col 1 LF UTF-8 Spaces: 4 Python'. Below the editor is a terminal window with the following output:

```
nuvemaula@cloudshell:~$ python3 exe01.py
Entre com um número inteiro positivo: 7
1 2 3 4 5 6 7
nuvemaula@cloudshell:~$
```

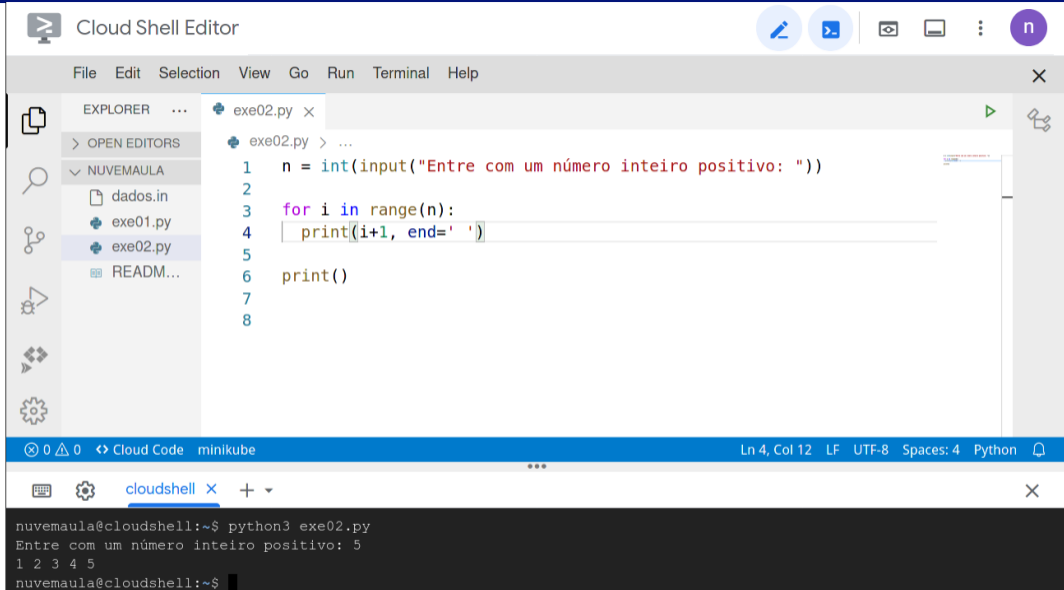


The image shows a Cloud Shell Editor window with a menu bar (File, Edit, Selection, View, Go, Run, Terminal, Help) and a toolbar. The Explorer sidebar shows a file named 'exe02.py' selected. The editor displays the following Python code:

```
1 n = int(input("Entre com um número inteiro positivo: "))
2
3 for i in range(n):
4     print(i, end=' ')
5
6 print()
7
8
```

The status bar at the bottom indicates 'Ln 3, Col 19 LF UTF-8 Spaces: 4 Python'. Below the editor is a terminal window with the following output:

```
nuvemaula@cloudshell:~$ python3 exe02.py
Entre com um número inteiro positivo: 5
0 1 2 3 4
nuvemaula@cloudshell:~$
```

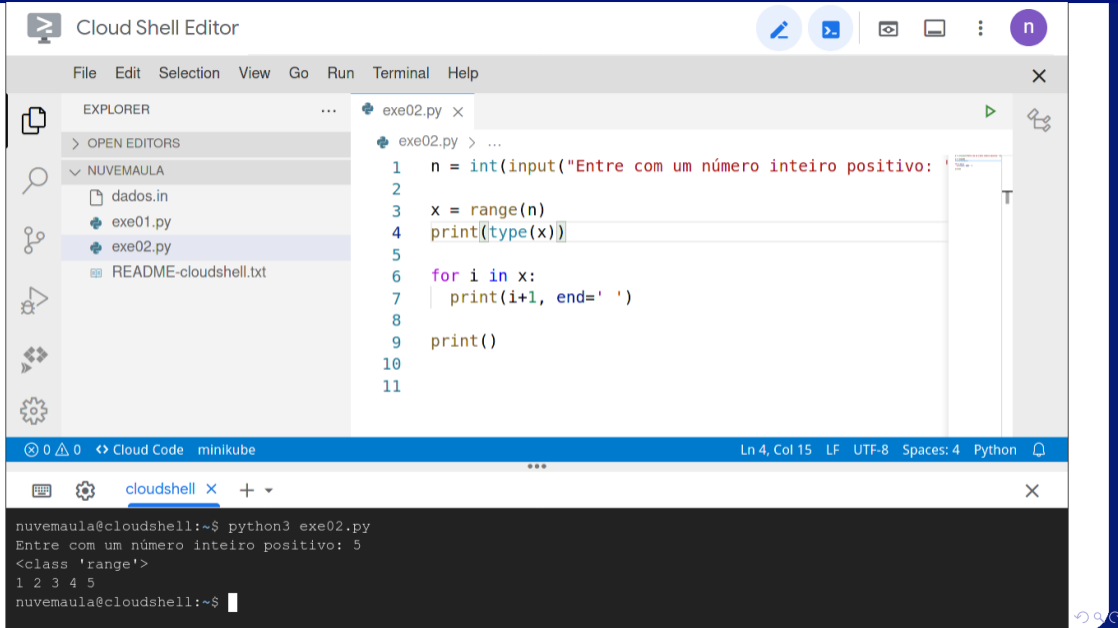


The image shows a Cloud Shell Editor window with a menu bar (File, Edit, Selection, View, Go, Run, Terminal, Help) and a toolbar. The Explorer sidebar on the left shows a file tree with 'NUVEMAULA' containing 'dados.in', 'exe01.py', 'exe02.py', and 'READM...'. The main editor area displays a Python script in 'exe02.py' with the following code:

```
1 n = int(input("Entre com um número inteiro positivo: "))
2
3 for i in range(n):
4     print(i+1, end=' ')
5
6 print()
7
8
```

The status bar at the bottom of the editor shows 'Ln 4, Col 12 LF UTF-8 Spaces: 4 Python'. Below the editor is a terminal window with the following output:

```
nuvemaula@cloudshell:~$ python3 exe02.py
Entre com um número inteiro positivo: 5
1 2 3 4 5
nuvemaula@cloudshell:~$
```



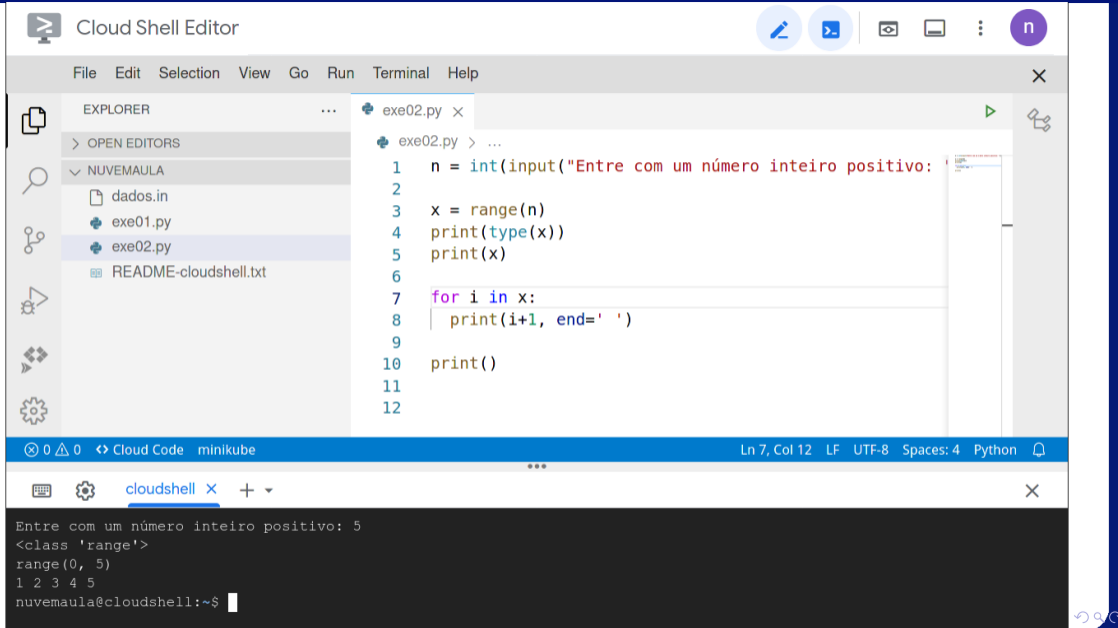
The image shows a Cloud Shell Editor interface. The top bar contains the title "Cloud Shell Editor" and several utility icons. Below the title bar is a menu with "File", "Edit", "Selection", "View", "Go", "Run", "Terminal", and "Help". The main workspace is divided into three panes: Explorer, Open Editors, and the code editor.

The Explorer pane on the left shows a file tree for "NUVEMAULA" containing "dados.in", "exe01.py", "exe02.py", and "README-cloudshell.txt". The Open Editors pane shows "exe02.py" is open. The code editor displays the following Python code:

```
1 n = int(input("Entre com um número inteiro positivo: "))
2
3 x = range(n)
4 print(type(x))
5
6 for i in x:
7     print(i+1, end=' ')
8
9 print()
10
11
```

The status bar at the bottom of the editor shows "Ln 4, Col 15 LF UTF-8 Spaces: 4 Python". Below the editor is a terminal window with the following output:

```
nuvemaula@cloudshell:~$ python3 exe02.py
Entre com um número inteiro positivo: 5
<class 'range'>
1 2 3 4 5
nuvemaula@cloudshell:~$
```



The image shows a Cloud Shell Editor interface. The top bar includes a terminal icon, the text "Cloud Shell Editor", and several utility icons (edit, run, refresh, close) and a user profile icon with the letter "n". Below this is a menu bar with "File", "Edit", "Selection", "View", "Go", "Run", "Terminal", and "Help".

The left sidebar contains an "EXPLORER" view showing a file tree for a workspace named "NUVEMAULA". The files listed are "dados.in", "exe01.py", "exe02.py" (which is selected), and "README-cloudshell.txt".

The main editor area displays a Python file named "exe02.py" with the following code:

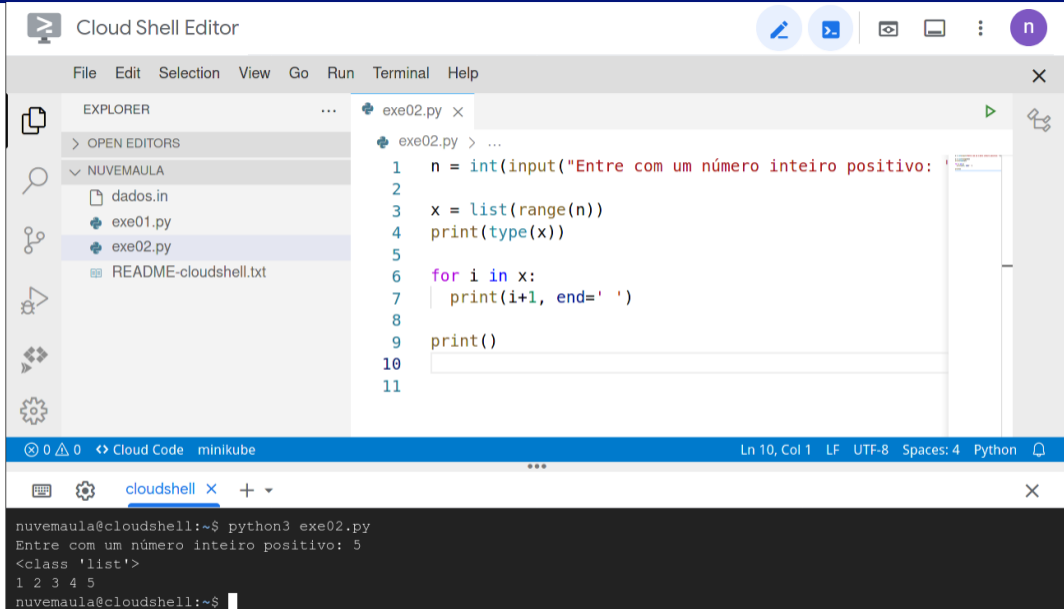
```
1 n = int(input("Entre com um número inteiro positivo: "))
2
3 x = range(n)
4 print(type(x))
5 print(x)
6
7 for i in x:
8     print(i+1, end=' ')
9
10 print()
11
12
```

The status bar at the bottom of the editor shows "Ln 7, Col 12 LF UTF-8 Spaces: 4 Python".

Below the editor is a terminal window with the following output:

```
Entre com um número inteiro positivo: 5
<class 'range'>
range(0, 5)
1 2 3 4 5
nuvemaula@cloudshell:~$
```





The screenshot shows a Cloud Shell Editor interface. The top bar includes a terminal icon, the title "Cloud Shell Editor", and several utility icons (edit, run, refresh, close) and a user profile icon with the letter "n". Below the top bar is a menu bar with "File", "Edit", "Selection", "View", "Go", "Run", "Terminal", and "Help".

The left sidebar contains an "EXPLORER" view showing a file tree for a workspace named "NUVEMAULA". The files listed are "dados.in", "exe01.py", "exe02.py" (which is selected), and "README-cloudshell.txt".

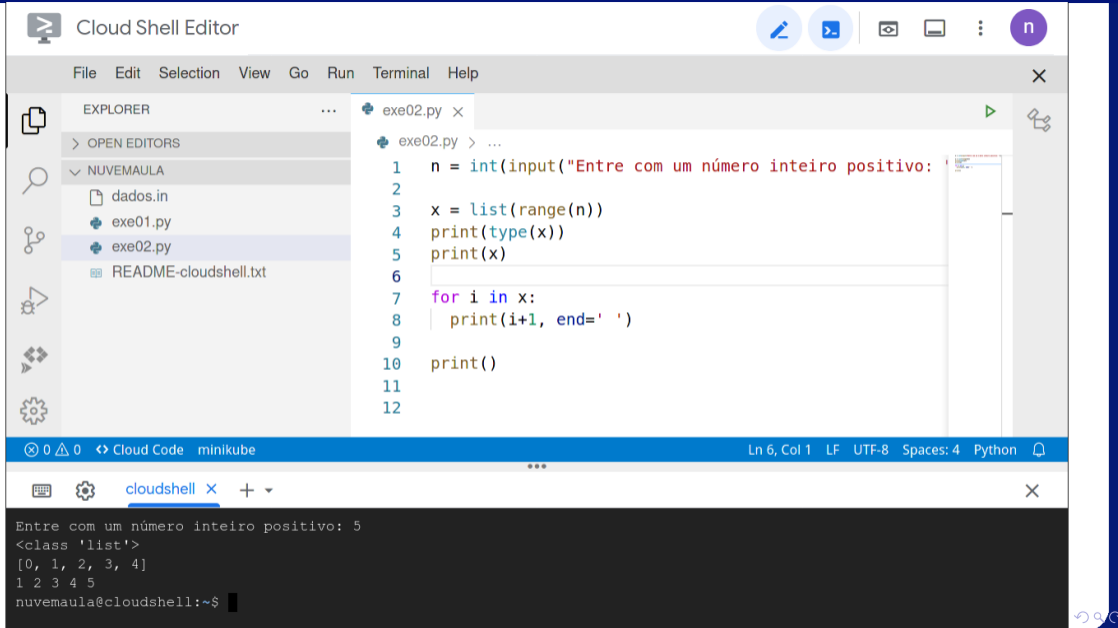
The main editor area displays a Python script named "exe02.py" with the following code:

```
1 n = int(input("Entre com um número inteiro positivo: "))
2
3 x = list(range(n))
4 print(type(x))
5
6 for i in x:
7     print(i+1, end=' ')
8
9 print()
10
11
```

The status bar at the bottom of the editor shows "Ln 10, Col 1 LF UTF-8 Spaces: 4 Python".

Below the editor is a terminal window with the following output:

```
nuvemaula@cloudshell:~$ python3 exe02.py
Entre com um número inteiro positivo: 5
<class 'list'>
1 2 3 4 5
nuvemaula@cloudshell:~$
```



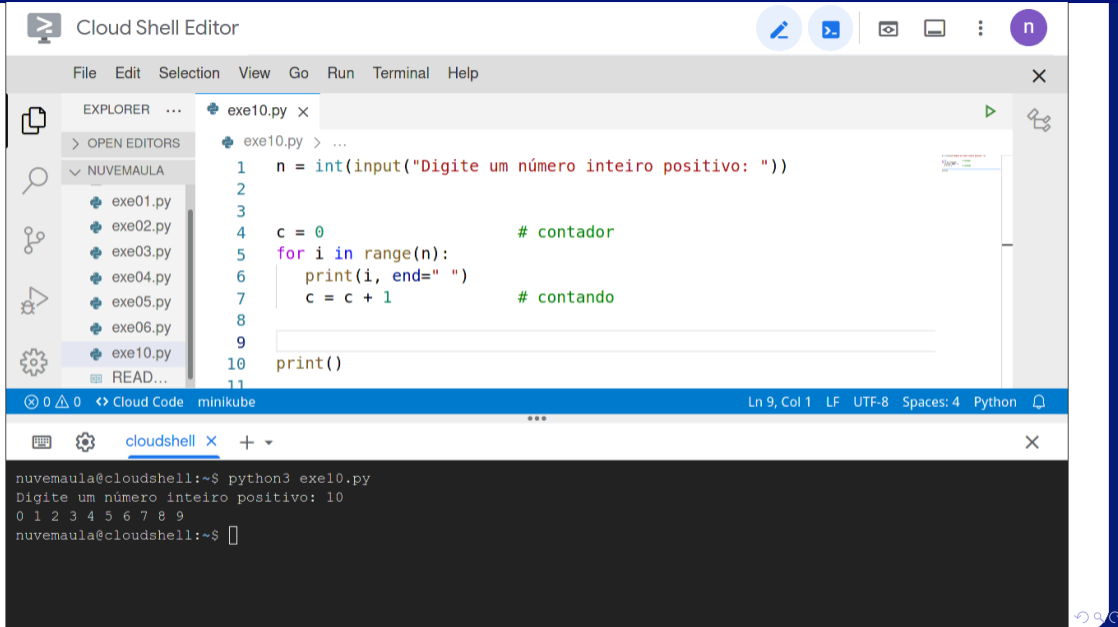
The screenshot shows the Cloud Shell Editor interface. The top menu bar includes File, Edit, Selection, View, Go, Run, Terminal, and Help. The Explorer sidebar on the left shows a project named 'NUVEMAULA' with files 'dados.in', 'exe01.py', 'exe02.py', and 'README-cloudshell.txt'. The main editor area displays a Python script named 'exe02.py' with the following code:

```
1 n = int(input("Entre com um número inteiro positivo: "))
2
3 x = list(range(n))
4 print(type(x))
5 print(x)
6
7 for i in x:
8     print(i+1, end=' ')
9
10 print()
11
12
```

The status bar at the bottom of the editor shows 'Ln 6, Col 1 LF UTF-8 Spaces: 4 Python'. Below the editor is a terminal window with the following output:

```
Entre com um número inteiro positivo: 5
<class 'list'>
[0, 1, 2, 3, 4]
1 2 3 4 5
nuvemaula@cloudshell:~$
```

## 02 - Contadores e Acumuladores



The image shows a Cloud Shell Editor interface. The top bar includes a terminal icon, the text "Cloud Shell Editor", and several utility icons (edit, run, refresh, close) and a user profile icon with the letter "n". Below the top bar is a menu bar with "File", "Edit", "Selection", "View", "Go", "Run", "Terminal", and "Help".

The main workspace is divided into three panes:

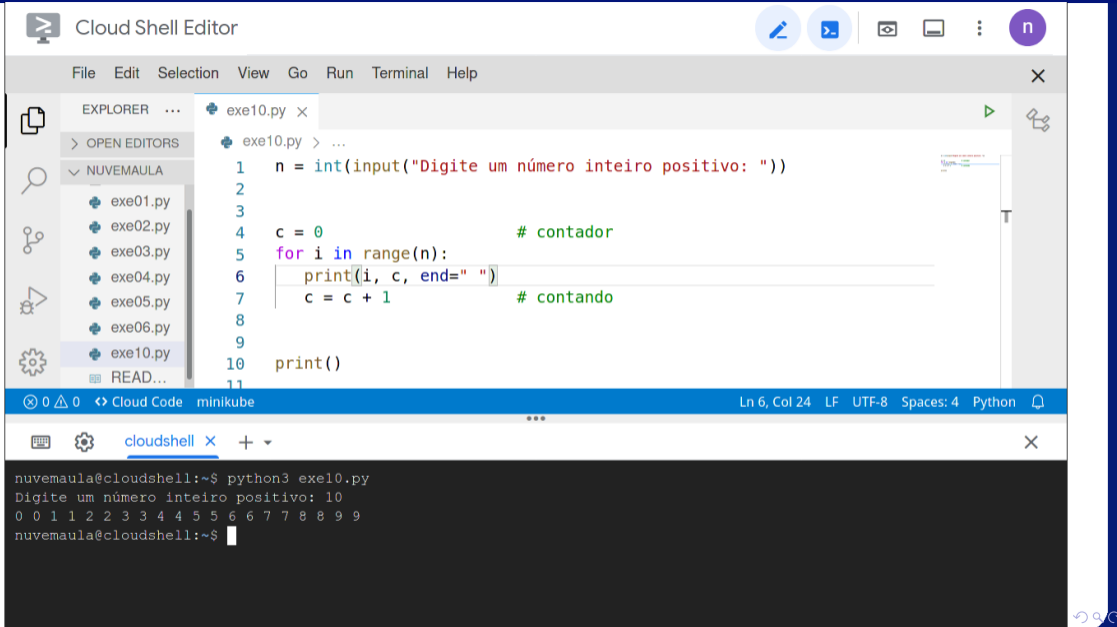
- EXPLORER**: Shows a file tree with "NUVEMAULA" expanded, listing files "exe01.py" through "exe10.py" and "READ...".
- OPEN EDITORS**: Shows the current file "exe10.py" with a scroll bar.
- EDITOR**: Displays the Python code for "exe10.py":

```
1 n = int(input("Digite um número inteiro positivo: "))
2
3
4 c = 0 # contador
5 for i in range(n):
6     print(i, end=" ")
7     c = c + 1 # contando
8
9
10 print()
11
```

At the bottom, a terminal window shows the execution of the script:

```
nuvemaula@cloudshell:~$ python3 exe10.py
Digite um número inteiro positivo: 10
0 1 2 3 4 5 6 7 8 9
nuvemaula@cloudshell:~$
```

The terminal status bar at the bottom of the editor shows "0 0", "Cloud Code", "minikube", "Ln 9, Col 1", "LF", "UTF-8", "Spaces: 4", "Python", and a notification bell icon.



Cloud Shell Editor

File Edit Selection View Go Run Terminal Help

EXPLORER ... exe10.py x

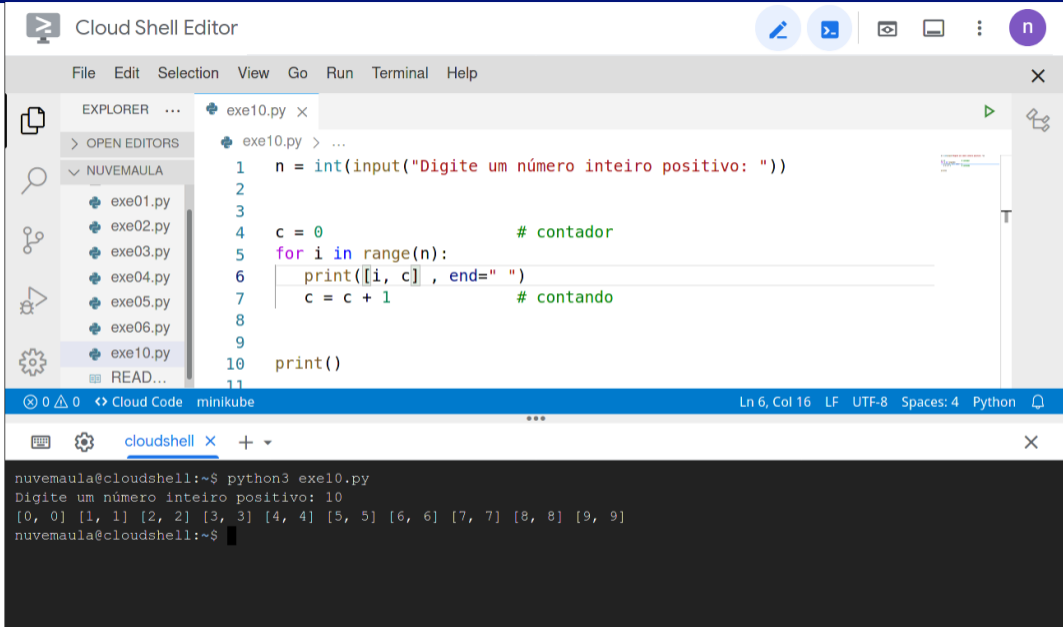
OPEN EDITORS exe10.py > ...

```
1 n = int(input("Digite um número inteiro positivo: "))
2
3
4 c = 0 # contador
5 for i in range(n):
6     print(i, c, end=" ")
7     c = c + 1 # contando
8
9
10 print()
11
```

Ln 6, Col 24 LF UTF-8 Spaces: 4 Python

cloudshell x +

```
nuvemaula@cloudshell:~$ python3 exe10.py
Digite um número inteiro positivo: 10
0 0 1 1 2 2 3 3 4 4 5 5 6 6 7 7 8 8 9 9
nuvemaula@cloudshell:~$
```

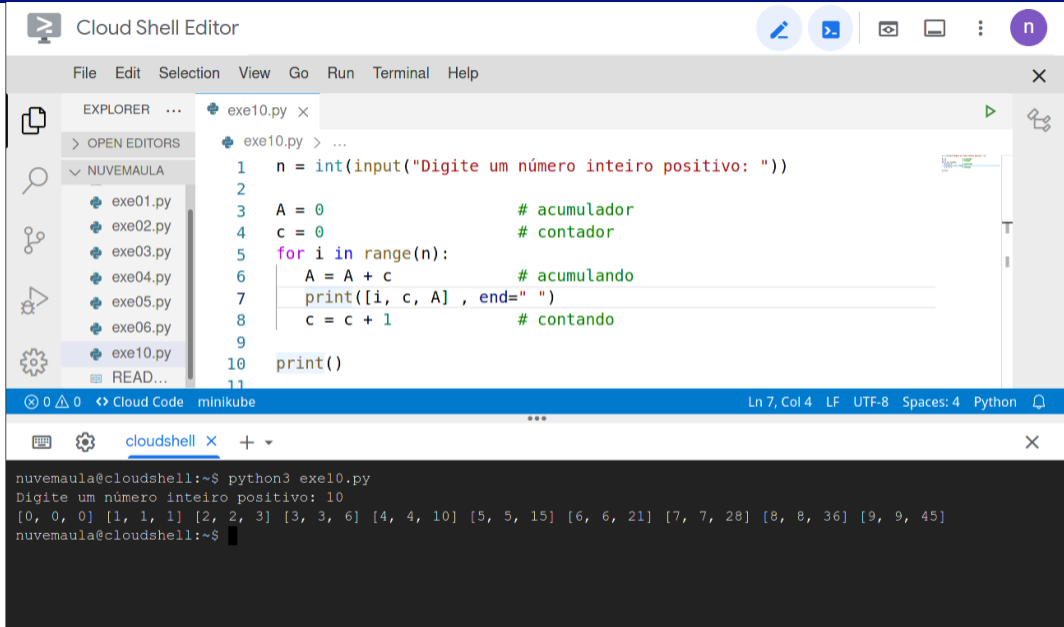


The image shows a Cloud Shell Editor window with a menu bar (File, Edit, Selection, View, Go, Run, Terminal, Help) and a toolbar. The Explorer sidebar on the left shows a file tree for 'NUVEMAULA' containing files 'exe01.py' through 'exe10.py' and 'READ...'. The main editor displays the code for 'exe10.py':

```
1 n = int(input("Digite um número inteiro positivo: "))
2
3
4 c = 0 # contador
5 for i in range(n):
6     print([i, c], end=" ")
7     c = c + 1 # contando
8
9
10 print()
11
```

The status bar at the bottom of the editor shows 'Ln 6, Col 16 LF UTF-8 Spaces: 4 Python'. Below the editor is a terminal window with the following output:

```
nuvemaula@cloudshell:~$ python3 exe10.py
Digite um número inteiro positivo: 10
[0, 0] [1, 1] [2, 2] [3, 3] [4, 4] [5, 5] [6, 6] [7, 7] [8, 8] [9, 9]
nuvemaula@cloudshell:~$
```



The screenshot shows the Cloud Shell Editor interface. The main editor window displays a Python script named `exe10.py` with the following code:

```
1 n = int(input("Digite um número inteiro positivo: "))
2
3 A = 0 # acumulador
4 c = 0 # contador
5 for i in range(n):
6     A = A + c # acumulando
7     print([i, c, A] , end=" ")
8     c = c + 1 # contando
9
10 print()
11
```

The status bar at the bottom of the editor indicates the current position is `Ln 7, Col 4` in `LF` `UTF-8` encoding with `Spaces: 4` and the file type is `Python`.

Below the editor, a terminal window shows the execution of the script:

```
nuvemaula@cloudshell:~$ python3 exe10.py
Digite um número inteiro positivo: 10
[0, 0, 0] [1, 1, 1] [2, 2, 3] [3, 3, 6] [4, 4, 10] [5, 5, 15] [6, 6, 21] [7, 7, 28] [8, 8, 36] [9, 9, 45]
nuvemaula@cloudshell:~$
```

The screenshot shows a Cloud Shell Editor interface. At the top, there's a title bar with a terminal icon and the text "Cloud Shell Editor". Below it is a menu bar with "File", "Edit", "Selection", "View", "Go", "Run", "Terminal", and "Help". The main area is divided into three panes: Explorer, Open Editors, and the code editor.

**Explorer:** Shows a folder named "NUVEMAULA" containing several Python files: exe01.py, exe02.py, exe03.py, exe04.py, exe05.py, exe06.py, exe10.py, and READ... The file "exe10.py" is selected.

**Open Editors:** Shows the file "exe10.py" with a cursor at the end of the first line.

**Code Editor:** Contains the following Python code:

```
1 n = int(input("Digite um numero inteiro positivo: "))
2
3 A = 0 # acumulador
4 c = 0 # contador
5 for i in range(n):
6     A = A + c # acumulando
7     #print([i, c, A] , end=" ")
8     c = c + 1 # contando
9
10 print(A, n*(n+1)/2)
11
```

The status bar at the bottom of the editor shows "Ln 6, Col 38 LF UTF-8 Spaces: 4 Python".

**Terminal:** Shows the execution of the script:

```
nuvemaula@cloudshell:~$ python3 exe10.py
Digite um número inteiro positivo: 10
45 55.0
nuvemaula@cloudshell:~$
```

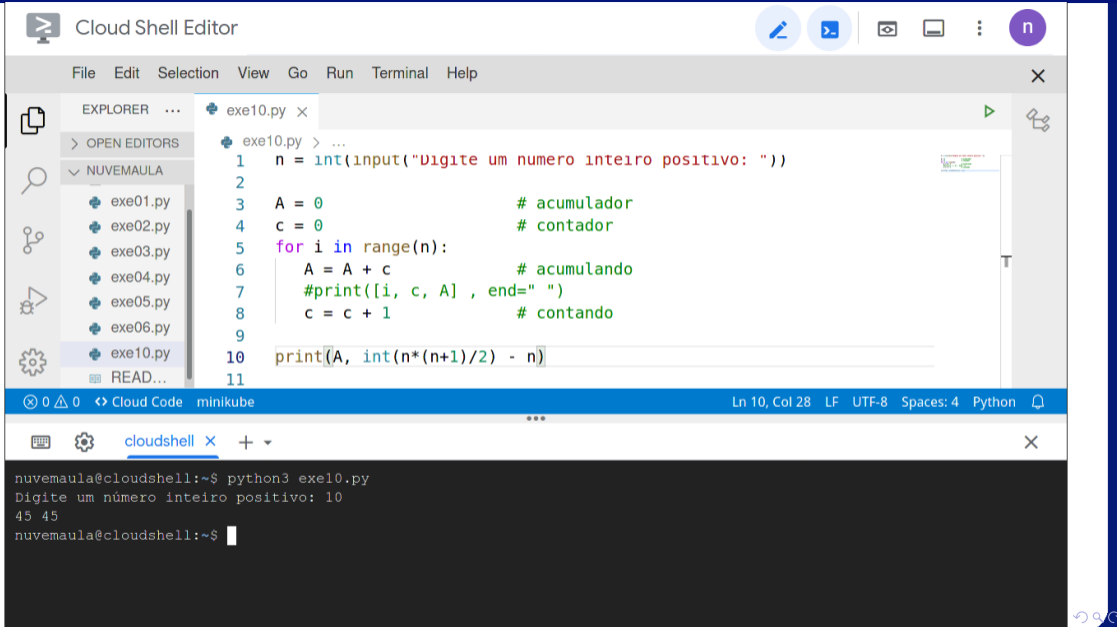


The screenshot shows a Cloud Shell Editor interface. At the top, there's a title bar with a terminal icon and the text "Cloud Shell Editor". Below it is a menu bar with "File", "Edit", "Selection", "View", "Go", "Run", "Terminal", and "Help". The main area is split into two panes. The left pane is the "EXPLORER" view, showing a file tree with "NUVEMAULA" as a folder containing files "exe01.py" through "exe06.py" and "exe10.py". The right pane is the code editor, showing the content of "exe10.py":

```
1 n = int(input("Digite um numero inteiro positivo: "))
2
3 A = 0 # acumulador
4 c = 0 # contador
5 for i in range(n):
6     A = A + c # acumulando
7     #print([i, c, A] , end=" ")
8     c = c + 1 # contando
9
10 print(A, n*(n+1)/2 - n)
11
```

Below the code editor is a status bar showing "Ln 10, Col 23 LF UTF-8 Spaces: 4 Python". At the bottom, there's a terminal window with the following text:

```
nuvemaula@cloudshell:~$ python3 exe10.py
Digite um número inteiro positivo: 10
45 45.0
nuvemaula@cloudshell:~$
```



The image shows a Cloud Shell Editor interface. The top bar includes a terminal icon, the text "Cloud Shell Editor", and several utility icons (edit, run, refresh, close) and a user profile icon with the letter "n". Below this is a menu bar with "File", "Edit", "Selection", "View", "Go", "Run", "Terminal", and "Help".

The main workspace is divided into three panes:

- EXPLORER**: Shows a file tree with a folder named "NUVEMAULA" containing files "exe01.py" through "exe06.py", "exe10.py", and "READ...".
- OPEN EDITORS**: Shows the current file "exe10.py" with a scroll bar on the right.
- Code Editor**: Contains the following Python code:

```
1 n = int(input("Digite um numero inteiro positivo: "))
2
3 A = 0                # acumulador
4 c = 0                # contador
5 for i in range(n):
6     A = A + c        # acumulando
7     #print([i, c, A] , end=" ")
8     c = c + 1        # contando
9
10 print(A, int(n*(n+1)/2) - n)
11
```

At the bottom, a status bar shows "0 0 Cloud Code minikube" on the left and "Ln 10, Col 28 LF UTF-8 Spaces: 4 Python" on the right.

Below the editor is a terminal window titled "cloudshell" with the following output:

```
nuvemaula@cloudshell:~$ python3 exe10.py
Digite um número inteiro positivo: 10
45 45
nuvemaula@cloudshell:~$
```

The screenshot shows a Cloud Shell Editor interface. At the top, there's a title bar with a terminal icon and the text "Cloud Shell Editor". Below it is a menu bar with "File", "Edit", "Selection", "View", "Go", "Run", "Terminal", and "Help". The main area is divided into an Explorer sidebar on the left and a code editor in the center. The Explorer sidebar shows a folder named "NUVEMAULA" containing several Python files: exe01.py, exe02.py, exe03.py, exe04.py, exe05.py, exe06.py, exe10.py, and READ... The code editor displays the content of "exe10.py", which is a Python script for calculating the sum of the first n natural numbers. The script uses a loop to calculate the sum and prints the result. The code is as follows:

```
1 n = int(input("Digite um número inteiro positivo: "))
2
3 A = 0 # acumulador
4 c = 0 # contador
5 for i in range(n):
6     A = A * c # acumulando
7     #print([i, c, A] , end=" ")
8     c = c + 1 # contando
9
10 print(A)
```

At the bottom of the editor, there's a status bar showing "Ln 10, Col 8 LF UTF-8 Spaces: 4 Python". Below the editor is a terminal window with the following output:

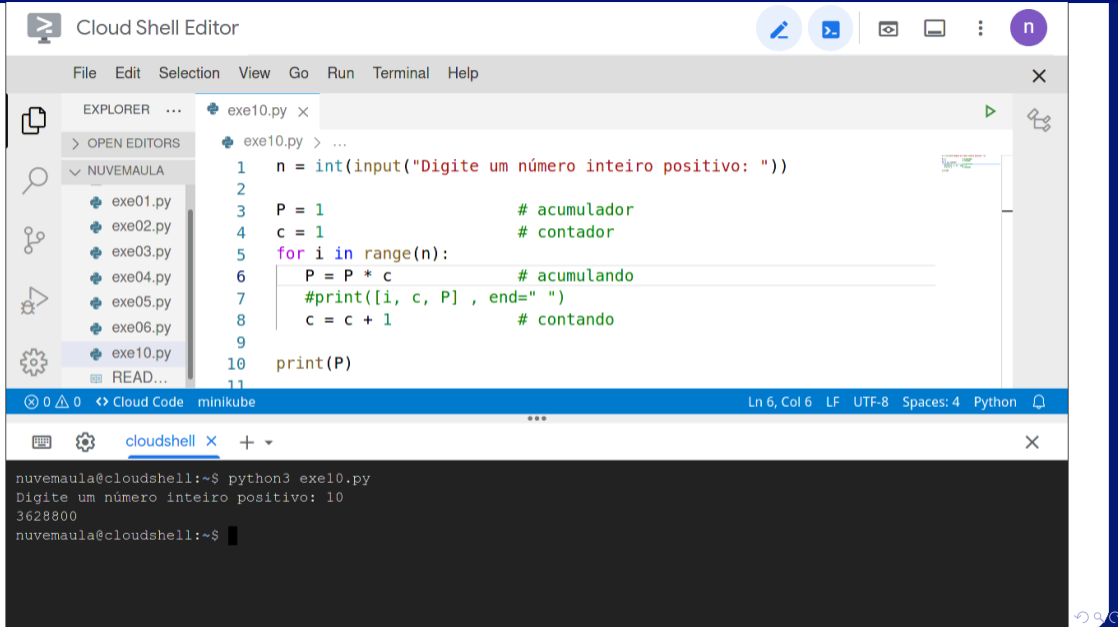
```
nuvemaula@cloudshell:~$ python3 exe10.py
Digite um número inteiro positivo: 10
0
nuvemaula@cloudshell:~$
```

The image shows a Cloud Shell Editor window with a menu bar (File, Edit, Selection, View, Go, Run, Terminal, Help) and a toolbar. The Explorer sidebar on the left shows a file tree with 'NUVEMAULA' containing files 'exe01.py' through 'exe10.py' and 'READ...'. The main editor displays the code for 'exe10.py':

```
1 n = int(input("Digite um número inteiro positivo: "))
2
3 P = 1 # acumulador
4 c = 0 # contador
5 for i in range(n):
6     P = P * c # acumulando
7     #print([i, c, P] , end=" ")
8     c = c + 1 # contando
9
10 print(P)
11
```

The status bar at the bottom of the editor shows 'Ln 3, Col 38 LF UTF-8 Spaces: 4 Python'. Below the editor is a terminal window with the following output:

```
nuvemaula@cloudshell:~$ python3 exe10.py
Digite um número inteiro positivo: 10
0
nuvemaula@cloudshell:~$
```



The screenshot shows the Cloud Shell Editor interface. The main editor window displays a Python script named `exe10.py` with the following code:

```
1 n = int(input("Digite um número inteiro positivo: "))
2
3 P = 1 # acumulador
4 c = 1 # contador
5 for i in range(n):
6     P = P * c # acumulando
7     #print([i, c, P] , end=" ")
8     c = c + 1 # contando
9
10 print(P)
11
```

The status bar at the bottom of the editor indicates the current position is `Ln 6, Col 6`, the file encoding is `UTF-8`, and the indentation is `Spaces: 4`. The language is set to `Python`.

Below the editor, a terminal window shows the execution of the script:

```
nuvemaula@cloudshell:~$ python3 exe10.py
Digite um número inteiro positivo: 10
3628800
nuvemaula@cloudshell:~$
```

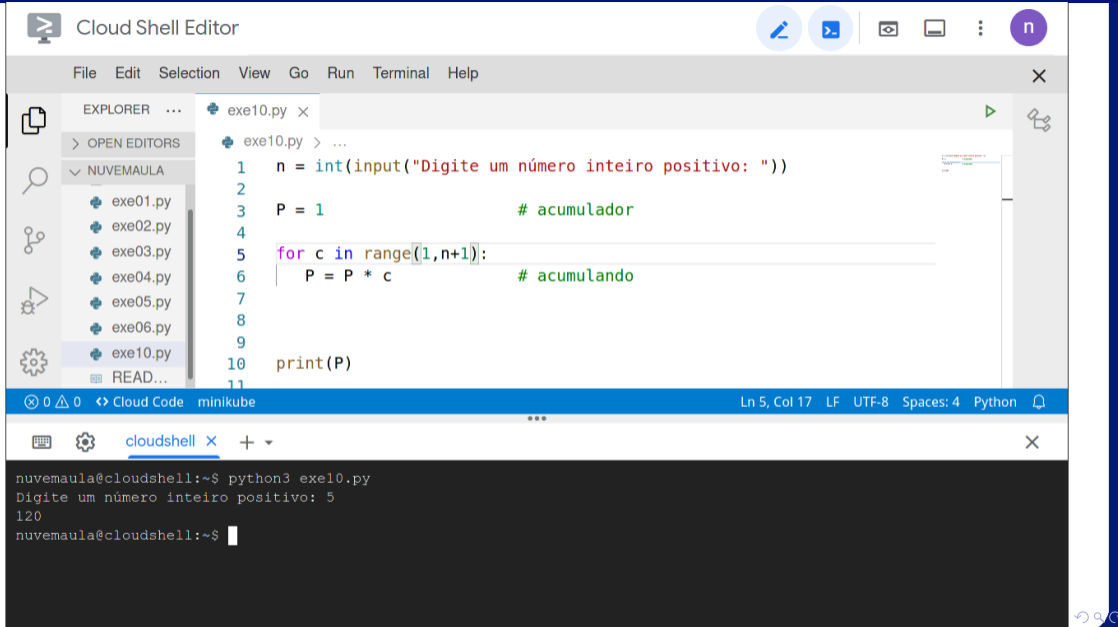
The screenshot shows a Cloud Shell Editor interface. The main editor window displays a Python script named `exe10.py` with the following code:

```
1 n = int(input("Digite um número inteiro positivo: "))
2
3 P = 1 # acumulador
4 c = 1 # contador
5 for i in range(n):
6     P = P * c # acumulando
7     #print([i, c, P] , end=" ")
8     c = c + 1 # contando
9
10 print(P)
11
```

The status bar at the bottom of the editor indicates the current position is `Ln 6, Col 6`, the file encoding is `LF UTF-8`, and the number of spaces is `4`. The language is set to `Python`.

Below the editor, a terminal window shows the execution of the script:

```
nuvemaula@cloudshell:~$ python3 exe10.py
Digite um número inteiro positivo: 5
120
nuvemaula@cloudshell:~$
```

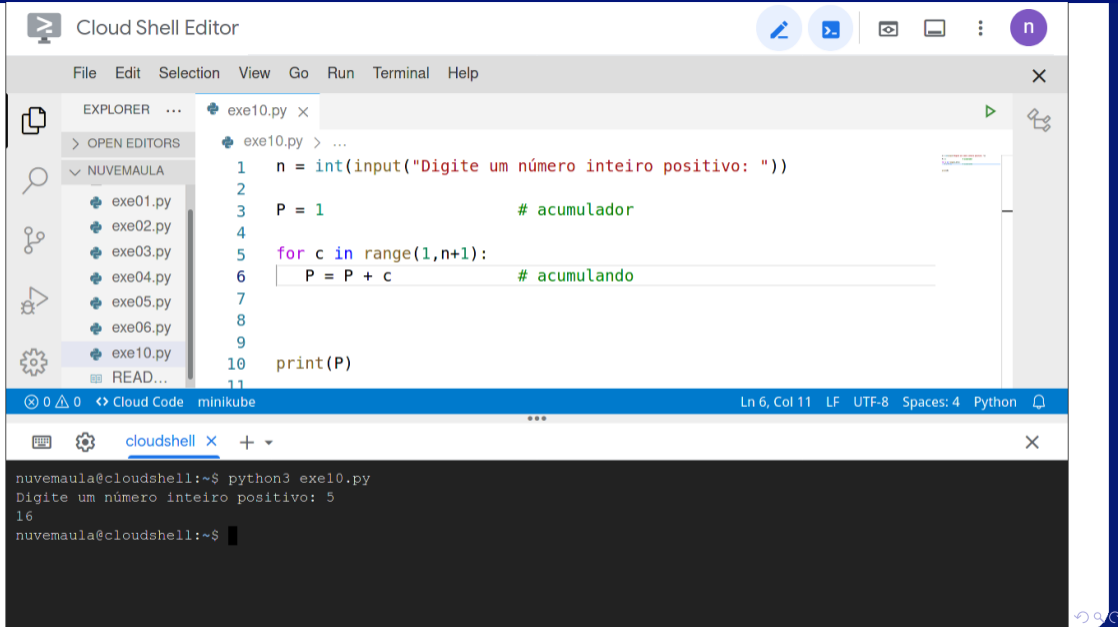


The image shows a Cloud Shell Editor window with a menu bar (File, Edit, Selection, View, Go, Run, Terminal, Help) and a toolbar. The Explorer sidebar on the left shows a file named 'exe10.py' selected. The main editor area displays the following Python code:

```
1 n = int(input("Digite um número inteiro positivo: "))
2
3 P = 1 # acumulador
4
5 for c in range(1, n+1):
6     P = P * c # acumulando
7
8
9
10 print(P)
11
```

The status bar at the bottom of the editor indicates 'Ln 5, Col 17 LF UTF-8 Spaces: 4 Python'. Below the editor is a terminal window with the following output:

```
nuvemaula@cloudshell:~$ python3 exe10.py
Digite um número inteiro positivo: 5
120
nuvemaula@cloudshell:~$
```



Cloud Shell Editor

File Edit Selection View Go Run Terminal Help

EXPLORER ... exe10.py x

OPEN EDITORS exe10.py > ...

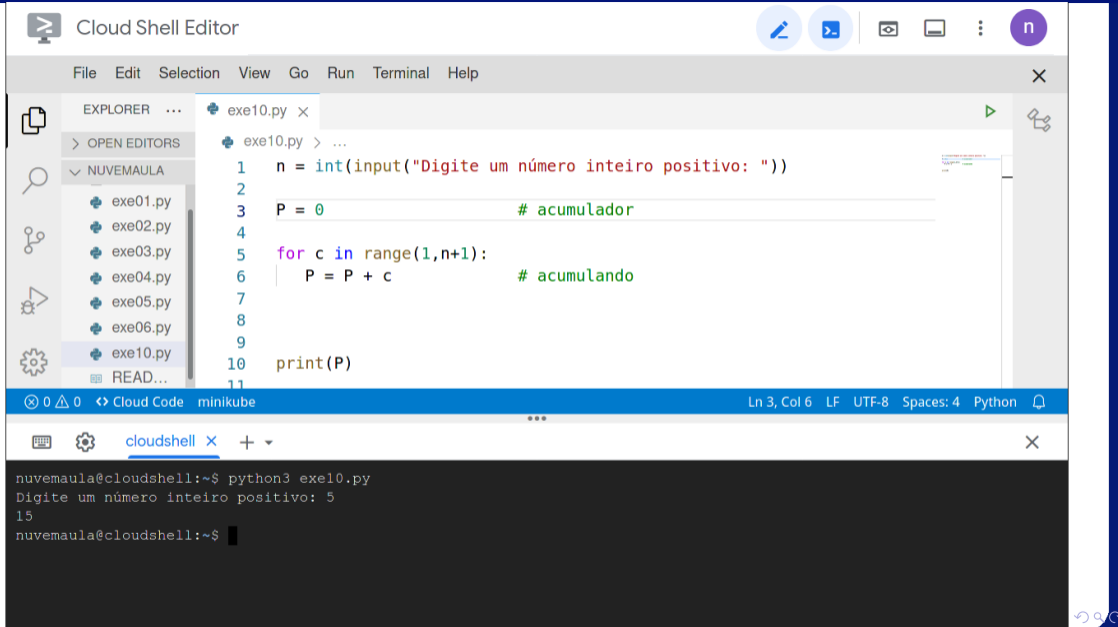
```
1 n = int(input("Digite um número inteiro positivo: "))
2
3 P = 1 # acumulador
4
5 for c in range(1,n+1):
6     P = P + c # acumulando
7
8
9
10 print(P)
11
```

Ln 6, Col 11 LF UTF-8 Spaces: 4 Python

cloudshell x +

```
nuvemaula@cloudshell:~$ python3 exe10.py
Digite um número inteiro positivo: 5
16
nuvemaula@cloudshell:~$
```





The screenshot shows a Cloud Shell Editor interface. The top bar includes a terminal icon, the text "Cloud Shell Editor", and several utility icons (edit, run, refresh, close) and a user profile icon with the letter "n". Below the top bar is a menu bar with "File", "Edit", "Selection", "View", "Go", "Run", "Terminal", and "Help".

The main workspace is divided into three panes:

- EXPLORER**: Shows a file tree for a project named "NUVEMAULA". It contains several Python files: exe01.py, exe02.py, exe03.py, exe04.py, exe05.py, exe06.py, exe10.py (selected), and READ....
- OPEN EDITORS**: Shows the current file being edited, "exe10.py".
- Code Editor**: Displays the following Python code:

```
1 n = int(input("Digite um número inteiro positivo: "))
2
3 P = 0 # acumulador
4
5 for c in range(1,n+1):
6     P = P + c # acumulando
7
8
9
10 print(P)
11
```

At the bottom of the editor, a status bar shows "Ln 3, Col 6 LF UTF-8 Spaces: 4 Python".

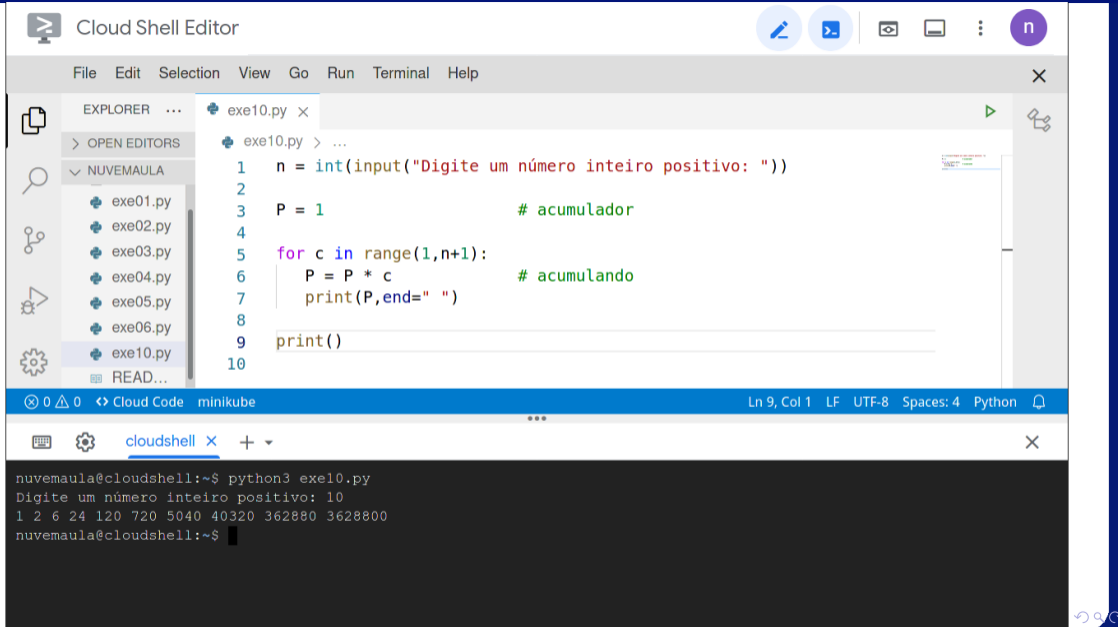
Below the editor is a terminal window with the following text:

```
cloudshell x + v
nuvemaula@cloudshell:~$ python3 exe10.py
Digite um número inteiro positivo: 5
15
nuvemaula@cloudshell:~$
```

The screenshot shows a Cloud Shell Editor interface. The main editor area displays a Python script named `exe10.py` with the following code:

```
1 n = int(input("Digite um número inteiro positivo: "))
2
3 P = 1 # acumulador
4
5 for c in range(1,n+1):
6     P = P * c # acumulando
7     print(P,end=" ")
8
9 print()
10
```

The interface includes a menu bar (File, Edit, Selection, View, Go, Run, Terminal, Help), an Explorer sidebar on the left showing a file tree with `NUVEMAULA` containing files `exe01.py` through `exe10.py` and `READ...`, and a terminal window at the bottom with the prompt `nuvemaula@cloudshell:~$`. The status bar at the bottom indicates the current position (Ln 9, Col 1), encoding (UTF-8), and language (Python).



Cloud Shell Editor

File Edit Selection View Go Run Terminal Help

EXPLORER ... exe10.py x

OPEN EDITORS

NUVEMAULA

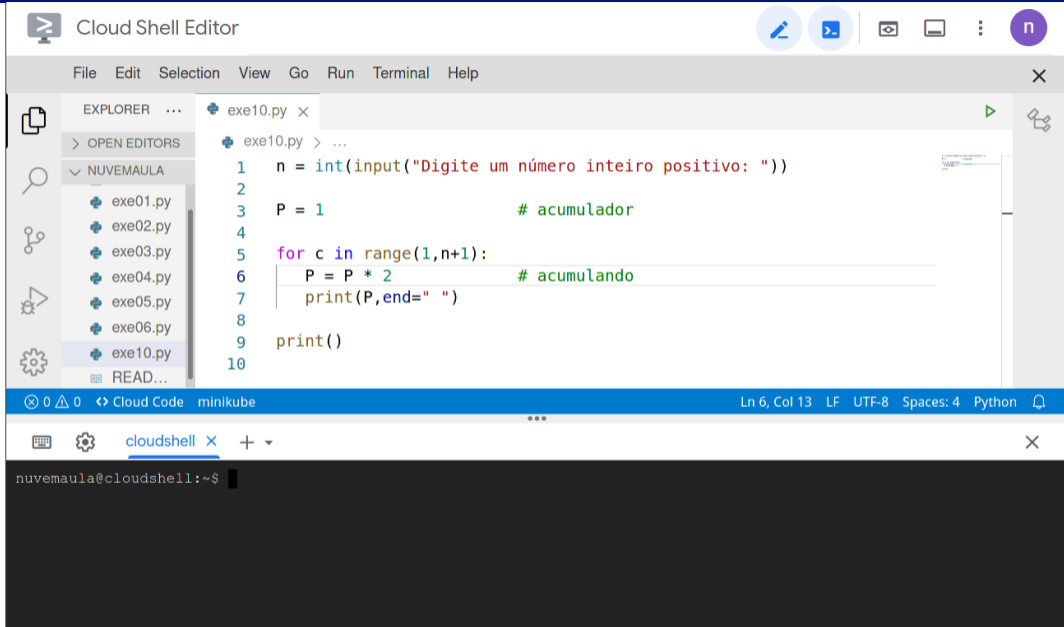
- exe01.py
- exe02.py
- exe03.py
- exe04.py
- exe05.py
- exe06.py
- exe10.py
- READ...

```
1 n = int(input("Digite um número inteiro positivo: "))
2
3 P = 1 # acumulador
4
5 for c in range(1,n+1):
6     P = P * c # acumulando
7     print(P,end=" ")
8
9 print()
10
```

Ln 9, Col 1 LF UTF-8 Spaces: 4 Python

cloudshell x +

```
nuvemaula@cloudshell:~$ python3 exe10.py
Digite um número inteiro positivo: 10
1 2 6 24 120 720 5040 40320 362880 3628800
nuvemaula@cloudshell:~$
```



Cloud Shell Editor

File Edit Selection View Go Run Terminal Help

EXPLORER ... exe10.py x

OPEN EDITORS

NUVEMAULA

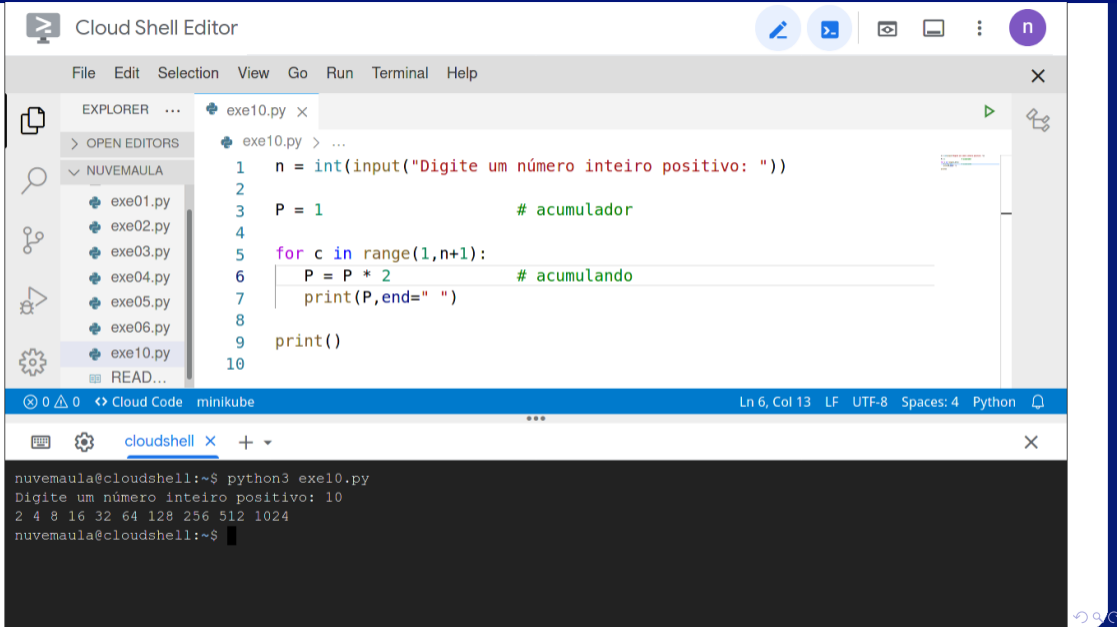
- exe01.py
- exe02.py
- exe03.py
- exe04.py
- exe05.py
- exe06.py
- exe10.py
- READ...

```
1 n = int(input("Digite um número inteiro positivo: "))
2
3 P = 1 # acumulador
4
5 for c in range(1,n+1):
6     P = P * 2 # acumulando
7     print(P,end=" ")
8
9 print()
10
```

Ln 6, Col 13 LF UTF-8 Spaces: 4 Python

cloudshell x +

nuvemaula@cloudshell:~\$



The image shows a Cloud Shell Editor interface. The top bar includes a terminal icon, the title "Cloud Shell Editor", and several utility icons (edit, run, refresh, close) and a user profile icon with the letter 'n'. Below the title bar is a menu with "File", "Edit", "Selection", "View", "Go", "Run", "Terminal", and "Help".

The main workspace is divided into two panes. The left pane is the "EXPLORER" view, showing a file tree with "OPEN EDITORS" and "NUVEMAULA" folders. The "NUVEMAULA" folder contains files "exe01.py" through "exe06.py" and "exe10.py", which is currently selected. The right pane is the code editor, showing the content of "exe10.py":1 n = int(input("Digite um número inteiro positivo: "))
2
3 P = 1 # acumulador
4
5 for c in range(1,n+1):
6 P = P \* 2 # acumulando
7 print(P,end=" ")
8
9 print()
10

Below the code editor is a status bar showing "0 0", "Cloud Code", "minikube", "Ln 6, Col 13", "LF", "UTF-8", "Spaces: 4", "Python", and a notification bell icon.

The bottom pane is a terminal window titled "cloudshell". It shows the execution of the script:nuvemaula@cloudshell:~\$ python3 exe10.py
Digite um número inteiro positivo: 10
2 4 8 16 32 64 128 256 512 1024
nuvemaula@cloudshell:~\$

# 03 - Máximo e Mínimo

**Encontrando o máximo de um conjunto de números.**

The image shows a Cloud Shell Editor interface. The main editor area displays a Python script named `exe03.py` with the following code:

```
1 L = [100, 23, -14, -2, -8, 10, 0]
2
3 maximo = L[0]
4 i = 0
5 while i < len(L):
6     if L[i] > maximo:
7         maximo = L[i]
8     i+=1
9
10 print(maximo)
```

The status bar at the bottom of the editor indicates the current position is `Ln 4, Col 6`, the file encoding is `LF UTF-8`, the number of spaces is `4`, and the language is `Python`.

Below the editor, a terminal window shows the execution of the script:

```
nuvemaula@cloudshell:~$ python3 exe03.py
100
nuvemaula@cloudshell:~$
```



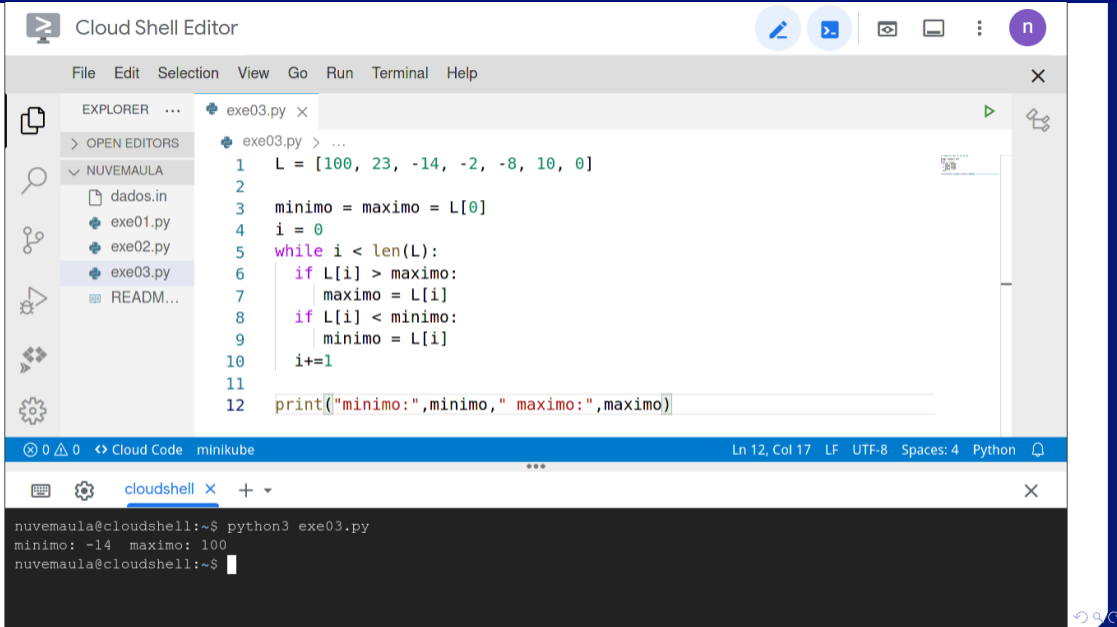
The screenshot shows a Cloud Shell Editor interface. The main editor area displays a Python script named `exe03.py` with the following code:

```
1 L = [100, 23, -14, -2, -8, 10, 0]
2
3 minimo = L[0]
4 i = 0
5 while i < len(L):
6     if L[i] < minimo:
7         minimo = L[i]
8     i+=1
9
10 print(minimo)
```

The status bar at the bottom of the editor indicates the current position is `Ln 10, Col 13`, the file encoding is `LF UTF-8`, there are `Spaces: 4`, and the language is `Python`.

Below the editor, a terminal window shows the execution of the script:

```
nuvemaula@cloudshell:~$ python3 exe03.py
-14
nuvemaula@cloudshell:~$
```



The image shows a Cloud Shell Editor interface. The main window displays a Python script named `exe03.py` with the following code:

```
1 L = [100, 23, -14, -2, -8, 10, 0]
2
3 minimo = maximo = L[0]
4 i = 0
5 while i < len(L):
6     if L[i] > maximo:
7         maximo = L[i]
8     if L[i] < minimo:
9         minimo = L[i]
10    i+=1
11
12 print("minimo:",minimo," maximo:",maximo)
```

The terminal window at the bottom shows the execution of the script:

```
nuvemaula@cloudshell:~$ python3 exe03.py
minimo: -14 maximo: 100
nuvemaula@cloudshell:~$
```

The interface includes a menu bar (File, Edit, Selection, View, Go, Run, Terminal, Help), an Explorer sidebar with a file tree, and a status bar at the bottom indicating the current line and column (Ln 12, Col 17) and the file encoding (UTF-8).

The image shows a Cloud Shell Editor interface. The main editor area displays a Python script named `exe03.py` with the following code:

```
1 L = [100, 23, -14, -2, -8, 10, 0]
2
3 minimo = maximo = L[0]
4
5 for x in L:
6     if x > maximo:
7         maximo = x
8     if x < minimo:
9         minimo = x
10
11
12 print("minimo:",minimo," maximo:",maximo)
```

The status bar at the bottom of the editor indicates the current position: `Ln 9, Col 16 LF UTF-8 Spaces: 4 Python`.

Below the editor, a terminal window shows the execution of the script:

```
nuvemaula@cloudshell:~$ python3 exe03.py
minimo: -14 maximo: 100
nuvemaula@cloudshell:~$
```

The screenshot shows a Cloud Shell Editor interface. At the top, the title bar reads "Cloud Shell Editor" with a terminal icon on the left and several utility icons on the right. Below the title bar is a menu bar with "File", "Edit", "Selection", "View", "Go", "Run", "Terminal", and "Help".

The main workspace is divided into three panes. On the left is the "EXPLORER" pane showing a file tree for a project named "NUVEMAULA". The files listed are "dados.in", "exe01.py", "exe02.py", "exe03.py", "exe04.py", and "README...". The "exe04.py" file is selected. The middle pane shows the code editor for "exe04.py" with the following Python code:

```
1 L = [100, 23, -14, -2, -8, 10, 0]
2
3
4
5
6
7
8
9
10
11
12 print("minimo:",min(L)," maximo:",max(L))
```

The right pane is empty. At the bottom of the editor is a status bar showing "0 0", "Cloud Code", "minikube", "Ln 6, Col 1", "LF", "UTF-8", "Spaces: 4", "Python", and a bell icon.

Below the editor is a terminal window with the following output:

```
nuvemaula@cloudshell:~$ python3 exe04.py
minimo: -14 maximo: 100
nuvemaula@cloudshell:~$
```

The screenshot shows a Cloud Shell Editor interface. The main editor area displays a Python script named `exe04.py` with the following code:

```
1 L = [100, 23, -14, -2, -8, 10, 0]
2 M = [min(L), max(L)]
3
4
5
6
7
8
9
10 print(L)
11 print(M)
12 print("minimo:",M[0]," maximo:",M[1])
```

The status bar at the bottom of the editor indicates the current position is `Ln 12, Col 38`, the file encoding is `LF UTF-8`, there are `Spaces: 4`, and the language is `Python`.

Below the editor, a terminal window shows the execution of the script:

```
nuvemaula@cloudshell:~$ python3 exe04.py
[100, 23, -14, -2, -8, 10, 0]
[-14, 100]
minimo: -14 maximo: 100
nuvemaula@cloudshell:~$
```

# 04 - Percorrendo uma String

The screenshot displays the Cloud Shell Editor interface. At the top, the title bar reads "Cloud Shell Editor" and includes standard window controls. Below the title bar is a menu bar with options: File, Edit, Selection, View, Go, Run, Terminal, and Help. The main workspace is divided into three panes: Explorer, Open Editors, and the code editor.

The Explorer pane on the left shows a file tree for "NUVEMAULA" containing files like dados.in, exe01.py, exe02.py, exe03.py, exe04.py, exe05.py, and README... The Open Editors pane shows the current file "exe05.py".

The code editor displays the following Python code:

```
1 L = "reviver"
2 M = [min(L), max(L)]
3
4
5
6
7
8
9
10 print(L)
11 print(M)
12 print("minimo:",M[0]," maximo:",M[1])
```

Below the code editor, a status bar shows "Ln 7, Col 1 LF UTF-8 Spaces: 4 Python".

At the bottom, a terminal window shows the execution of the script:

```
nuvemaula@cloudshell:~$ python3 exe05.py
reviver
['e', 'v']
minimo: e maximo: v
nuvemaula@cloudshell:~$
```

The screenshot shows a Cloud Shell Editor interface. At the top, there's a title bar with a terminal icon and the text "Cloud Shell Editor". Below it is a menu bar with "File", "Edit", "Selection", "View", "Go", "Run", "Terminal", and "Help". The main area is divided into three panes: Explorer, Open Editors, and the code editor. The Explorer pane shows a file tree with "NUVEMAULA" containing "dados.in", "exe01.py", "exe02.py", "exe03.py", "exe04.py", "exe05.py", and "READM...". The Open Editors pane shows "exe05.py" with a scroll bar. The code editor displays the following Python code:

```
1 L = "reviver"
2 M = [min(L), max(L)]
3
4
5
6 print(L)
7 print(M)
8 print("minimo:",M[0]," maximo:",M[1])
9
10 print(len(L))
11 print(len(M))
```

Below the code editor is a status bar showing "0 0 0", "Cloud Code", "minikube", "Ln 9, Col 1", "LF", "UTF-8", "Spaces: 4", "Python", and a bell icon. At the bottom, there's a terminal window with the following output:

```
nuvemaula@cloudshell:~$ python3 exe05.py
reviver
['e', 'v']
minimo: e maximo: v
7
2
nuvemaula@cloudshell:~$
```



The screenshot displays the Cloud Shell Editor interface. At the top, the title bar reads "Cloud Shell Editor" and includes a menu bar with "File", "Edit", "Selection", "View", "Go", "Run", "Terminal", and "Help". The Explorer sidebar on the left shows a file tree for "NUVEMAULA" containing files like "dados.in", "exe01.py", "exe02.py", "exe03.py", "exe04.py", "exe05.py", "exe06.py", and "READM...". The main editor area shows a Python script named "exe06.py" with the following code:

```
1 L = "reviver"
2
3 for c in L:
4     print(c, end = ', ')
5
6 print()
7
```

The status bar at the bottom of the editor indicates "Ln 4, Col 22 LF UTF-8 Spaces: 4 Python". Below the editor is a terminal window with the following output:

```
nuvemaula@cloudshell:~$ python3 exe06.py
r, e, v, i, v, e, r,
nuvemaula@cloudshell:~$
```

The screenshot displays the Cloud Shell Editor interface. At the top, the title bar reads "Cloud Shell Editor" with a terminal icon on the left and a user profile icon on the right. Below the title bar is a menu bar with options: File, Edit, Selection, View, Go, Run, Terminal, and Help. The main workspace is divided into three panes. The left pane, titled "EXPLORER", shows a file tree for a workspace named "NUVEMAULA", containing a folder "dados.in" and several Python files: exe01.py, exe02.py, exe03.py, exe04.py, exe05.py, and exe06.py. The middle pane, titled "OPEN EDITORS", shows the content of "exe06.py" with the following code:

```
1 L = "reviver"
2
3 for c in L:
4     print("(" + c + ")")
5
6 print()
7
```

The right pane is empty. Below the editor panes is a status bar showing "0 errors, 0 warnings", "Cloud Code", "minikube", and "Ln 6, Col 8 LF UTF-8 Spaces: 4 Python". At the bottom, a terminal window titled "cloudshell" shows the execution of the script:

```
nuvemaula@cloudshell:~$ python3 exe06.py
( r )
( e )
( v )
( i )
( v )
( e )
( r )
nuvemaula@cloudshell:~$
```

The screenshot displays the Cloud Shell Editor interface. At the top, the title bar reads "Cloud Shell Editor" and includes a menu bar with "File", "Edit", "Selection", "View", "Go", "Run", "Terminal", and "Help". The Explorer panel on the left shows a file tree for "NUVEMAULA" containing "dados.in" and several Python files from "exe01.py" to "exe06.py". The main editor area shows the code for "exe06.py":

```
1 L = "reviver"
2
3 for c in L:
4     print("(" + c + ")", end = " ")
5
6 print()
7
```

Below the editor, a status bar indicates "Ln 4, Col 30 LF UTF-8 Spaces: 4 Python". A terminal window at the bottom shows the execution of the script:

```
nuvemaula@cloudshell:~$ python3 exe06.py
( r )( e )( v )( i )( v )( e )( r )
nuvemaula@cloudshell:~$
```



The image shows a Cloud Shell Editor interface. The top part is a code editor with a menu bar (File, Edit, Selection, View, Go, Run, Terminal, Help) and a toolbar. The Explorer on the left shows a project named 'NUVEMAULA' with several Python files. The main editor displays a Python script named 'exe06.py' with the following code:

```
1 L = "reviver"
2
3 for c in L:
4     print("(" + c + ")", end = "-")
5
6 print()
7
```

The bottom part of the interface is a terminal window titled 'cloudshell'. It shows the command `python3 exe06.py` being executed, resulting in the output `( r ) - ( e ) - ( v ) - ( i ) - ( v ) - ( e ) - ( r ) -`. A red arrow points to the final hyphen character in the output. Below the terminal, a red text overlay asks: "Como podemos evitar o último signo?" (How can we avoid the last sign?).

The screenshot displays the Cloud Shell Editor interface. At the top, the title bar reads "Cloud Shell Editor" with a terminal icon on the left and a toolbar with icons for edit, run, and other functions on the right. Below the title bar is a menu bar with options: File, Edit, Selection, View, Go, Run, Terminal, and Help. The main workspace is divided into three panes. The left pane is the Explorer, showing a file tree for a workspace named "NUVEMAULA" containing files "dados.in", "exe01.py", "exe02.py", "exe03.py", "exe04.py", "exe05.py", and "exe06.py". The middle pane is the Open Editors view, showing the content of "exe06.py" with line numbers 1 through 9. The code in the editor is as follows:

```
1 L = "reviver"
2
3 for c in L:
4     print("(",c,")", end = "")
5     print("-", end = "")
6
7
8 print()
9
```

The right pane is a terminal window titled "cloudshell" with a keyboard icon and a close button. It shows the execution of the script:

```
nuvemaula@cloudshell:~$ python3 exe06.py
( r )-( e )-( v )-( i )-( v )-( e )-( r )-
nuvemaula@cloudshell:~$
```

At the bottom of the terminal window, there is a status bar showing "Ln 7, Col 3 LF UTF-8 Spaces: 4 Python".

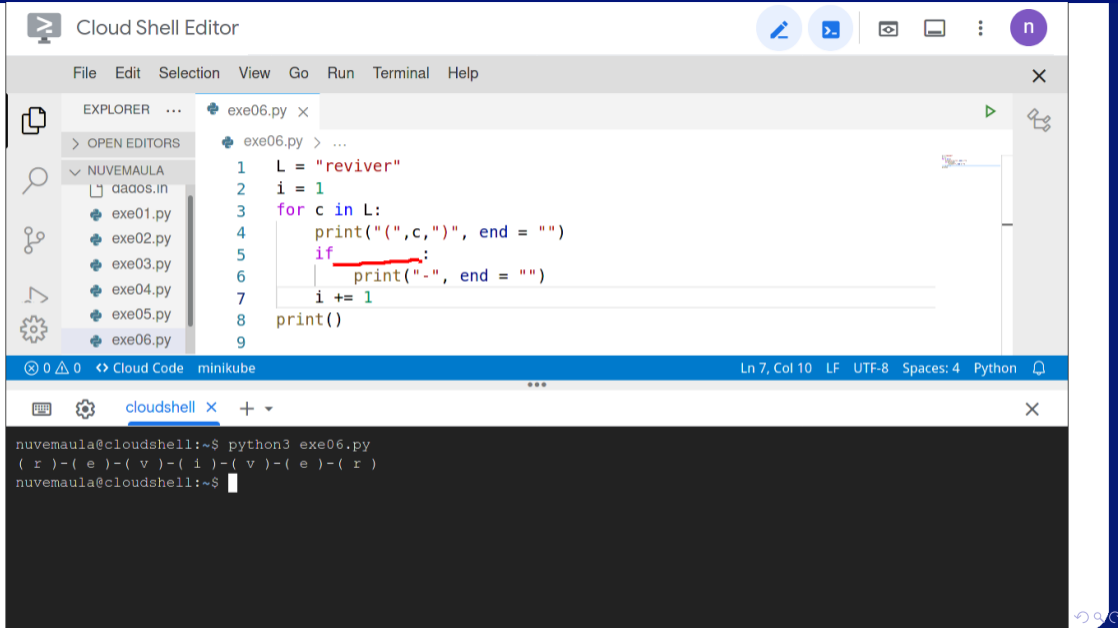
The screenshot displays the Cloud Shell Editor interface. At the top, the title bar reads "Cloud Shell Editor" with a terminal icon on the left and a user profile icon on the right. Below the title bar is a menu bar with options: File, Edit, Selection, View, Go, Run, Terminal, and Help. The main workspace is divided into three sections: Explorer, Open Editors, and the code editor.

The Explorer panel on the left shows a folder named "NUVEMAULA" containing several files: dados.in, exe01.py, exe02.py, exe03.py, exe04.py, exe05.py, and exe06.py. The Open Editors panel shows the current file "exe06.py" with line numbers 1 through 9. The code editor displays the following Python code:

```
1 L = "reviver"
2
3 for c in L:
4     print("(",c,")", end = "")
5
6
7
8 print()
9
```

Below the code editor is a status bar showing "0 0 Cloud Code minikube" on the left and "Ln 7, Col 10 LF UTF-8 Spaces: 4 Python" on the right. At the bottom of the interface is a terminal window titled "cloudshell" with the following output:

```
nuvemaula@cloudshell:~$ python3 exe06.py
( r )-( e )-( v )-( i )-( v )-( e )-( r )
nuvemaula@cloudshell:~$
```



The screenshot shows the Cloud Shell Editor interface. The top bar includes a terminal icon, the title "Cloud Shell Editor", and several utility icons. Below the title bar is a menu with "File", "Edit", "Selection", "View", "Go", "Run", "Terminal", and "Help". The main workspace is divided into three panes: Explorer, Open Editors, and the code editor.

The Explorer pane on the left shows a file tree for "NUVEMAULA" containing a folder "dados.in" and several Python files: "exe01.py", "exe02.py", "exe03.py", "exe04.py", "exe05.py", and "exe06.py".

The Open Editors pane shows the current file "exe06.py" with a cursor at line 9.

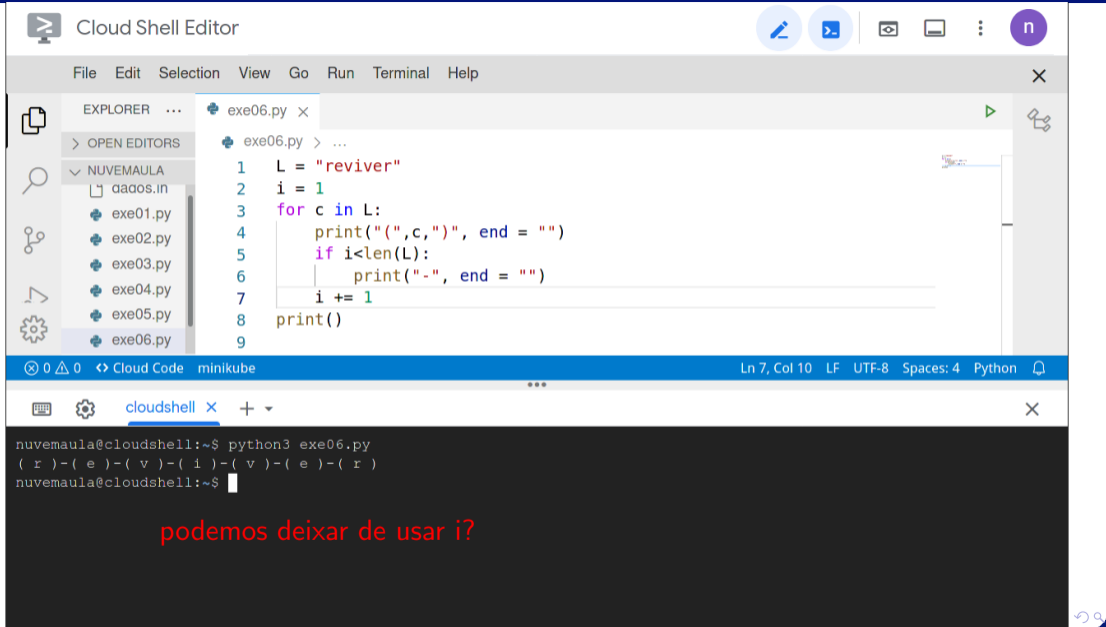
The code editor displays the following Python code:

```
1 L = "reviver"
2 i = 1
3 for c in L:
4     print("(",c,")", end = "")
5     if           :
6         print("-", end = "")
7     i += 1
8 print()
9
```

The status bar at the bottom of the editor shows "Ln 7, Col 10 LF UTF-8 Spaces: 4 Python".

Below the editor is a terminal window titled "cloudshell" with the following output:

```
nuvemaula@cloudshell:~$ python3 exe06.py
( r )-( e )-( v )-( i )-( v )-( e )-( r )
nuvemaula@cloudshell:~$
```



The screenshot shows the Cloud Shell Editor interface. The top menu bar includes File, Edit, Selection, View, Go, Run, Terminal, and Help. The Explorer panel on the left shows a file tree with 'NUVEMAULA' containing 'dados.in' and several Python files (exe01.py to exe06.py). The main editor displays the code for 'exe06.py':

```
1 L = "reviver"
2 i = 1
3 for c in L:
4     print("(" + c + ")", end = "")
5     if i < len(L):
6         print("-", end = "")
7         i += 1
8 print()
```

The status bar at the bottom of the editor indicates 'Ln 7, Col 10 LF UTF-8 Spaces: 4 Python'. Below the editor is a terminal window with the following output:

```
nuvemaula@cloudshell:~$ python3 exe06.py
( r ) - ( e ) - ( v ) - ( i ) - ( v ) - ( e ) - ( r )
nuvemaula@cloudshell:~$
```

At the bottom of the terminal window, the text 'podemos deixar de usar i?' is written in red.



The screenshot displays the Cloud Shell Editor interface. At the top, the title bar reads "Cloud Shell Editor" with a terminal icon on the left and several utility icons on the right. Below the title bar is a menu bar with options: File, Edit, Selection, View, Go, Run, Terminal, and Help. The main workspace is divided into three panes. The left pane is the Explorer, showing a file tree with a folder named "NUVEMAULA" containing files "dados.in", "exe01.py", "exe02.py", "exe03.py", "exe04.py", "exe05.py", and "exe06.py". The middle pane is the Open Editors view, showing the file "exe06.py" with the following Python code:

```
1 L = "reviver"
2
3 for i in range(len(L)):
4     print("(",L[i],")", end = "")
5     if i<len(L):
6         print("-", end = "")
7
8 print()
9
```

The right pane is a preview or output view. Below the editor panes is a status bar showing "0 0 Cloud Code minikube" on the left and "Ln 5, Col 16 LF UTF-8 Spaces: 4 Python" on the right. At the bottom is a terminal window titled "cloudshell" with the following output:

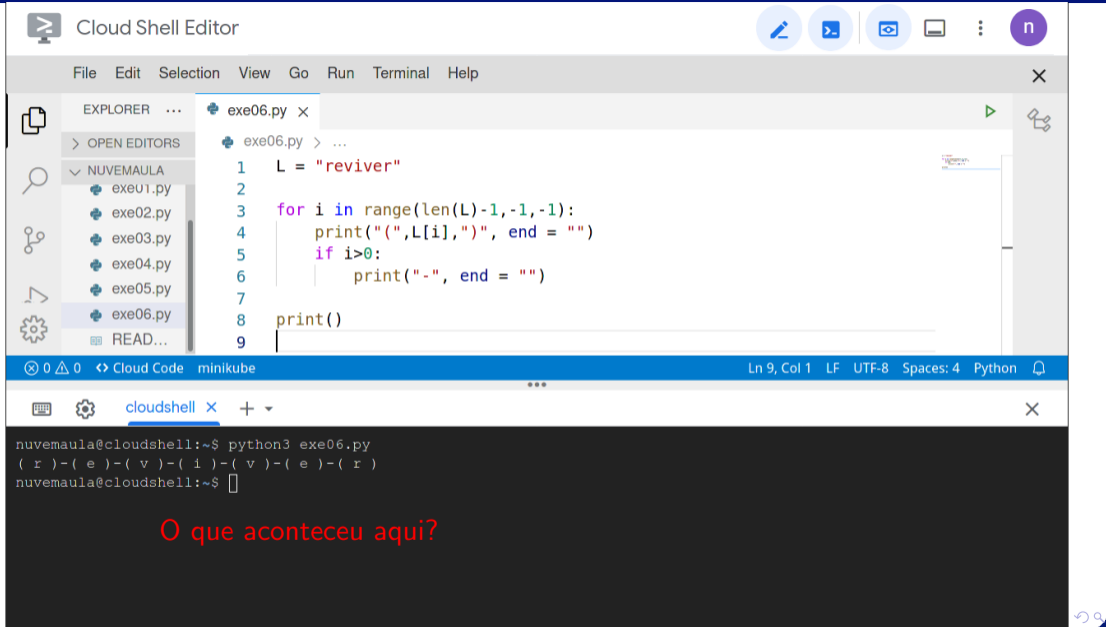
```
nuvemaula@cloudshell:~$ python3 exe06.py
( r ) - ( e ) - ( v ) - ( i ) - ( v ) - ( e ) - ( r ) -
nuvemaula@cloudshell:~$
```

The screenshot displays the Cloud Shell Editor interface. At the top, the title bar reads "Cloud Shell Editor" with a terminal icon on the left and several utility icons on the right. Below the title bar is a menu bar with options: File, Edit, Selection, View, Go, Run, Terminal, and Help. The main workspace is divided into three panes. The left pane is the Explorer, showing a file tree with a folder named "NUVEMAULA" containing files "dados.in", "exe01.py", "exe02.py", "exe03.py", "exe04.py", "exe05.py", and "exe06.py". The middle pane is the Open Editors view, showing the file "exe06.py" with the following Python code:

```
1 L = "reviver"
2
3 for i in range(len(L)):
4     print("(",L[i],")", end = "")
5     if i<len(L)-1:
6         print("-", end = "")
7
8 print()
9
```

The right pane is a preview or diff view. Below the editor panes is a status bar showing "0 0 Cloud Code minikube" on the left and "Ln 5, Col 18 LF UTF-8 Spaces: 4 Python" on the right. At the bottom of the editor is a terminal window titled "cloudshell" with the following output:

```
nuvemaula@cloudshell:~$ python3 exe06.py
( r )-( e )-( v )-( i )-( v )-( e )-( r )
nuvemaula@cloudshell:~$
```



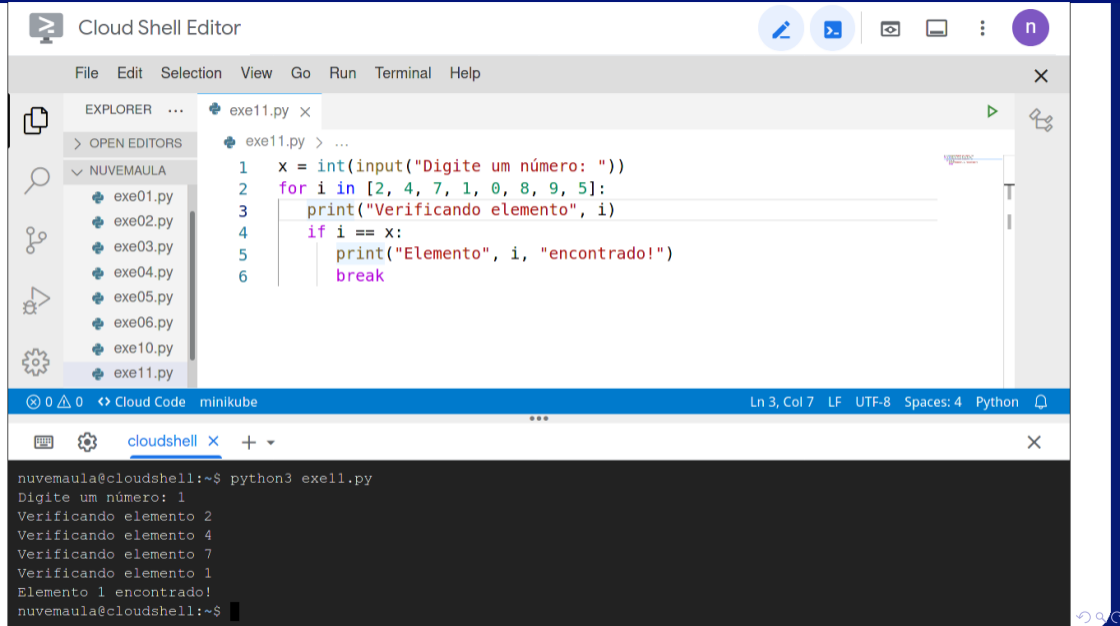
The screenshot shows a Cloud Shell Editor interface. The top bar includes a terminal icon, the title "Cloud Shell Editor", and several utility icons. Below the title bar is a menu with "File", "Edit", "Selection", "View", "Go", "Run", "Terminal", and "Help". The main workspace is divided into three panes: "EXPLORER" on the left showing a file tree with "NUVEMAULA" and several "exe" files; "OPEN EDITORS" in the middle showing the active file "exe06.py"; and a code editor on the right containing the following Python code:

```
1 L = "reviver"
2
3 for i in range(len(L)-1,-1,-1):
4     print("(",L[i],")", end = "")
5     if i>0:
6         print("-", end = "")
7
8 print()
9
```

At the bottom, a terminal window shows the command `python3 exe06.py` being executed, resulting in the output `( r )-( e )-( v )-( i )-( v )-( e )-( r )`. The status bar at the bottom of the editor indicates "Ln 9, Col 1", "LF", "UTF-8", "Spaces: 4", and "Python".

O que aconteceu aqui?

# 05 - Break e continue



The screenshot shows a Cloud Shell Editor interface. The top bar includes a terminal icon, the text "Cloud Shell Editor", and several utility icons (edit, run, refresh, close, and a profile icon with the letter 'n'). Below this is a menu bar with "File", "Edit", "Selection", "View", "Go", "Run", "Terminal", and "Help".

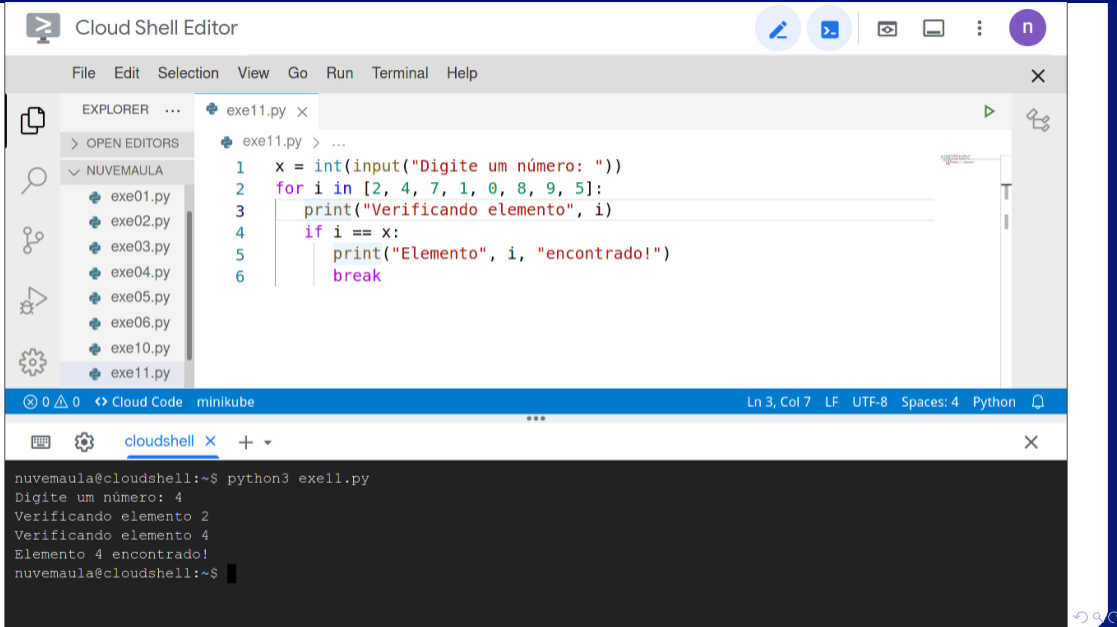
The main workspace is divided into two panes. The left pane, titled "EXPLORER", shows a file tree with "OPEN EDITORS" and "NUVEMAULA" folders. The "NUVEMAULA" folder contains several Python files: exe01.py, exe02.py, exe03.py, exe04.py, exe05.py, exe06.py, exe10.py, and exe11.py. The right pane shows the code for "exe11.py":

```
1 x = int(input("Digite um número: "))
2 for i in [2, 4, 7, 1, 0, 8, 9, 5]:
3     print("Verificando elemento", i)
4     if i == x:
5         print("Elemento", i, "encontrado!")
6         break
```

Below the code editor is a status bar showing "Ln 3, Col 7 LF UTF-8 Spaces: 4 Python".

The bottom pane is a terminal window titled "cloudshell". It shows the execution of the script:

```
nuvemaula@cloudshell:~$ python3 exe11.py
Digite um número: 1
Verificando elemento 2
Verificando elemento 4
Verificando elemento 7
Verificando elemento 1
Elemento 1 encontrado!
nuvemaula@cloudshell:~$
```



The screenshot shows a Cloud Shell Editor interface. At the top, there's a title bar with a terminal icon and the text "Cloud Shell Editor". To the right of the title bar are several icons: a pencil, a terminal window, a folder, a list, and a profile icon with the letter 'n'. Below the title bar is a menu bar with "File", "Edit", "Selection", "View", "Go", "Run", "Terminal", and "Help".

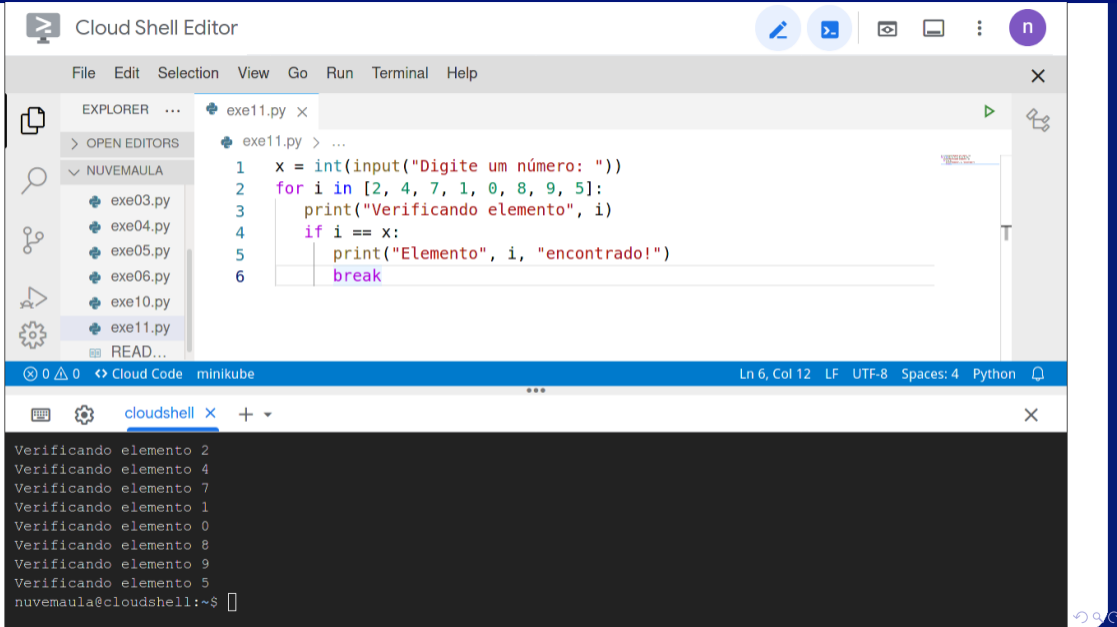
The main area is divided into two panes. The left pane is the "EXPLORER" view, showing a file tree for a project named "NUVEMAULA". It lists several Python files: exe01.py, exe02.py, exe03.py, exe04.py, exe05.py, exe06.py, exe10.py, and exe11.py. The right pane is the code editor, showing the contents of "exe11.py". The code is as follows:

```
1 x = int(input("Digite um número: "))
2 for i in [2, 4, 7, 1, 0, 8, 9, 5]:
3     print("Verificando elemento", i)
4     if i == x:
5         print("Elemento", i, "encontrado!")
6         break
```

Below the code editor is a status bar showing "Ln 3, Col 7 LF UTF-8 Spaces: 4 Python".

At the bottom of the interface is a terminal window. The prompt is "nuvemaula@cloudshell:~\$". The user has entered "python3 exe11.py". The output is:

```
nuvemaula@cloudshell:~$ python3 exe11.py
Digite um número: 4
Verificando elemento 2
Verificando elemento 4
Elemento 4 encontrado!
nuvemaula@cloudshell:~$
```



The screenshot shows a Cloud Shell Editor interface. At the top, the title bar reads "Cloud Shell Editor" with a terminal icon on the left and several utility icons on the right. Below the title bar is a menu bar with "File", "Edit", "Selection", "View", "Go", "Run", "Terminal", and "Help".

The main workspace is divided into two panes. The left pane, titled "EXPLORER", shows a file tree with "OPEN EDITORS" and "NUVEMAULA" folders. The "NUVEMAULA" folder contains files "exe03.py" through "exe10.py" and "exe11.py", with "exe11.py" selected. The right pane shows the code for "exe11.py":

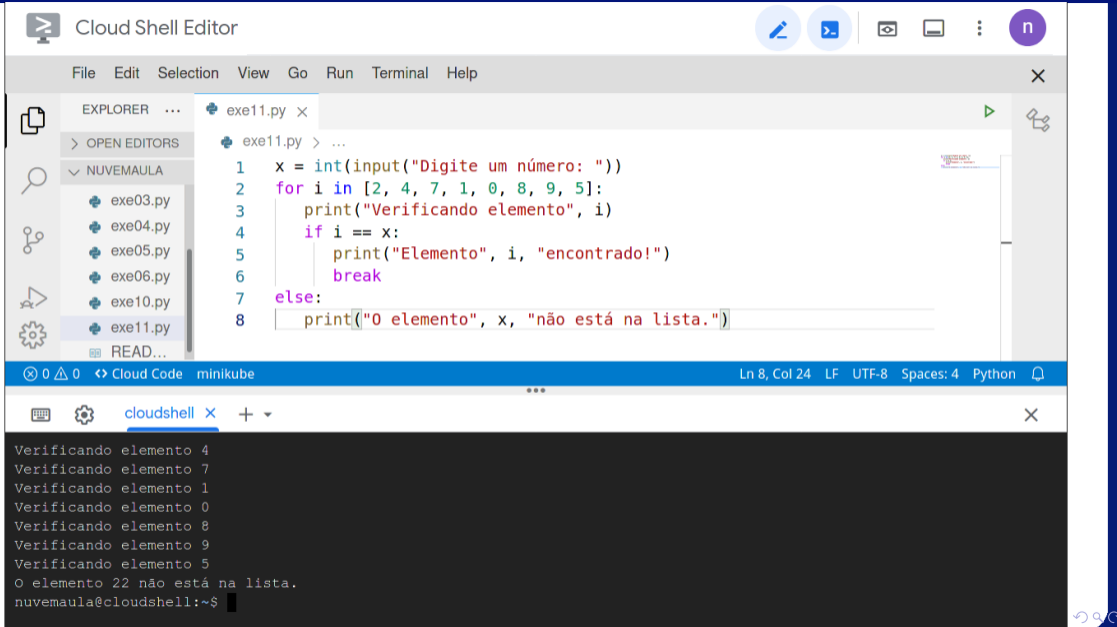
```
1 x = int(input("Digite um número: "))
2 for i in [2, 4, 7, 1, 0, 8, 9, 5]:
3     print("Verificando elemento", i)
4     if i == x:
5         print("Elemento", i, "encontrado!")
6         break
```

0 0 Cloud Code minikube

Ln 6, Col 12 LF UTF-8 Spaces: 4 Python

cloudshell x +

```
Verificando elemento 2
Verificando elemento 4
Verificando elemento 7
Verificando elemento 1
Verificando elemento 0
Verificando elemento 8
Verificando elemento 9
Verificando elemento 5
nuvemaula@cloudshell:~$
```



The screenshot shows the Cloud Shell Editor interface. The top bar includes a terminal icon, the text "Cloud Shell Editor", and several utility icons (edit, run, refresh, home, menu, profile). Below this is a menu bar with "File", "Edit", "Selection", "View", "Go", "Run", "Terminal", and "Help".

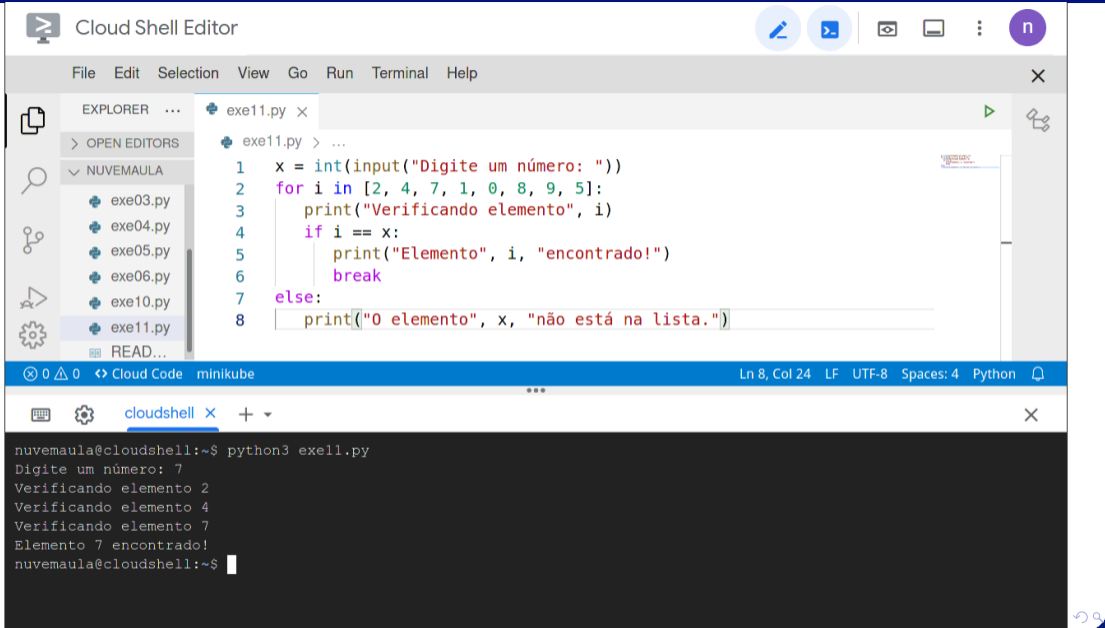
The Explorer sidebar on the left shows a file tree with "EXPLORER ...", "OPEN EDITORS", and "NUVEMAULA" containing files "exe03.py" through "exe11.py" and "READ...". The main editor window displays a Python script named "exe11.py" with the following code:

```
1 x = int(input("Digite um número: "))
2 for i in [2, 4, 7, 1, 0, 8, 9, 5]:
3     print("Verificando elemento", i)
4     if i == x:
5         print("Elemento", i, "encontrado!")
6         break
7 else:
8     print("0 elemento", x, "não está na lista.")
```

The status bar at the bottom of the editor shows "Ln 8, Col 24 LF UTF-8 Spaces: 4 Python". Below the editor is a terminal window with the following output:

```
Verificando elemento 4
Verificando elemento 7
Verificando elemento 1
Verificando elemento 0
Verificando elemento 8
Verificando elemento 9
Verificando elemento 5
0 elemento 22 não está na lista.
nuvemaula@cloudshell:~$
```





The screenshot shows a Cloud Shell Editor interface. The top bar includes a terminal icon, the title "Cloud Shell Editor", and several utility icons (edit, run, refresh, close, and a user profile). Below the title bar is a menu with "File", "Edit", "Selection", "View", "Go", "Run", "Terminal", and "Help".

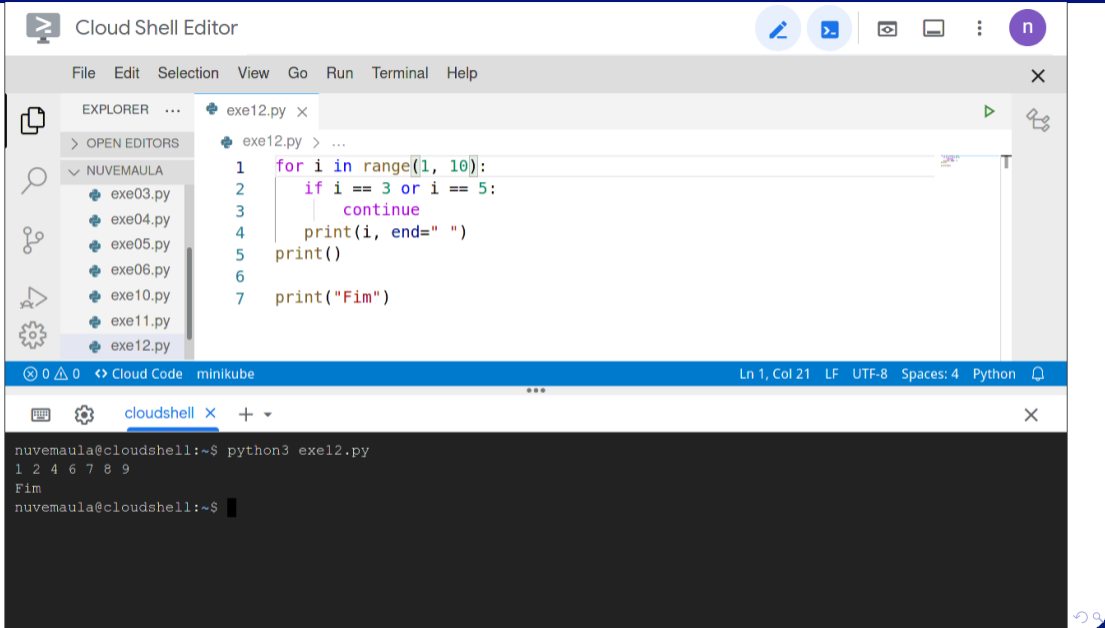
The main editor area is split into two panes. The left pane, titled "EXPLORER", shows a file tree with "OPEN EDITORS" and "NUVEMAULA" folders. The "NUVEMAULA" folder contains files "exe03.py" through "exe10.py" and "exe11.py", along with a "READ..." file. The right pane shows the code for "exe11.py":

```
1 x = int(input("Digite um número: "))
2 for i in [2, 4, 7, 1, 0, 8, 9, 5]:
3     print("Verificando elemento", i)
4     if i == x:
5         print("Elemento", i, "encontrado!")
6         break
7 else:
8     print("0 elemento", x, "não está na lista.")
```

The status bar at the bottom of the editor shows "0 0 0", "Cloud Code", "minikube", "Ln 8, Col 24", "LF", "UTF-8", "Spaces: 4", "Python", and a notification bell.

Below the editor is a terminal window with the following output:

```
nuvemaula@cloudshell:~$ python3 exe11.py
Digite um número: 7
Verificando elemento 2
Verificando elemento 4
Verificando elemento 7
Elemento 7 encontrado!
nuvemaula@cloudshell:~$
```



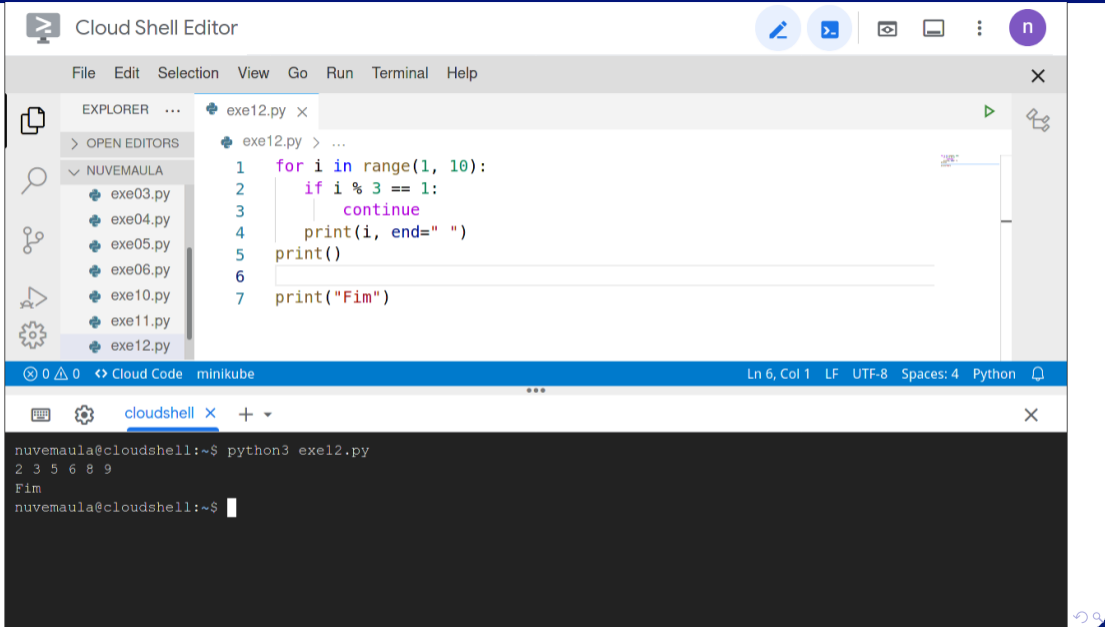
The screenshot shows a Cloud Shell Editor interface. The main editor window displays a Python script named `exe12.py` with the following code:

```
1 for i in range(1, 10):
2     if i == 3 or i == 5:
3         continue
4     print(i, end=" ")
5 print()
6
7 print("Fim")
```

The status bar at the bottom of the editor indicates the current position is `Ln 1, Col 21`, the file encoding is `UTF-8`, and the number of spaces is `4`. The language is set to `Python`.

Below the editor, a terminal window shows the execution of the script:

```
nuvemaula@cloudshell:~$ python3 exe12.py
1 2 4 6 7 8 9
Fim
nuvemaula@cloudshell:~$
```



The screenshot displays the Cloud Shell Editor interface. At the top, the title bar reads "Cloud Shell Editor" with a terminal icon on the left and several utility icons on the right. Below the title bar is a menu bar with options: File, Edit, Selection, View, Go, Run, Terminal, and Help. The main workspace is divided into three sections: a file explorer on the left, an editor in the center, and a terminal at the bottom.

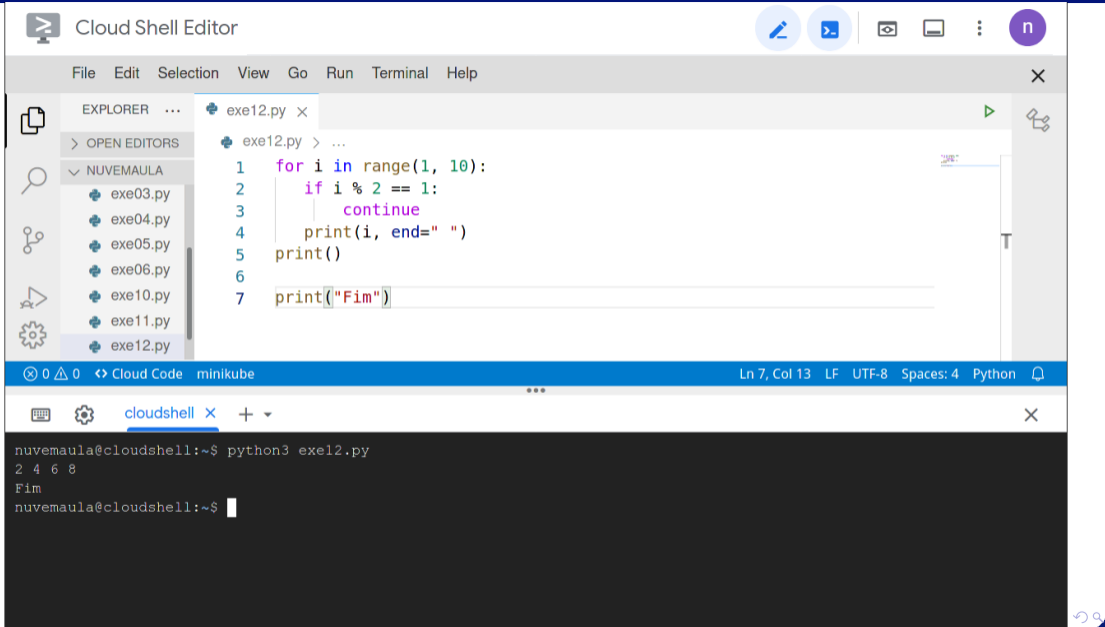
The file explorer shows a folder named "NUVEMAULA" containing several Python files: exe03.py, exe04.py, exe05.py, exe06.py, exe10.py, exe11.py, and exe12.py. The editor displays the content of "exe12.py":

```
1 for i in range(1, 10):
2     if i % 3 == 1:
3         continue
4     print(i, end=" ")
5 print()
6
7 print("Fim")
```

The terminal at the bottom shows the execution of the script:

```
nuvemaula@cloudshell:~$ python3 exe12.py
2 3 5 6 8 9
Fim
nuvemaula@cloudshell:~$
```

The status bar at the bottom of the editor indicates the current position: "Ln 6, Col 1 LF UTF-8 Spaces: 4 Python".



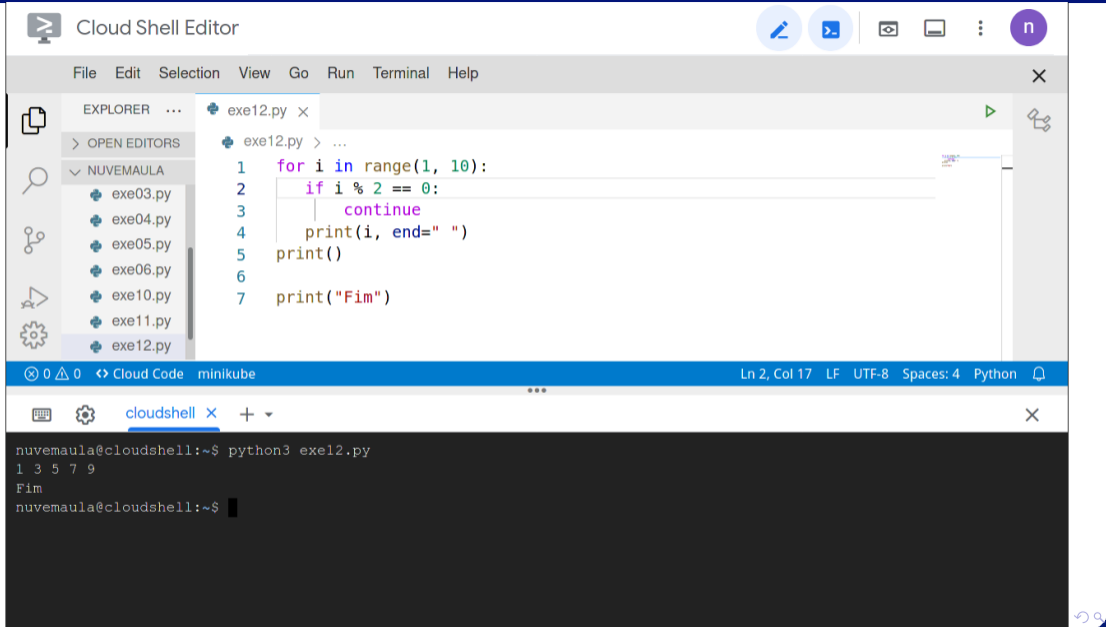
The screenshot shows a Cloud Shell Editor interface. The main editor area displays a Python script named `exe12.py` with the following code:

```
1 for i in range(1, 10):
2     if i % 2 == 1:
3         continue
4     print(i, end=" ")
5 print()
6
7 print("Fim")
```

The status bar at the bottom of the editor indicates the current position is Line 7, Column 13, using LF line endings, UTF-8 encoding, 4 spaces, and Python syntax.

Below the editor is a terminal window with the following output:

```
nuvemaula@cloudshell:~$ python3 exe12.py
2 4 6 8
Fim
nuvemaula@cloudshell:~$
```



The screenshot displays the Cloud Shell Editor interface. At the top, the title bar reads "Cloud Shell Editor" with a terminal icon on the left and several utility icons on the right. Below the title bar is a menu bar with options: File, Edit, Selection, View, Go, Run, Terminal, and Help. The main workspace is divided into three sections: a file explorer on the left, a code editor in the center, and a terminal at the bottom.

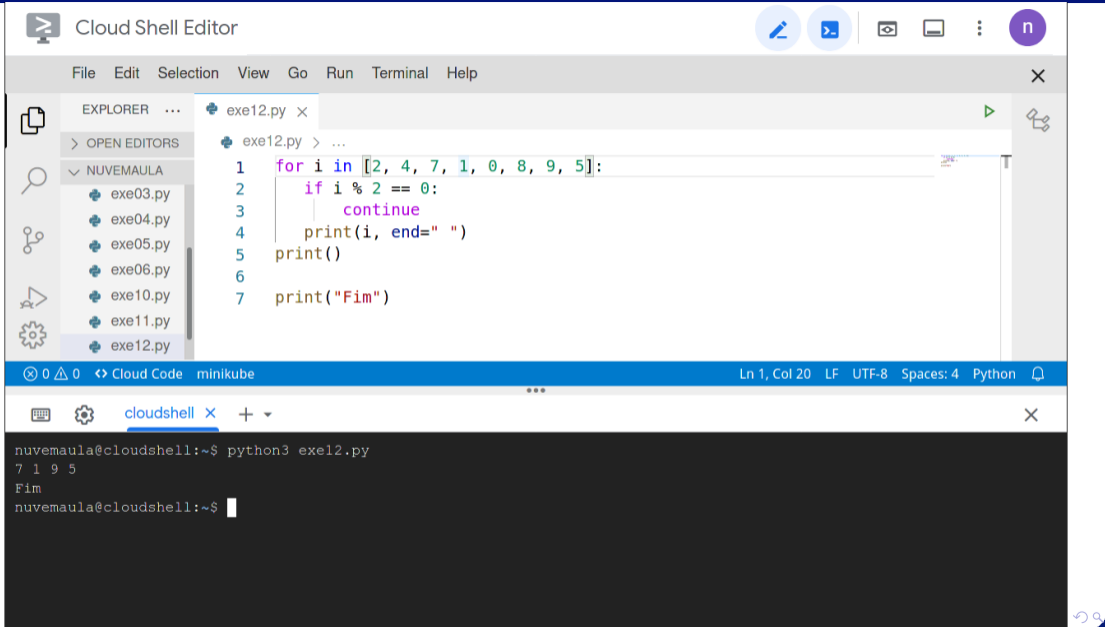
The file explorer shows a directory named "NUVEMAULA" containing several Python files: exe03.py, exe04.py, exe05.py, exe06.py, exe10.py, exe11.py, and exe12.py. The file "exe12.py" is selected and open in the code editor.

```
1 for i in range(1, 10):
2     if i % 2 == 0:
3         continue
4     print(i, end=" ")
5 print()
6
7 print("Fim")
```

The terminal at the bottom shows the execution of the script:

```
nuvemaula@cloudshell:~$ python3 exe12.py
1 3 5 7 9
Fim
nuvemaula@cloudshell:~$
```

The status bar at the bottom of the editor indicates the current position: "Ln 2, Col 17 LF UTF-8 Spaces: 4 Python".



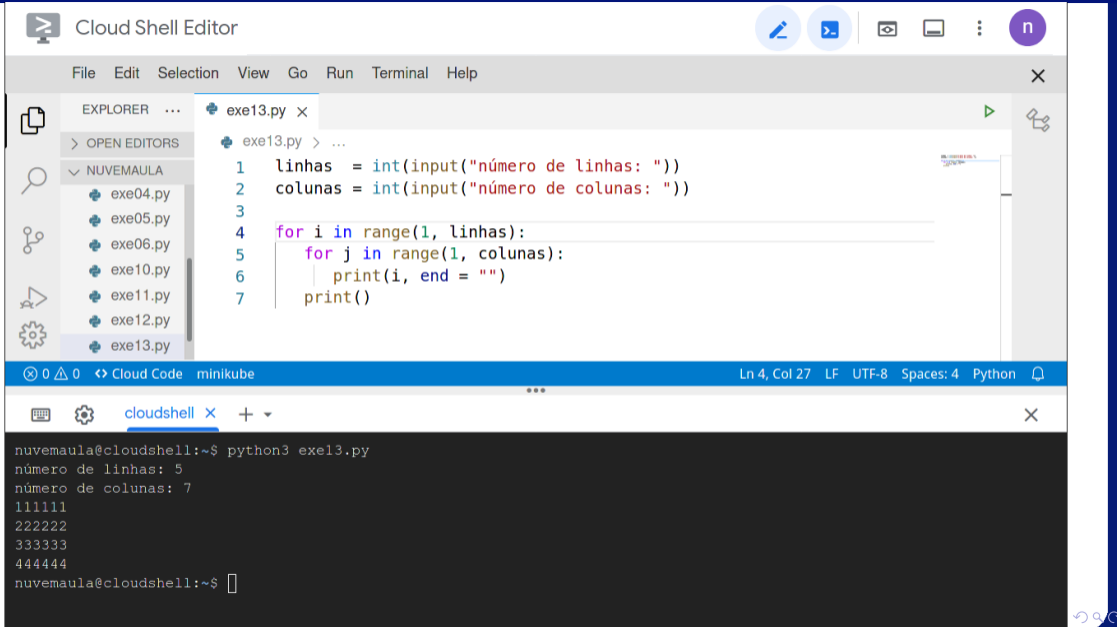
The screenshot displays the Cloud Shell Editor interface. The top menu bar includes File, Edit, Selection, View, Go, Run, Terminal, and Help. The Explorer sidebar on the left shows a file tree with a folder named 'NUVEMAULA' containing several Python files: exe03.py, exe04.py, exe05.py, exe06.py, exe10.py, exe11.py, and exe12.py. The main editor window shows the code for 'exe12.py':

```
1 for i in [2, 4, 7, 1, 0, 8, 9, 5]:
2     if i % 2 == 0:
3         continue
4     print(i, end=" ")
5 print()
6
7 print("Fim")
```

The status bar at the bottom of the editor indicates 'Ln 1, Col 20 LF UTF-8 Spaces: 4 Python'. Below the editor is a terminal window with the following output:

```
nuvemaula@cloudshell:~$ python3 exe12.py
7 1 9 5
Fim
nuvemaula@cloudshell:~$
```

# 06 - Laços Aninhados



The image shows a Cloud Shell Editor interface. At the top, there's a title bar with a terminal icon and the text "Cloud Shell Editor". Below it is a menu bar with "File", "Edit", "Selection", "View", "Go", "Run", "Terminal", and "Help". The main area is divided into three panes: Explorer, Open Editors, and the code editor.

**Explorer:** Shows a file tree with "NUVEMAULA" as the root. Underneath, several Python files are listed: exe04.py, exe05.py, exe06.py, exe10.py, exe11.py, exe12.py, and exe13.py. The file "exe13.py" is selected.

**Open Editors:** Shows the current file "exe13.py" with a cursor at the end of the line.

**Code Editor:** Contains the following Python code:

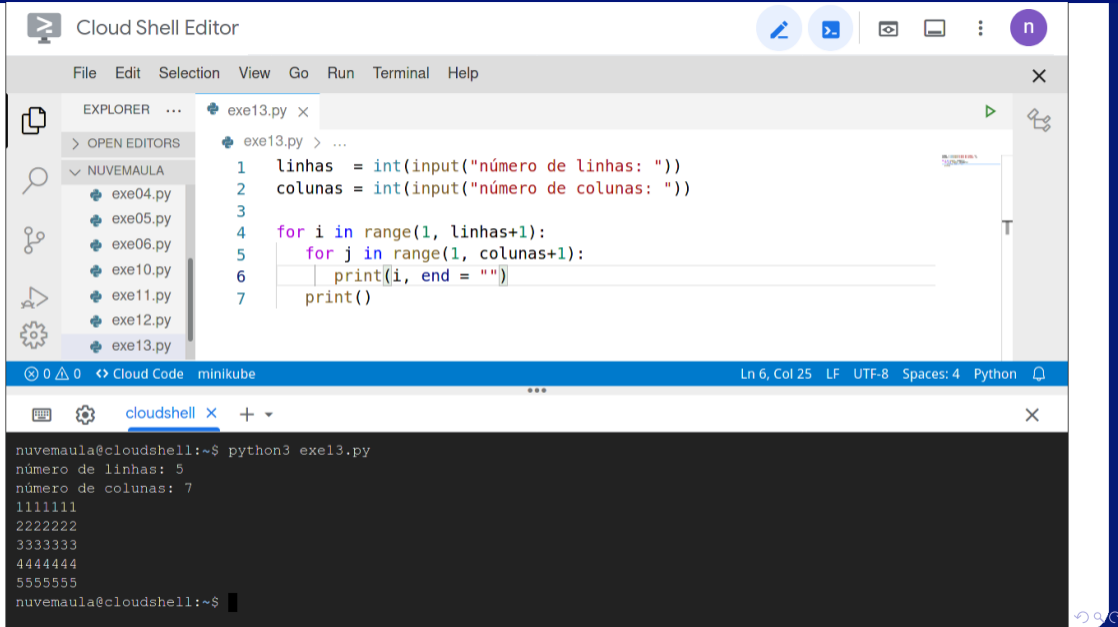
```
1 linhas = int(input("número de linhas: "))
2 colunas = int(input("número de colunas: "))
3
4 for i in range(1, linhas):
5     for j in range(1, colunas):
6         print(i, end = "")
7     print()
```

Below the code editor is a status bar showing "Ln 4, Col 27 LF UTF-8 Spaces: 4 Python".

At the bottom, there's a terminal window with the following output:

```
nuvemaula@cloudshell:~$ python3 exe13.py
número de linhas: 5
número de colunas: 7
111111
222222
333333
444444
nuvemaula@cloudshell:~$
```



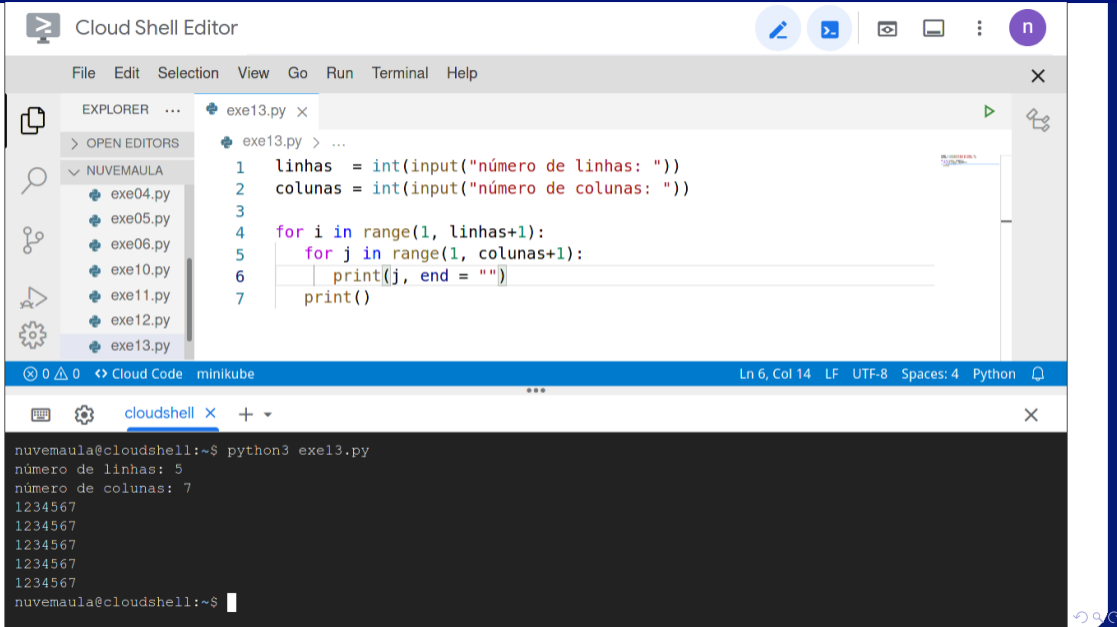


The image shows a Cloud Shell Editor interface. At the top, there's a title bar with a terminal icon and the text "Cloud Shell Editor". Below it is a menu bar with "File", "Edit", "Selection", "View", "Go", "Run", "Terminal", and "Help". The main area is divided into three panes: Explorer, Open Editors, and the code editor. The Explorer pane shows a folder named "NUVEMAULA" containing several Python files, with "exe13.py" selected. The Open Editors pane shows "exe13.py" with a cursor at the end of the first line. The code editor displays the following Python code:

```
1 linhas = int(input("número de linhas: "))
2 colunas = int(input("número de colunas: "))
3
4 for i in range(1, linhas+1):
5     for j in range(1, colunas+1):
6         print(i, end = " ")
7     print()
```

Below the code editor is a status bar showing "Ln 6, Col 25 LF UTF-8 Spaces: 4 Python". At the bottom, there's a terminal window with the following output:

```
nuvemaula@cloudshell:~$ python3 exe13.py
número de linhas: 5
número de colunas: 7
1111111
2222222
3333333
4444444
5555555
nuvemaula@cloudshell:~$
```



The image shows a Cloud Shell Editor interface. The top bar includes a terminal icon, the text "Cloud Shell Editor", and several utility icons (edit, run, refresh, close, and a profile icon with the letter 'n'). Below this is a menu bar with "File", "Edit", "Selection", "View", "Go", "Run", "Terminal", and "Help".

The main workspace is divided into two panes. The left pane is the "EXPLORER" view, showing a file tree for a project named "NUVEMAULA". It lists several Python files: exe04.py, exe05.py, exe06.py, exe10.py, exe11.py, exe12.py, and exe13.py. The right pane is the code editor, displaying the contents of "exe13.py":

```
1 linhas = int(input("número de linhas: "))
2 colunas = int(input("número de colunas: "))
3
4 for i in range(1, linhas+1):
5     for j in range(1, colunas+1):
6         print(j, end = " ")
7     print()
```

Below the code editor is a status bar showing "0 0", "Cloud Code", "minikube", "Ln 6, Col 14", "LF", "UTF-8", "Spaces: 4", "Python", and a notification bell icon.

At the bottom of the interface is a terminal window with the following text:

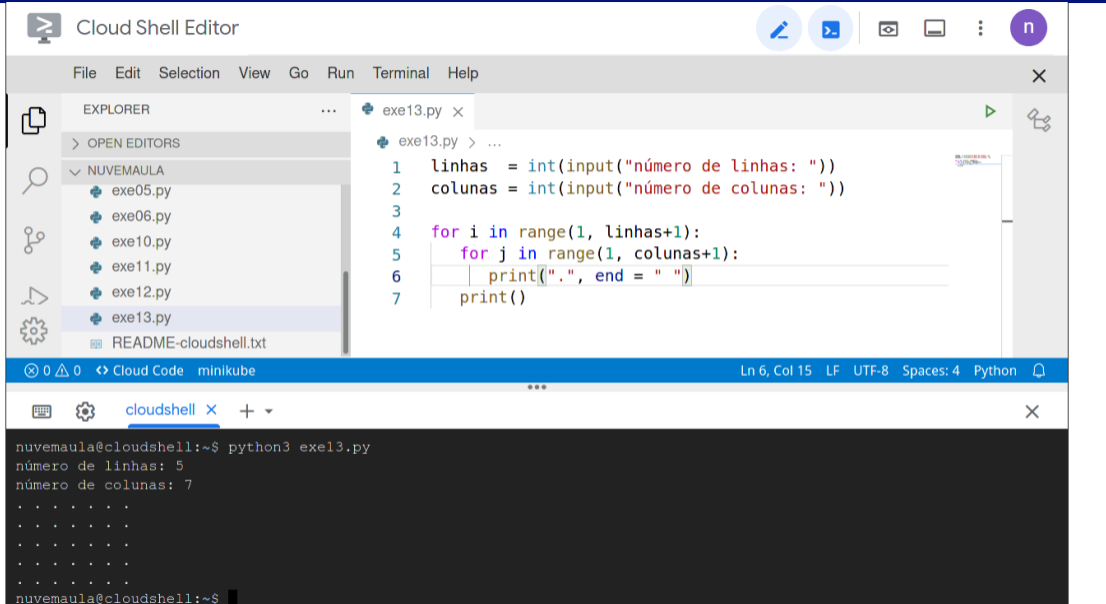
```
nuvemaula@cloudshell:~$ python3 exe13.py
número de linhas: 5
número de colunas: 7
1234567
1234567
1234567
1234567
1234567
nuvemaula@cloudshell:~$
```

The screenshot displays the Cloud Shell Editor interface. The top menu bar includes File, Edit, Selection, View, Go, Run, Terminal, and Help. The Explorer sidebar on the left shows a file tree with a folder named 'NUVEMAULA' containing several Python files (exe05.py to exe13.py) and a README file. The main editor area shows the code for 'exe13.py':

```
1 linhas = int(input("número de linhas: "))
2 colunas = int(input("número de colunas: "))
3
4 for i in range(1, linhas+1):
5     for j in range(1, colunas+1):
6         print(j, end = " ")
7     print()
```

The status bar at the bottom of the editor indicates 'Ln 7, Col 11 LF UTF-8 Spaces: 4 Python'. Below the editor is a terminal window with the following output:

```
nuvemaula@cloudshell:~$ python3 exe13.py
número de linhas: 5
número de colunas: 7
1 2 3 4 5 6 7
1 2 3 4 5 6 7
1 2 3 4 5 6 7
1 2 3 4 5 6 7
1 2 3 4 5 6 7
nuvemaula@cloudshell:~$
```



The image shows a Cloud Shell Editor interface. The top bar includes a terminal icon, the title "Cloud Shell Editor", and several utility icons (edit, run, refresh, close, and a profile icon 'n'). Below this is a menu bar with "File", "Edit", "Selection", "View", "Go", "Run", "Terminal", and "Help".

The left sidebar contains an "EXPLORER" view showing a file tree for a workspace named "NUVEMAULA". The files listed are "exe05.py", "exe06.py", "exe10.py", "exe11.py", "exe12.py", "exe13.py", and "README-cloudshell.txt". The "exe13.py" file is selected and open in the main editor.

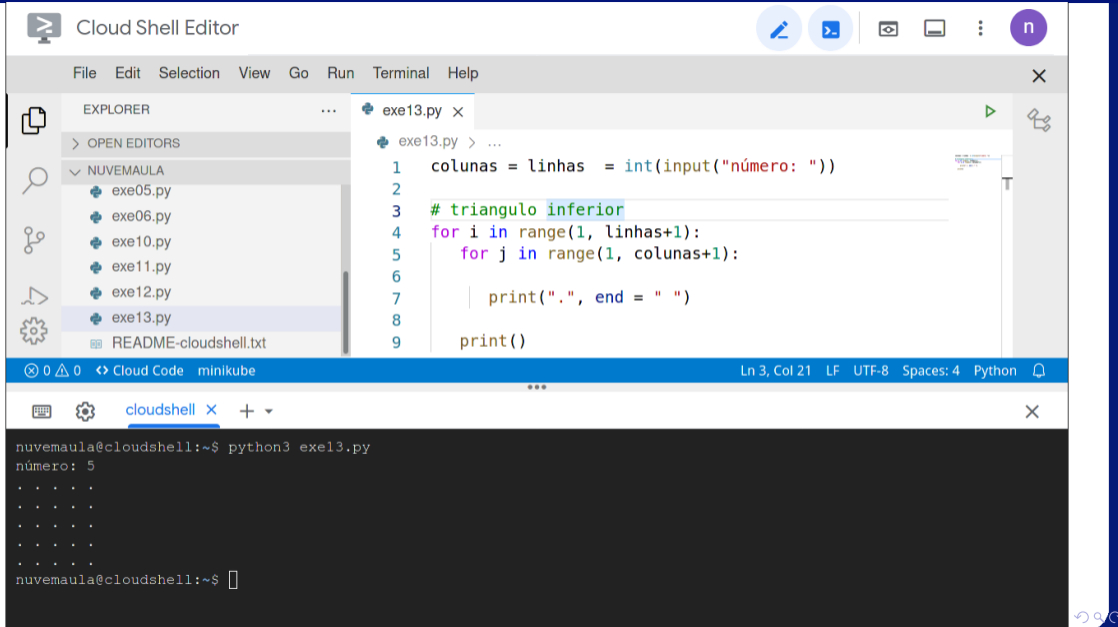
The main editor displays the following Python code in a syntax-highlighted view:

```
1 linhas = int(input("número de linhas: "))
2 colunas = int(input("número de colunas: "))
3
4 for i in range(1, linhas+1):
5     for j in range(1, colunas+1):
6         print(".", end = " ")
7     print()
```

Below the code editor is a status bar showing "Ln 6, Col 15 LF UTF-8 Spaces: 4 Python".

At the bottom, a terminal window is open, showing the execution of the script:

```
nuvemaula@cloudshell:~$ python3 exe13.py
número de linhas: 5
número de colunas: 7
. . . . .
. . . . .
. . . . .
. . . . .
. . . . .
nuvemaula@cloudshell:~$
```



The image shows a Cloud Shell Editor window with a menu bar (File, Edit, Selection, View, Go, Run, Terminal, Help) and a toolbar. The Explorer sidebar on the left shows a file tree with a folder named 'NUVEMAULA' containing several Python files (exe05.py to exe13.py) and a 'README-cloudshell.txt' file. The main editor area displays the code for 'exe13.py':

```
1  colunas = linhas = int(input("número: "))
2
3  # triangulo inferior
4  for i in range(1, linhas+1):
5      for j in range(1, colunas+1):
6
7          print(".", end = " ")
8
9  print()
```

The status bar at the bottom of the editor shows 'Ln 3, Col 21 LF UTF-8 Spaces: 4 Python'. Below the editor is a terminal window with the following output:

```
nuvemaula@cloudshell:~$ python3 exe13.py
número: 5
. . . . .
. . . . .
. . . . .
. . . . .
. . . . .
nuvemaula@cloudshell:~$
```

The screenshot shows the Cloud Shell Editor interface. The Explorer view on the left shows a file named `exe13.py` under the `NUVEMAULA` directory. The main editor area displays the following Python code:

```
1  colunas = linhas = int(input("número: "))
2
3  # triangulo inferior
4  for i in range(1, linhas+1):
5      for j in range(1, colunas+1):
6          if i>j:
7              print(".", end = " ")
8
9      print()
```

The status bar at the bottom indicates the current position is `Ln 6, Col 13` in `UTF-8` encoding with `4` spaces, using the `Python` interpreter.

Below the editor, a terminal window shows the execution of the script:

```
nuvemaula@cloudshell:~$ python3 exe13.py
número: 5
.
.
.
.
.
nuvemaula@cloudshell:~$
```

The screenshot shows the Cloud Shell Editor interface. The top menu bar includes File, Edit, Selection, View, Go, Run, Terminal, and Help. The Explorer sidebar on the left shows a file tree with a folder named 'NUVEMAULA' containing several Python files (exe05.py to exe13.py) and a README file. The main editor area displays the code for 'exe13.py':

```
1  colunas = linhas = int(input("número: "))
2
3  # triangulo inferior
4  for i in range(1, linhas+1):
5      for j in range(1, colunas+1):
6          if i>=j:
7              print(".", end = " ")
8
9      print()
```

The status bar at the bottom of the editor indicates 'Ln 6, Col 12 LF UTF-8 Spaces: 4 Python'. Below the editor is a terminal window with the following output:

```
nuvemaula@cloudshell:~$ python3 exe13.py
número: 5
.
. .
. . .
. . . .
. . . . .
nuvemaula@cloudshell:~$
```

The screenshot shows the Cloud Shell Editor interface. The top bar includes the title "Cloud Shell Editor" and several utility icons. Below the title bar is a menu with "File", "Edit", "Selection", "View", "Go", "Run", "Terminal", and "Help". The left sidebar contains an "EXPLORER" view showing a file tree with "NUVEMAULA" as the root, containing files "exe05.py", "exe06.py", "exe10.py", "exe11.py", "exe12.py", "exe13.py", and "README-cloudshell.txt". The main editor area displays the code for "exe13.py":

```
1  colunas = linhas = int(input("número: "))
2
3  # triangulo superior
4  for i in range(1, linhas+1):
5      for j in range(1, colunas+1):
6          if i<=j:
7              print(".", end = " ")
8
9      print()
```

The status bar at the bottom of the editor shows "Ln 6, Col 14 LF UTF-8 Spaces: 4 Python". Below the editor is a terminal window with the following output:

```
nuvemaula@cloudshell:~$ python3 exe13.py
número: 5
. . . . .
. . . .
. . .
. .
.
nuvemaula@cloudshell:~$
```



The screenshot displays the Cloud Shell Editor interface. The top menu bar includes File, Edit, Selection, View, Go, Run, Terminal, and Help. The Explorer sidebar on the left shows a file tree with a folder named 'NUVEMAULA' containing several Python files (exe05.py to exe13.py) and a README file. The main editor window shows a Python script named 'exe13.py' with the following code:

```
1  colunas = linhas = int(input("número: "))
2  # triangulo superior
3  for i in range(1, linhas+1):
4      for j in range(1, colunas+1):
5          if i<=j:
6              print(".", end = " ")
7          else:
8              print(" ", end = " ")
9      print()
```

The status bar at the bottom of the editor indicates 'Ln 7, Col 11 LF UTF-8 Spaces: 4 Python'. Below the editor is a terminal window with the following output:

```
nuvemaula@cloudshell:~$ python3 exe13.py
número: 5
. . . . .
. . . . .
. . . . .
. . . . .
. . . . .
nuvemaula@cloudshell:~$
```



The image shows a Cloud Shell Editor interface. The top bar includes a terminal icon, the title "Cloud Shell Editor", and several utility icons (edit, run, refresh, close) and a user profile icon with the letter "n". Below the title bar is a menu with "File", "Edit", "Selection", "View", "Go", "Run", "Terminal", and "Help".

The left sidebar contains an "EXPLORER" view showing a file tree for a workspace named "NUVEMAULA". The files listed are "exe05.py", "exe06.py", "exe10.py", "exe11.py", "exe12.py", "exe13.py", and "README-cloudshell.txt". The "exe13.py" file is selected and open in the main editor.

The main editor displays the following Python code in a file named "exe13.py":

```
1  colunas = linhas = int(input("número: "))
2  # triangulo superior
3  for i in range(1, linhas+1):
4      for j in range(1, colunas+1):
5          if i<j:
6              print(j, end = " ")
7          else:
8              print(" ", end = " ")
9      print()
```

The status bar at the bottom of the editor shows "Ln 6, Col 14 LF UTF-8 Spaces: 4 Python".

Below the editor is a terminal window titled "cloudshell". It shows the execution of the script:

```
nuvemaula@cloudshell:~$ python3 exe13.py
número: 5
 2 3 4 5
 3 4 5
 4 5
 5
nuvemaula@cloudshell:~$
```

The screenshot displays the Cloud Shell Editor interface. The top menu bar includes File, Edit, Selection, View, Go, Run, Terminal, and Help. The Explorer sidebar on the left shows a directory structure with files like exe05.py through exe13.py and README-cloudshell.txt. The main editor window is open to exe13.py, containing the following Python code:

```
1 n = int(input("número: "))
2 # cruz
3 for i in range(1, n+1):
4     for j in range(1, n+1):
5         if
6             print(j, end = " ")
7         else:
8             print(" ", end = " ")
9     print()
```

The status bar at the bottom of the editor indicates the current position (Ln 9, Col 11), encoding (UTF-8), and other settings. Below the editor is a terminal window with the prompt `nuvemaula@cloudshell:~$`.

The screenshot displays the Cloud Shell Editor interface. The top menu bar includes File, Edit, Selection, View, Go, Run, Terminal, and Help. The Explorer sidebar on the left shows a file tree with a folder named 'NUVEMAULA' containing several Python files (exe05.py to exe13.py) and a README file. The main editor area shows the code for 'exe13.py':

```
1 n = int(input("número: "))
2 # cruz
3 for i in range(1, n+1):
4     for j in range(1, n+1):
5         if i!=n/2 and j!=n/2 :
6             print(j, end = " ")
7         else:
8             print(" ", end = " ")
9     print()
```

The status bar at the bottom of the editor indicates 'Ln 5, Col 30 LF UTF-8 Spaces: 4 Python'. Below the editor is a terminal window with the following output:

```
nuvemaula@cloudshell:~$ python3 exe13.py
número: 6
1 2 4 5 6
1 2 4 5 6

1 2 4 5 6
1 2 4 5 6
1 2 4 5 6
nuvemaula@cloudshell:~$
```

The screenshot displays the Cloud Shell Editor interface. The top menu bar includes File, Edit, Selection, View, Go, Run, Terminal, and Help. The Explorer sidebar on the left shows a file tree with a folder named 'NUVEMAULA' containing several Python files (exe05.py to exe13.py) and a README file. The main editor area shows the code for 'exe13.py':

```
1 n = int(input("número: "))
2 # cruz
3 for i in range(1, n+1):
4     for j in range(1, n+1):
5         if not( i!=n/2 and j!=n/2 ):
6             print(j, end = " ")
7         else:
8             print(" ", end = " ")
9     print()
```

The status bar at the bottom of the editor indicates 'Ln 2, Col 7 LF UTF-8 Spaces: 4 Python'. Below the editor is a terminal window with the following output:

```
nuvemaula@cloudshell:~$ python3 exe13.py
número: 6
 3
 3
1 2 3 4 5 6
 3
 3
 3
nuvemaula@cloudshell:~$
```

The screenshot shows a Cloud Shell Editor interface. The top bar includes a terminal icon, the title "Cloud Shell Editor", and several utility icons (edit, run, refresh, close, and a profile icon with the letter 'n'). Below the title bar is a menu bar with "File", "Edit", "Selection", "View", "Go", "Run", "Terminal", and "Help".

The left sidebar contains an "EXPLORER" view showing a file tree for a workspace named "NUVEMAULA". The files listed are exe05.py, exe06.py, exe10.py, exe11.py, exe12.py, exe13.py, and exe14.py. The "OPEN EDITORS" section shows "exe14.py" is currently open.

The main editor area displays the following Python code in a file named "exe14.py":

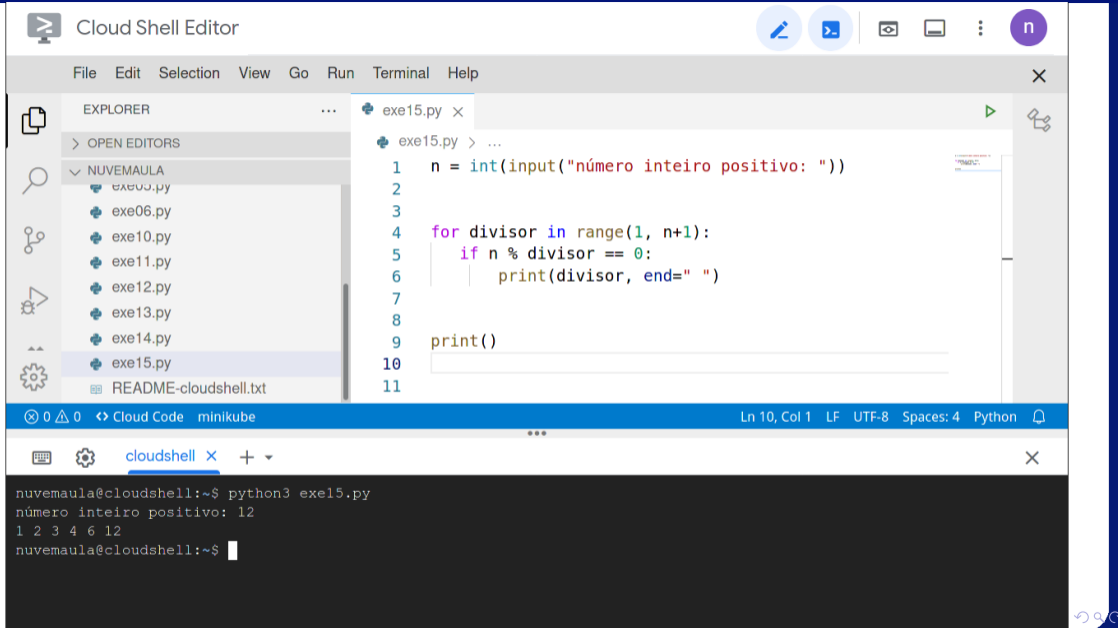
```
1 for h in range(24):
2     for m in range(60):
3         for s in range(60):
4             print('{:02d}:{:02d}:{:02d}'.format(h, m, s))
```

The status bar at the bottom of the editor shows "Ln 1, Col 18 LF UTF-8 Spaces: 4 Python".

Below the editor is a terminal window titled "cloudshell". It displays a series of timestamps from 23:59:52 to 23:59:59, followed by the prompt "nuvemaula@cloudshell:~\$".

# 07 - Divisores de um Número





The screenshot displays the Cloud Shell Editor interface. The top menu bar includes File, Edit, Selection, View, Go, Run, Terminal, and Help. The Explorer panel on the left shows a file tree with a folder named 'NUVEMAULA' containing several Python files (exe00.py to exe15.py) and a README file. The main editor area shows the code for 'exe15.py', which is a Python script to find divisors of a number. The code is as follows:

```
1 n = int(input("número inteiro positivo: "))
2
3
4 for divisor in range(1, n+1):
5     if n % divisor == 0:
6         print(divisor, end=" ")
7
8
9 print()
10
11
```

The status bar at the bottom of the editor indicates 'Ln 10, Col 1', 'LF', 'UTF-8', 'Spaces: 4', and 'Python'. Below the editor, a terminal window shows the execution of the script:

```
nuvemaula@cloudshell:~$ python3 exe15.py
número inteiro positivo: 12
1 2 3 4 6 12
nuvemaula@cloudshell:~$
```

The screenshot displays the Cloud Shell Editor interface. The top bar shows the title "Cloud Shell Editor" and various icons. Below it is a menu bar with "File", "Edit", "Selection", "View", "Go", "Run", "Terminal", and "Help". The left sidebar contains an "EXPLORER" view showing a file tree for "NUVEMAULA" with files like "exe03.py", "exe06.py", "exe10.py", "exe11.py", "exe12.py", "exe13.py", "exe14.py", "exe15.py", and "README-cloudshell.txt". The main editor area shows a Python script named "exe15.py" with the following code:

```
1 n = int(input("número inteiro positivo: "))
2
3 c = 0
4 for divisor in range(1, n+1):
5     if n % divisor == 0:
6         print(divisor, end=" ")
7         c += 1
8
9 print()
10 print(c)
11
```

The status bar at the bottom of the editor indicates "Ln 2, Col 1 LF UTF-8 Spaces: 4 Python". Below the editor is a terminal window with the following output:

```
nuvemaula@cloudshell:~$ python3 exe15.py
número inteiro positivo: 12
1 2 3 4 6 12
6
nuvemaula@cloudshell:~$
```

The screenshot displays the Cloud Shell Editor interface. The top menu bar includes File, Edit, Selection, View, Go, Run, Terminal, and Help. The Explorer sidebar on the left shows a file tree for 'NUVEMAULA' containing several Python files (exe03.py to exe15.py) and a README file. The main editor window shows the code for 'exe15.py':

```
1 n = int(input("número inteiro positivo: "))
2
3
4 for divisor in range(2, n+1):
5     while n>1 and n % divisor == 0:
6         print(divisor, end=" ")
7         n = n // divisor
8
9 print()
10
11
```

The status bar at the bottom of the editor indicates 'Ln 8, Col 1 LF UTF-8 Spaces: 4 Python'. Below the editor is a terminal window with the following output:

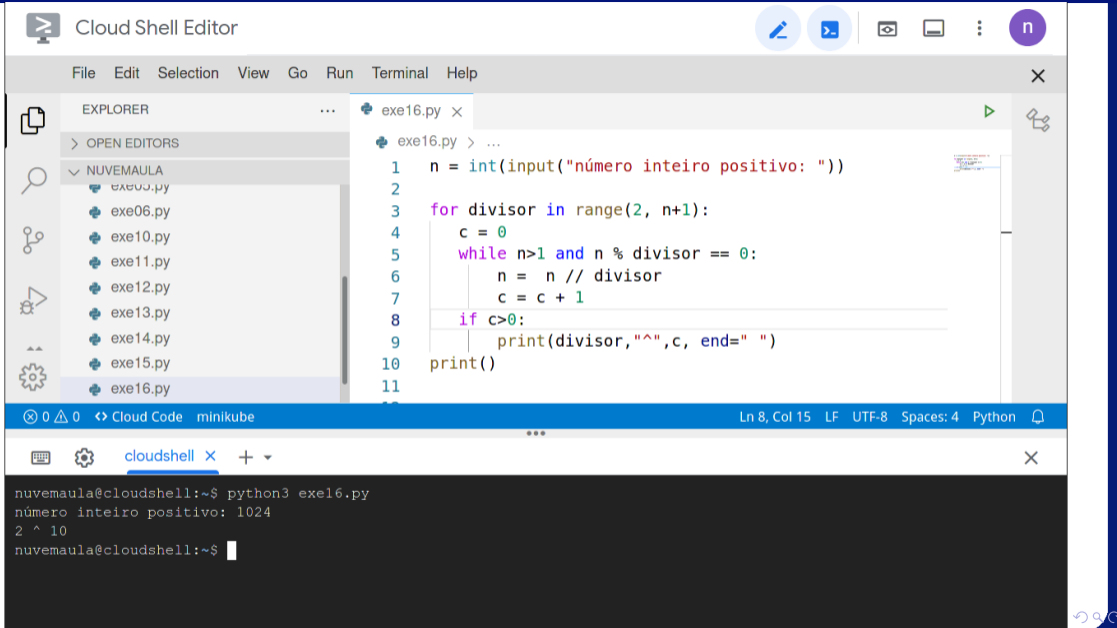
```
nuvemaula@cloudshell:~$ python3 exe15.py
numero inteiro positivo: 12
2 2 3
nuvemaula@cloudshell:~$
```

The screenshot displays the Cloud Shell Editor interface. The top menu bar includes File, Edit, Selection, View, Go, Run, Terminal, and Help. The Explorer panel on the left shows a file tree with a folder named 'NUVEMAULA' containing several Python files (exe03.py to exe15.py) and a 'README-cloudshell.txt' file. The main editor area shows the code for 'exe15.py':

```
1 n = int(input("número inteiro positivo: "))
2
3
4 for divisor in range(2, n+1):
5     while n>1 and n % divisor == 0:
6         print(divisor, end=" ")
7         n = n // divisor
8
9 print()
10
11
```

The status bar at the bottom indicates 'Ln 8, Col 1 LF UTF-8 Spaces: 4 Python'. Below the editor is a terminal window with the following output:

```
nuvemaula@cloudshell:~$ python3 exe15.py
numero inteiro positivo: 1024
2 2 2 2 2 2 2 2 2
nuvemaula@cloudshell:~$
```



The image shows a Cloud Shell Editor interface. The top bar displays the title "Cloud Shell Editor" and a menu with options: File, Edit, Selection, View, Go, Run, Terminal, Help. The left sidebar shows a file explorer with a folder named "NUVEMAULA" containing several Python files, with "exe16.py" selected. The main editor area shows the code for "exe16.py":

```
1 n = int(input("número inteiro positivo: "))
2
3 for divisor in range(2, n+1):
4     c = 0
5     while n>1 and n % divisor == 0:
6         n = n // divisor
7         c = c + 1
8     if c>0:
9         print(divisor, "^", c, end=" ")
10 print()
11
```

The status bar at the bottom of the editor indicates "Ln 8, Col 15 LF UTF-8 Spaces: 4 Python". Below the editor is a terminal window with the following output:

```
nuvemaula@cloudshell:~$ python3 exe16.py
número inteiro positivo: 1024
2 ^ 10
nuvemaula@cloudshell:~$
```

The image shows a Cloud Shell Editor interface. The top bar includes a terminal icon, the text "Cloud Shell Editor", and several utility icons. Below this is a menu bar with "File", "Edit", "Selection", "View", "Go", "Run", "Terminal", and "Help".

The left sidebar contains an "EXPLORER" view showing a file tree for "NUVEMAULA" with files named "exe00.py" through "exe16.py". The "OPEN EDITORS" view shows "exe16.py" is open.

The main editor area displays the following Python code in "exe16.py":

```
1 n = int(input("número inteiro positivo: "))
2
3 for divisor in range(2, n+1):
4     c = 0
5     while n>1 and n % divisor == 0:
6         n = n // divisor
7         c = c + 1
8     if c>0:
9         print(divisor, "^", c, end=" ")
10 print()
```

The status bar at the bottom of the editor shows "Ln 9, Col 34 LF UTF-8 Spaces: 4 Python".

Below the editor is a terminal window with the following output:

```
nuvemaula@cloudshell:~$ python3 exe16.py
número inteiro positivo: 12
2 ^ 2 3 ^ 1
nuvemaula@cloudshell:~$
```

The screenshot displays the Cloud Shell Editor interface. The top menu bar includes File, Edit, Selection, View, Go, Run, Terminal, and Help. The Explorer sidebar on the left shows a file tree for 'NUVEMAULA' with files named exe03.py through exe16.py. The main editor window shows a Python script named 'exe16.py' with the following code:

```
1 n = int(input("número inteiro positivo: "))
2
3 for divisor in range(2, n+1):
4     c = 0
5     while n>1 and n % divisor == 0:
6         n = n // divisor
7         c = c + 1
8     if c>0:
9         print(divisor, "^", c, end=" * ")
10 print()
```

The status bar at the bottom of the editor indicates 'Ln 5, Col 35 LF UTF-8 Spaces: 4 Python'. Below the editor is a terminal window with the following output:

```
nuvemaula@cloudshell:~$ python3 exe16.py
número inteiro positivo: 12
2 ^ 2 * 3 ^ 1 *
nuvemaula@cloudshell:~$
```

The screenshot shows a Cloud Shell Editor interface. The top bar includes a terminal icon, the text "Cloud Shell Editor", and several utility icons. Below this is a menu bar with "File", "Edit", "Selection", "View", "Go", "Run", "Terminal", and "Help".

The left sidebar contains an "EXPLORER" view showing a file tree for a workspace named "NUVEMAULA". The files listed are exe03.py, exe06.py, exe10.py, exe11.py, exe12.py, exe13.py, exe14.py, exe15.py, and exe16.py. The "OPEN EDITORS" section is currently empty.

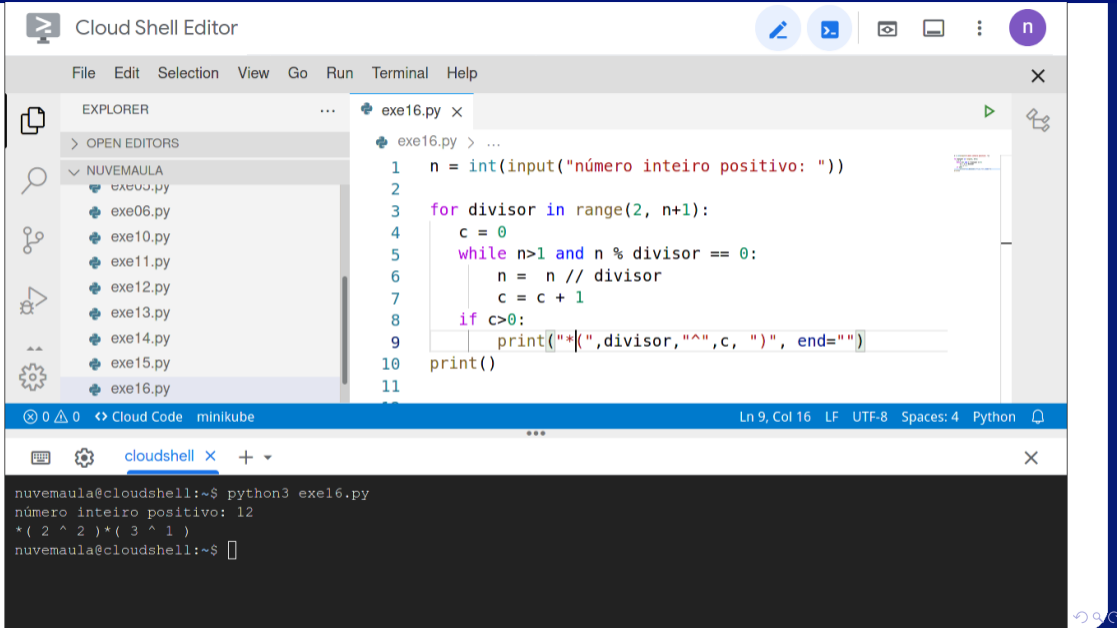
The main editor area displays the code for "exe16.py":`1 n = int(input("número inteiro positivo: "))
2
3 for divisor in range(2, n+1):
4 c = 0
5 while n>1 and n % divisor == 0:
6 n = n // divisor
7 c = c + 1
8 if c>0:
9 print("(" + divisor + "^" + c + ")", end="")
10 print()`

The status bar at the bottom of the editor shows "Ln 9, Col 43 LF UTF-8 Spaces: 4 Python".

Below the editor is a terminal window with the following output:

```
nuvemaula@cloudshell:~$ python3 exe16.py
número inteiro positivo: 12
( 2 ^ 2 )( 3 ^ 1 )
nuvemaula@cloudshell:~$
```





The image shows a Cloud Shell Editor interface. The top bar includes a terminal icon, the text "Cloud Shell Editor", and several utility icons (edit, run, refresh, close) and a user profile icon with the letter "n". Below this is a menu bar with "File", "Edit", "Selection", "View", "Go", "Run", "Terminal", and "Help".

The left sidebar contains an "EXPLORER" view showing a file tree for "NUVEMAULA" with files named exe03.py through exe16.py. The "OPEN EDITORS" section shows "exe16.py" is open.

The main editor area displays the code for "exe16.py":1 n = int(input("número inteiro positivo: "))
2
3 for divisor in range(2, n+1):
4 c = 0
5 while n>1 and n % divisor == 0:
6 n = n // divisor
7 c = c + 1
8 if c>0:
9 print("\*(",divisor,"^",c, ")", end="")
10 print()
11

The status bar at the bottom of the editor shows "Ln 9, Col 16 LF UTF-8 Spaces: 4 Python".

Below the editor is a terminal window with the following text:nuvemaula@cloudshell:~\$ python3 exe16.py
número inteiro positivo: 12
\*( 2 ^ 2 )\*( 3 ^ 1 )
nuvemaula@cloudshell:~\$

Cloud Shell Editor

File Edit Selection View Go Run Terminal Help

EXPLORER

OPEN EDITORS

NUVEMAULA

- exe03.py
- exe04.py
- exe05.py
- exe06.py
- exe10.py
- exe11.py
- exe12.py
- exe13.py
- exe14.py
- exe15.py
- exe16.py

exe16.py

```

1  n = int(input("número inteiro positivo: "))
2  flag = 0
3  for divisor in range(2, n+1):
4      c = 0
5      while n>1 and n % divisor == 0:
6          n = n // divisor
7          c = c + 1
8      if c>0:
9          if flag == 0:
10             flag = 1
11             else:
12                 print(" ", end=" ")
13             print("(", divisor, "^", c, ")", end="")
14 print()

```

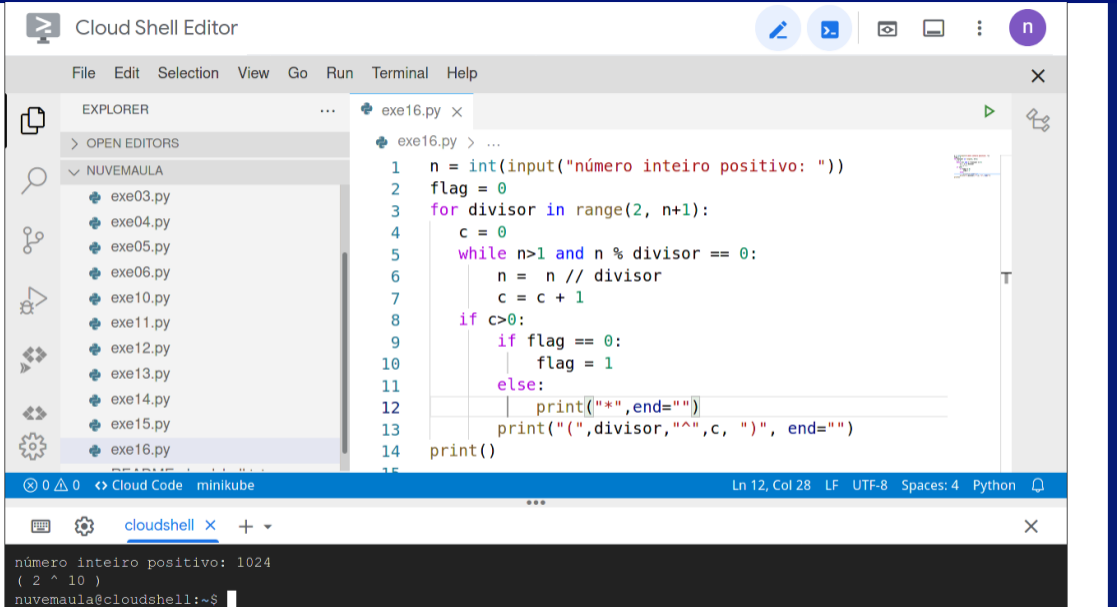
Ln 12, Col 28 LF UTF-8 Spaces: 4 Python

cloudshell

```

número inteiro positivo: 12
( 2 ^ 2 )*( 3 ^ 1 )
nuvemaula@cloudshell:~$

```



The screenshot shows the Cloud Shell Editor interface. The Explorer pane on the left lists files from exe03.py to exe16.py. The main editor displays the code for exe16.py, which is a Python script to find the prime factors of a user-input number. The code uses a while loop to divide the number by its smallest divisor until it reaches 1, printing each divisor and its count.

```
1 n = int(input("número inteiro positivo: "))
2 flag = 0
3 for divisor in range(2, n+1):
4     c = 0
5     while n>1 and n % divisor == 0:
6         n = n // divisor
7         c = c + 1
8     if c>0:
9         if flag == 0:
10            flag = 1
11        else:
12            print(" ", end=" ")
13            print("(", divisor, "^", c, ")", end=" ")
14 print()
```

The status bar at the bottom indicates the cursor is at line 12, column 28. The terminal output shows the program's execution with the input 1024, resulting in the prime factorization (2 ^ 10).

```
nuúmero inteiro positivo: 1024
( 2 ^ 10 )
nuvemaula@cloudshell:~$
```

Cloud Shell Editor

File Edit Selection View Go Run Terminal Help

EXPLORER

OPEN EDITORS

NUVEMAULA

- exe03.py
- exe04.py
- exe05.py
- exe06.py
- exe10.py
- exe11.py
- exe12.py
- exe13.py
- exe14.py
- exe15.py
- exe16.py

exe16.py

```

1  n = int(input("número inteiro positivo: "))
2  flag = 0
3  for divisor in range(2, n+1):
4      c = 0
5      while n>1 and n % divisor == 0:
6          n = n // divisor
7          c = c + 1
8      if c>0:
9          if flag == 0:
10             flag = 1
11         else:
12             print(" ", end=" ")
13             print("(", divisor, "^", c, ")", end=" ")
14     print()
15

```

Ln 12, Col 28 LF UTF-8 Spaces: 4 Python

cloudshell

```

número inteiro positivo: 3628800
( 2 ^ 8 )*( 3 ^ 4 )*( 5 ^ 2 )*( 7 ^ 1 )
nuvemaula@cloudshell:~$

```

# Perguntas ....

# Referências

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