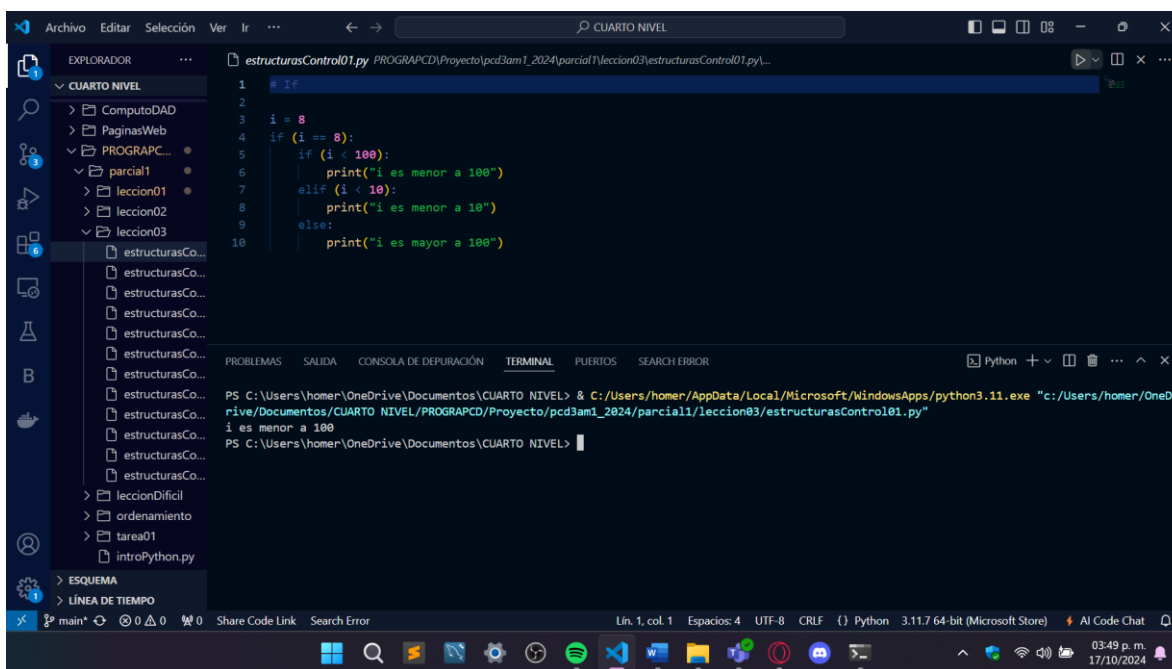
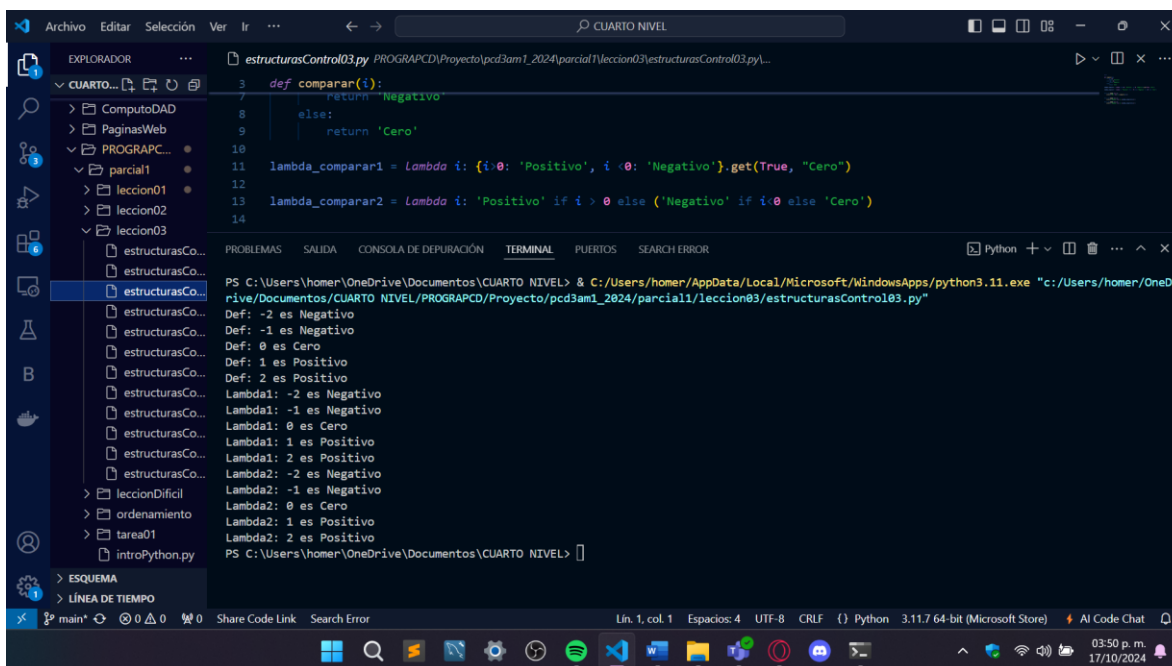


Lección 3



```
1 # If
2
3 i = 8
4 if (i == 8):
5     if (i < 100):
6         print("i es menor a 100")
7     elif (i < 10):
8         print("i es menor a 10")
9     else:
10        print("i es mayor a 100")
```

```
PS C:\Users\homer\OneDrive\Documentos\CUARTO NIVEL> & C:\Users\homer\AppData\Local\Microsoft\WindowsApps\python3.11.exe "c:/Users/homer/OneDrive/Documentos/CUARTO NIVEL/PROGRAPCD/Proyecto/pcd3am1_2024/parcial1/leccion3/estructurasControl01.py"
i es menor a 100
PS C:\Users\homer\OneDrive\Documentos\CUARTO NIVEL>
```



```
3 def comparar(i):
4     if i < 0:
5         return 'Negativo'
6     elif i > 0:
7         return 'Positivo'
8     else:
9         return 'Cero'
10
11 lambda_comparar1 = Lambda i: (i < 0: 'Positivo', i < 0: 'Negativo').get(True, "Cero")
12
13 lambda_comparar2 = Lambda i: 'Positivo' if i > 0 else ('Negativo' if i < 0 else 'Cero')
14
```

```
PS C:\Users\homer\OneDrive\Documentos\CUARTO NIVEL> & C:\Users\homer\AppData\Local\Microsoft\WindowsApps\python3.11.exe "c:/Users/homer/OneDrive/Documentos/CUARTO NIVEL/PROGRAPCD/Proyecto/pcd3am1_2024/parcial1/leccion3/estructurasControl03.py"
Def: -2 es Negativo
Def: -1 es Negativo
Def: 0 es Cero
Def: 1 es Positivo
Def: 2 es Positivo
Lambda1: -2 es Negativo
Lambda1: -1 es Negativo
Lambda1: 0 es Cero
Lambda1: 1 es Positivo
Lambda1: 2 es Positivo
Lambda2: -2 es Negativo
Lambda2: -1 es Negativo
Lambda2: 0 es Cero
Lambda2: 1 es Positivo
Lambda2: 2 es Positivo
PS C:\Users\homer\OneDrive\Documentos\CUARTO NIVEL>
```

```
1  # For
2
3  cadena = "Hola Mundo!"
4  for c in cadena:
5      print(c)
```

PROBLEMAS SALIDA CONSOLA DE DEPURACIÓN TERMINAL PUERTOS SEARCH ERROR

Python + Python 3.11.7 64-bit (Microsoft Store) AI Code Chat

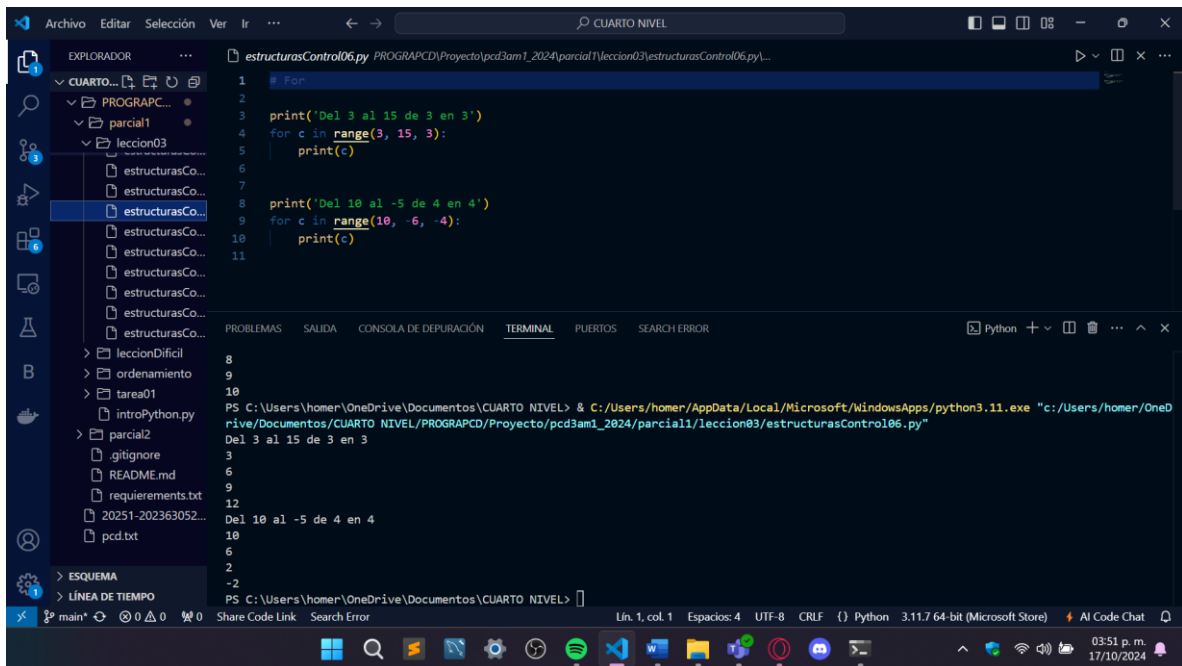
03:50 p. m. 17/10/2024

```
1  # For
2
3  for c in range(0, 11):
4      print(c)
```

PROBLEMAS SALIDA CONSOLA DE DEPURACIÓN TERMINAL PUERTOS SEARCH ERROR

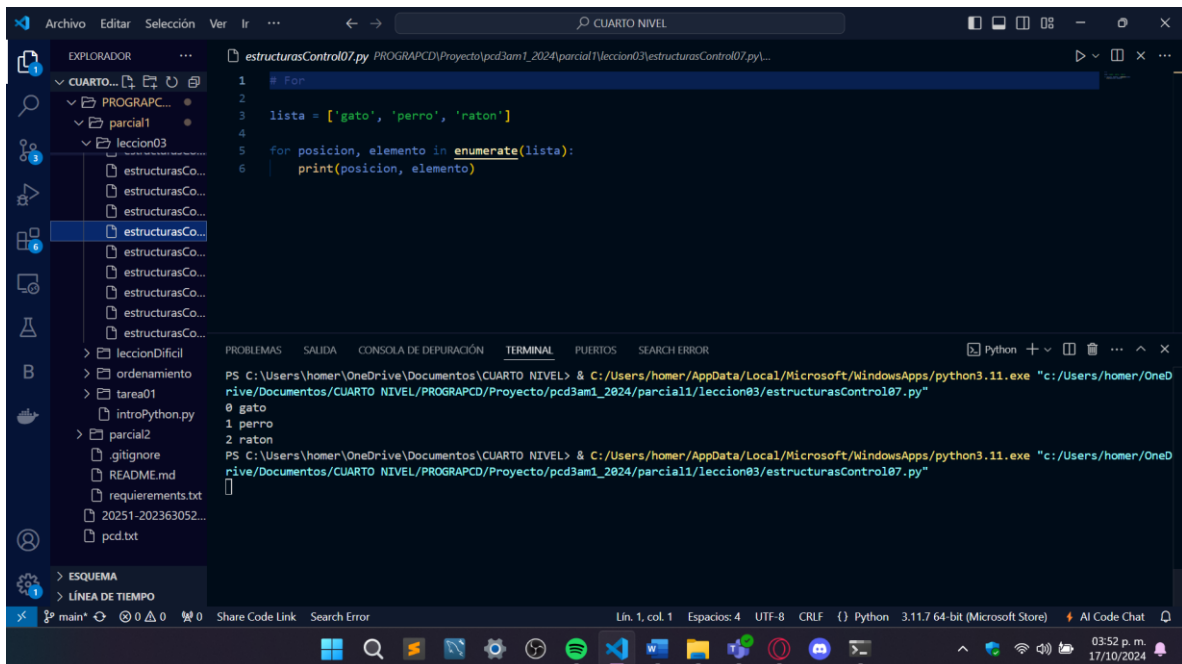
Python + Python 3.11.7 64-bit (Microsoft Store) AI Code Chat

03:51 p. m. 17/10/2024



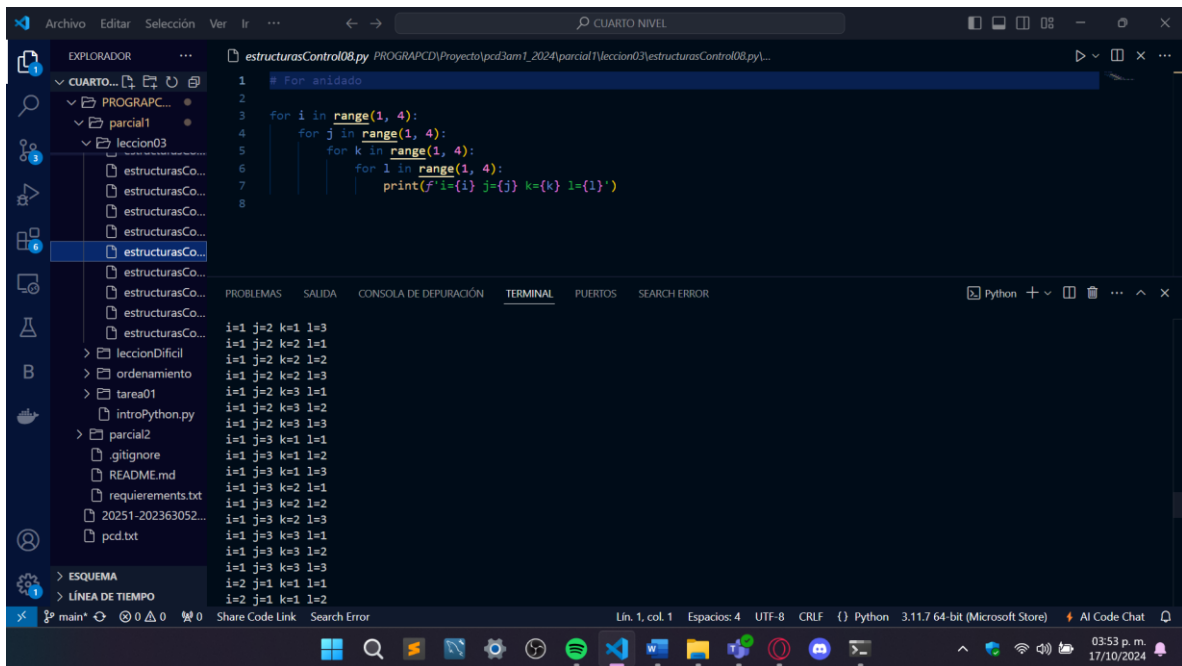
```
1  for
2
3  print('Del 3 al 15 de 3 en 3')
4  for c in range(3, 15, 3):
5      print(c)
6
7
8  print('Del 10 al -5 de 4 en 4')
9  for c in range(10, -6, -4):
10     print(c)
11
```

```
PS C:\Users\homer\OneDrive\Documentos\CUARTO NIVEL> & C:/Users/homer/AppData/Local/Microsoft/WindowsApps/python3.11.exe "c:/Users/homer/OneDrive/Documentos/CUARTO NIVEL/PROGRAPCD/Proyecto/pcd3am1_2024/parcial1/leccion03/estructurasControl06.py"
Del 3 al 15 de 3 en 3
3
6
9
12
Del 10 al -5 de 4 en 4
10
6
-2
```



```
1  for
2
3  lista = ['gato', 'perro', 'raton']
4
5  for posicion, elemento in enumerate(lista):
6      print(posicion, elemento)
```

```
PS C:\Users\homer\OneDrive\Documentos\CUARTO NIVEL> & C:/Users/homer/AppData/Local/Microsoft/WindowsApps/python3.11.exe "c:/Users/homer/OneDrive/Documentos/CUARTO NIVEL/PROGRAPCD/Proyecto/pcd3am1_2024/parcial1/leccion03/estructurasControl07.py"
0 gato
1 perro
2 raton
```



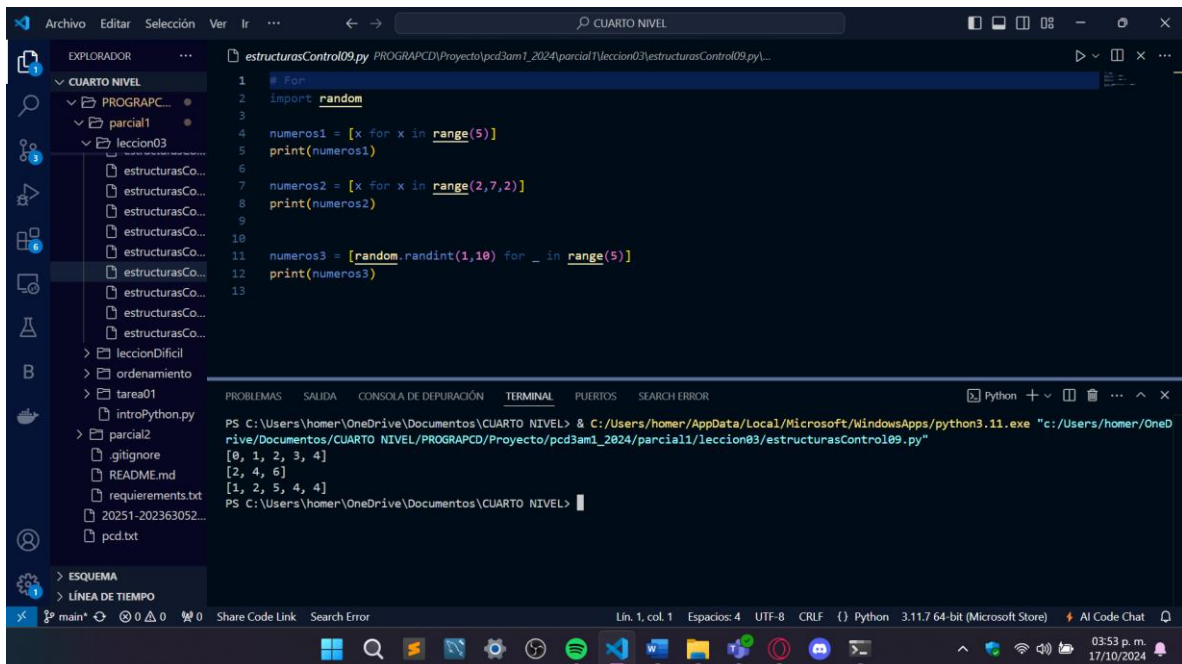
The screenshot shows the Visual Studio Code editor with a file named `estructurasControl08.py` open. The code consists of a single line of a nested loop: `for i in range(1, 4):` followed by `for j in range(1, 4):` followed by `for k in range(1, 4):` followed by `print(f'i={i} j={j} k={k} l={l}')`. The file explorer on the left shows a project structure with folders like `CUARTO NIVEL`, `PROGRAPCD`, `parcial1`, and `leccion03`. The terminal at the bottom shows the output of the script, which is a list of values for `i`, `j`, `k`, and `l`.

```
1 for i in range(1, 4):
2
3     for j in range(1, 4):
4         for k in range(1, 4):
5             for l in range(1, 4):
6                 print(f'i={i} j={j} k={k} l={l}')
```

PROBLEMAS SALIDA CONSOLA DE DEPURACIÓN TERMINAL PUERTOS SEARCH ERROR

```
i=1 j=2 k=1 l=3
i=1 j=2 k=2 l=1
i=1 j=2 k=2 l=2
i=1 j=2 k=2 l=3
i=1 j=2 k=3 l=1
i=1 j=2 k=3 l=2
i=1 j=2 k=3 l=3
i=1 j=3 k=1 l=1
i=1 j=3 k=1 l=2
i=1 j=3 k=1 l=3
i=1 j=3 k=2 l=1
i=1 j=3 k=2 l=2
i=1 j=3 k=2 l=3
i=1 j=3 k=3 l=1
i=1 j=3 k=3 l=2
i=1 j=3 k=3 l=3
i=2 j=1 k=1 l=1
i=2 j=1 k=1 l=2
```

Lin. 1, col. 1 Espacios: 4 UTF-8 CRLF Python 3.11.7 64-bit (Microsoft Store) AI Code Chat



The screenshot shows the Visual Studio Code editor with a file named `estructurasControl09.py` open. The code uses list comprehensions and the `random` module to generate three lists of numbers. The file explorer on the left shows a project structure with folders like `CUARTO NIVEL`, `PROGRAPCD`, `parcial1`, and `leccion03`. The terminal at the bottom shows the output of the script, which is three lists of numbers.

```
1 for
2 import random
3
4 numeros1 = [x for x in range(5)]
5 print(numeros1)
6
7 numeros2 = [x for x in range(2,7,2)]
8 print(numeros2)
9
10
11 numeros3 = [random.randint(1,10) for _ in range(5)]
12 print(numeros3)
13
```

PROBLEMAS SALIDA CONSOLA DE DEPURACIÓN TERMINAL PUERTOS SEARCH ERROR

```
PS C:\Users\homer\OneDrive\Documents\CUARTO NIVEL> & C:\Users\homer\AppData\Local\Microsoft\WindowsApps\python3.11.exe "c:/Users/homer/OneDrive/
Documents/CUARTO NIVEL/PROGRAPCD/Proyecto/pcd3am1_2024/parcial1/leccion03/estructurasControl09.py"
[0, 1, 2, 3, 4]
[2, 4, 6]
[1, 2, 5, 4, 4]
PS C:\Users\homer\OneDrive\Documents\CUARTO NIVEL>
```

Lin. 1, col. 1 Espacios: 4 UTF-8 CRLF Python 3.11.7 64-bit (Microsoft Store) AI Code Chat

```
1  # For
2
3  animales = ['Leon', 'Zebra', 'Murcielago', 'Humano']
4  comidas = ['Carnivoro', 'Herbivoro', 'Insectivoro', 'Omnivoro']
5
6  for animal, comida in zip(animales, comidas):
7      print(f'{animal} es {comida}')
```

PROBLEMAS SALIDA CONSOLA DE DEPURACIÓN TERMINAL PUERTOS SEARCH ERROR

PS C:\Users\homer\OneDrive\Documentos\CUARTO NIVEL> & C:/Users/homer/AppData/Local/Microsoft/WindowsApps/python3.11.exe "c:/Users/homer/OneDrive/Documentos/CUARTO NIVEL/PROGRAPCD/Proyecto/pcd3am1_2024/parcial1/leccion03/estructurasControl10.py"

Leon es Carnivoro
Zebra es Herbivoro
Murcielago es Insectivoro
Humano es Omnivoro
PS C:\Users\homer\OneDrive\Documentos\CUARTO NIVEL>

```
1  # For
2
3  cadena = 'Murcielago'
4
5  for c in cadena:
6      if c == 'l':
7          print('g', end='')
8      elif c == 'g':
9          print('l', end='')
10     else:
11         print(c, end='')
12
13
```

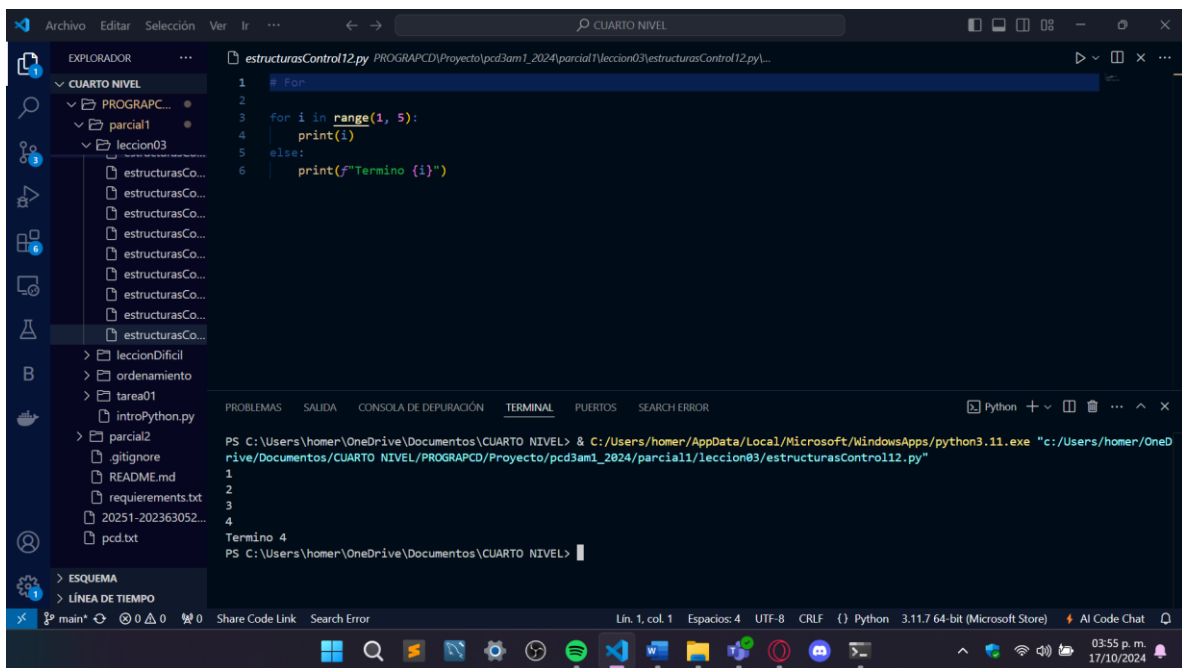
PROBLEMAS SALIDA CONSOLA DE DEPURACIÓN TERMINAL PUERTOS SEARCH ERROR

rive/Documentos/CUARTO NIVEL/PROGRAPCD/Proyecto/pcd3am1_2024/parcial1/leccion03/estructurasControl11.py"

Murcielago
PS C:\Users\homer\OneDrive\Documentos\CUARTO NIVEL> & C:/Users/homer/AppData/Local/Microsoft/WindowsApps/python3.11.exe "c:/Users/homer/OneDrive/Documentos/CUARTO NIVEL/PROGRAPCD/Proyecto/pcd3am1_2024/parcial1/leccion03/estructurasControl11.py"

Murcielago
PS C:\Users\homer\OneDrive\Documentos\CUARTO NIVEL>

López Sánchez Sebastián 3AM1



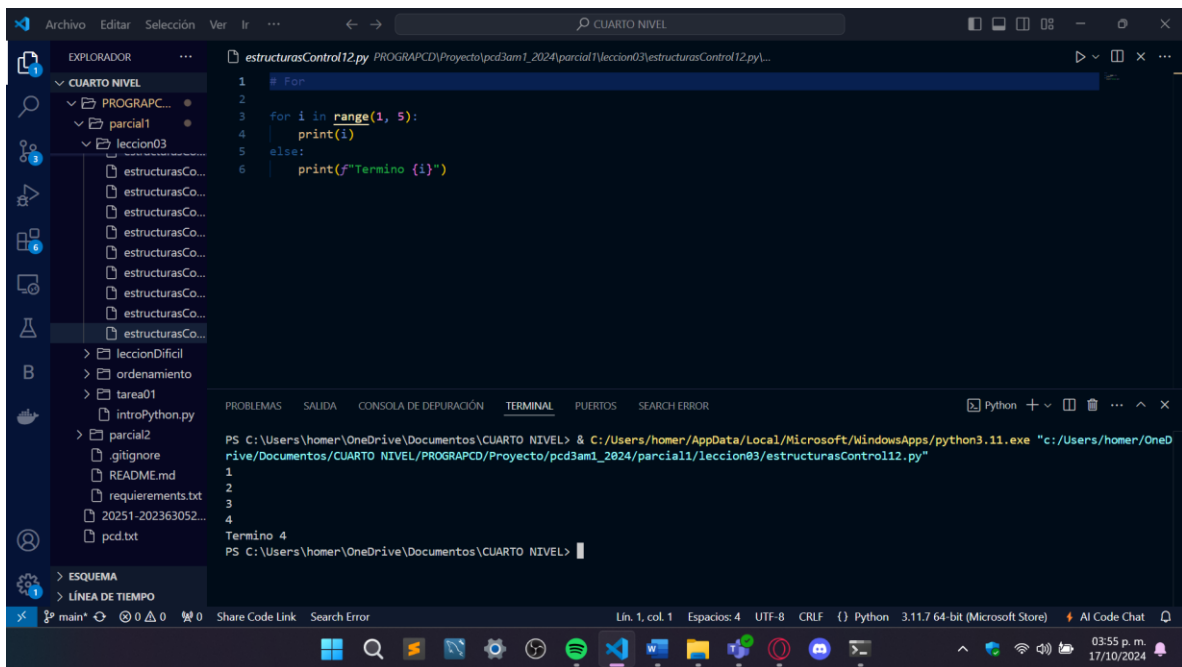
The screenshot shows the Visual Studio Code interface with a file explorer on the left and a code editor in the center. The file explorer shows a project structure with folders like 'CUARTO NIVEL', 'PROGRAPC...', 'parcial1', and 'leccion03'. The code editor displays a Python script named 'estructurasControl12.py' with the following code:

```
1 # For
2
3 for i in range(1, 5):
4     print(i)
5 else:
6     print(f"Termino {i}")
```

The terminal at the bottom shows the command to run the script and its output:

```
PS C:\Users\homer\OneDrive\Documentos\CUARTO NIVEL> & C:/Users/homer/AppData/Local/Microsoft/WindowsApps/python3.11.exe "c:/Users/homer/OneDrive/Documentos/CUARTO NIVEL/PROGRAPCD/Proyecto/pcd3am1_2024/parcial1/leccion03/estructurasControl12.py"
1
2
3
4
Termino 4
PS C:\Users\homer\OneDrive\Documentos\CUARTO NIVEL>
```

Lección Difícil



This screenshot is identical to the one above, showing the same Visual Studio Code interface with the Python script 'estructurasControl12.py' and its execution in the terminal. The code and terminal output are the same as in the first screenshot.

The screenshot shows the Visual Studio Code interface with the file explorer on the left displaying a project structure. The file 'difícil02.py' is selected under the 'lecciónDifícil' folder. The main editor displays the code for 'difícil02.py', which defines variables 'a' and 'b' and prints their values. The terminal at the bottom shows the command to run the script and its output.

```
1 a = 3
2 b = 10
3
4 print(f'a={a} y b={b}')
5 a, b = b, a
6 print(f'a={a} y b={b}')
7
```

```
PS C:\Users\homer\OneDrive\Documentos\CUARTO NIVEL> & C:/Users/homer/AppData/Local/Microsoft/WindowsApps/python3.11.exe "c:/Users/homer/OneDrive/Documentos/CUARTO NIVEL/PROGRAPCD/Proyecto/pcd3am1_2024/parcial1/lecciónDifícil/difícil02.py"
3 9 27
[3, 9, 27]
PS C:\Users\homer\OneDrive\Documentos\CUARTO NIVEL> & C:/Users/homer/AppData/Local/Microsoft/WindowsApps/python3.11.exe "c:/Users/homer/OneDrive/Documentos/CUARTO NIVEL/PROGRAPCD/Proyecto/pcd3am1_2024/parcial1/lecciónDifícil/difícil02.py"
a=3 y b=10
a=10 y b=3
PS C:\Users\homer\OneDrive\Documentos\CUARTO NIVEL>
```

The screenshot shows the Visual Studio Code interface with the file explorer on the left displaying a project structure. The file 'difícil03.py' is selected under the 'lecciónDifícil' folder. The main editor displays the code for 'difícil03.py', which defines a function 'cuadrado' and a lambda function, and prints their results. The terminal at the bottom shows the command to run the script and its output.

```
1 def cuadrado(x):
2     # Esta función eleva al cuadrado el parametro x
3     y = x**2
4     return y
5
6 lambda_cuadrado = lambda x: x**2
7
8 print(f'Con def: {cuadrado(5)}')
9 print(f'Con función lambda: {lambda_cuadrado(5)}')
```

```
PS C:\Users\homer\OneDrive\Documentos\CUARTO NIVEL> & C:/Users/homer/AppData/Local/Microsoft/WindowsApps/python3.11.exe "c:/Users/homer/OneDrive/Documentos/CUARTO NIVEL/PROGRAPCD/Proyecto/pcd3am1_2024/parcial1/lecciónDifícil/difícil03.py"
Con def: 25
Con función lambda: 25
PS C:\Users\homer\OneDrive\Documentos\CUARTO NIVEL>
```


The screenshot shows the Visual Studio Code interface with the file explorer on the left displaying a project structure. The main editor window shows the code for `difícil04.py`, which imports the `math` module and defines a lambda function `lambda_pitagoras` to calculate the hypotenuse. The script then prints the result for `a=3` and `b=4`.

```
1 import math
2
3 lambda_pitagoras = lambda x,y: math.sqrt(x**2+y**2)
4 a=3
5 b=4
6 c=lambda_pitagoras(a,b)
7 print(f'La hipotenusa de un triángulo rectángulo')
8 print(f'Catetos a={a} y b={b}')
9 print(f'Hipotenusa c={c}')
```

The terminal at the bottom shows the command to run the script and its output:

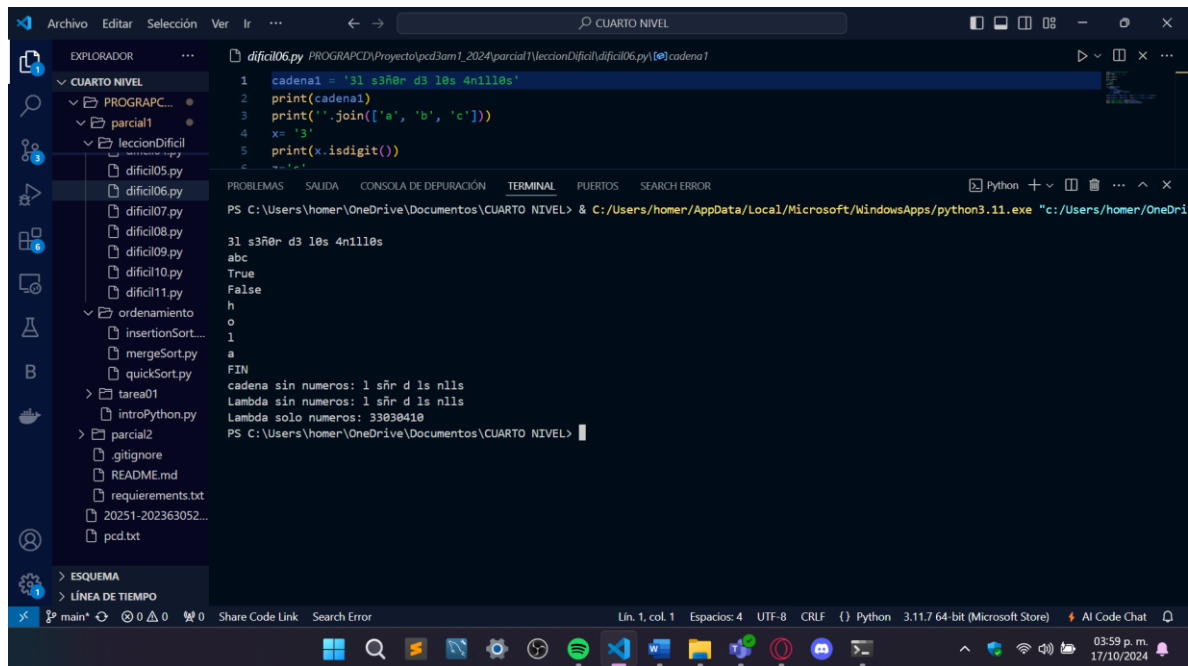
```
PS C:\Users\homer\OneDrive\Documentos\CUARTO NIVEL> & C:/Users/homer/AppData/Local/Microsoft/WindowsApps/python3.11.exe "c:/Users/homer/OneDrive/Documentos/CUARTO NIVEL/PROGRAPCD/Proyecto/pcd3am1_2024/parcial1/leccionDifícil/difícil04.py"
Con def: 25
Con función lambda: 25
PS C:\Users\homer\OneDrive\Documentos\CUARTO NIVEL> & C:/Users/homer/AppData/Local/Microsoft/WindowsApps/python3.11.exe "c:/Users/homer/OneDrive/Documentos/CUARTO NIVEL/PROGRAPCD/Proyecto/pcd3am1_2024/parcial1/leccionDifícil/difícil04.py"
La hipotenusa de un triángulo rectángulo
Catetos a=3 y b=4
Hipotenusa c=5.0
PS C:\Users\homer\OneDrive\Documentos\CUARTO NIVEL>
```

The screenshot shows the Visual Studio Code interface with the file explorer on the left displaying a project structure. The main editor window shows the code for `difícil05.py`, which imports the `random` module and defines a lambda function `lambda_parity` to check if a number is even or odd. The script then generates a list of 5 random numbers and prints the parity of each.

```
1 import random
2 lambda_parity = lambda n: 'Par' if n%2==0 else 'Impar'
3
4 lista = [random.randint(1,100) for i in range(5)]
5 print(lista)
6
7 for n in lista:
8     print(f'{n} es {lambda_parity(n)}')
```

The terminal at the bottom shows the command to run the script and its output:

```
PS C:\Users\homer\OneDrive\Documentos\CUARTO NIVEL> & C:/Users/homer/AppData/Local/Microsoft/WindowsApps/python3.11.exe "c:/Users/homer/OneDrive/Documentos/CUARTO NIVEL/PROGRAPCD/Proyecto/pcd3am1_2024/parcial1/leccionDifícil/difícil05.py"
[34, 26, 6, 86, 65]
34 es Par
26 es Par
6 es Par
86 es Par
65 es Impar
PS C:\Users\homer\OneDrive\Documentos\CUARTO NIVEL>
```

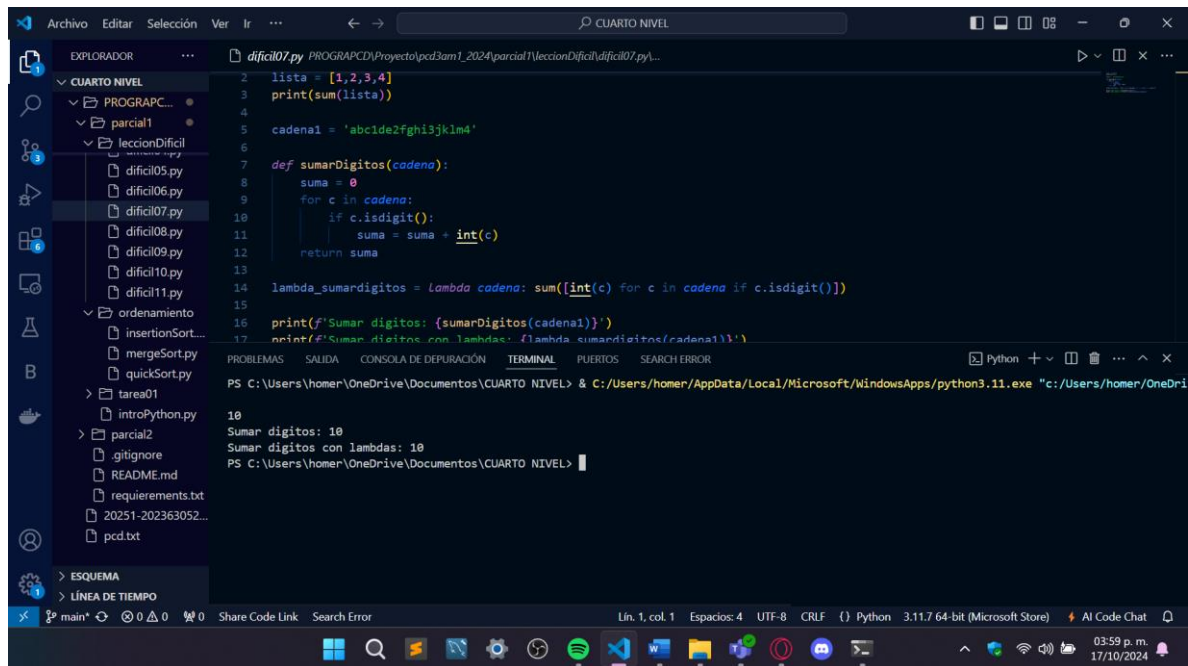



The screenshot shows a VS Code editor window with the file explorer on the left. The file explorer shows a project structure with folders 'CUARTO NIVEL', 'PROGRAPC...', 'parcial1', and 'lecciónDifícil'. The file 'difícil06.py' is selected. The editor displays the following code:

```
1 cadena1 = '31 sñ0r d3 10s 4n11l0s'
2 print(cadena1)
3 print(''.join(['a', 'b', 'c']))
4 x = '3'
5 print(x.isdigit())
```

The terminal output shows the execution of the script:

```
PS C:\Users\homer\OneDrive\Documentos\CUARTO NIVEL> & C:/Users/homer/AppData/Local/Microsoft/WindowsApps/python3.11.exe "c:/Users/homer/OneDrive\Documentos\CUARTO NIVEL\difícil06.py"
31 sñ0r d3 10s 4n11l0s
abc
True
False
```

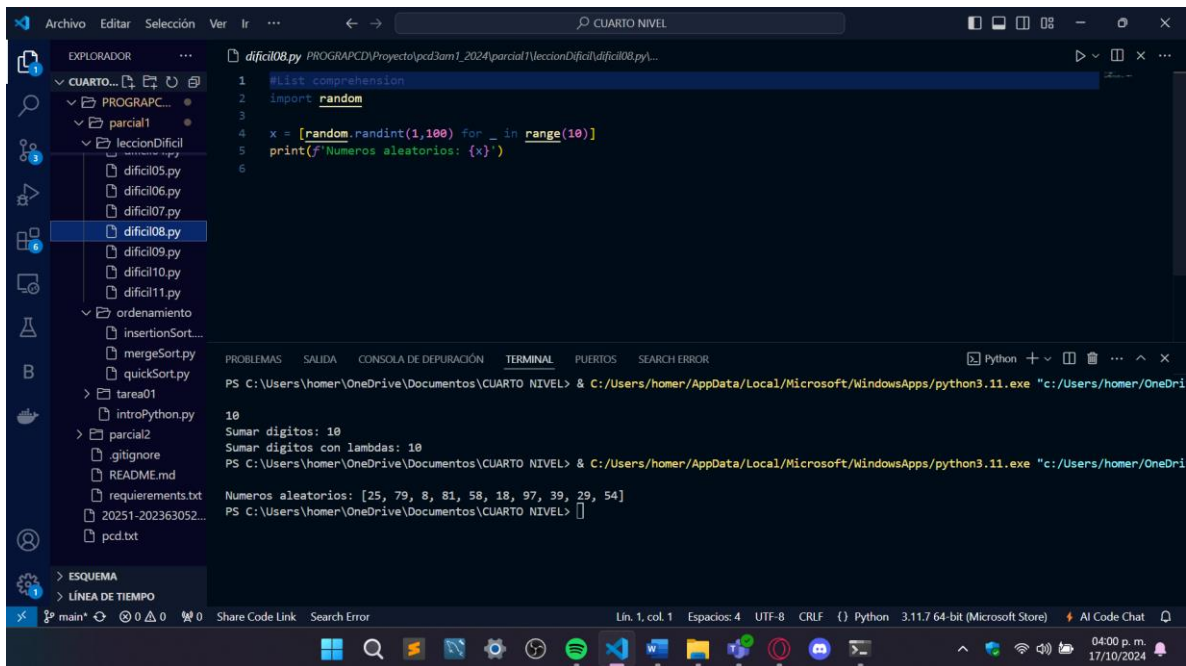


The screenshot shows a VS Code editor window with the file explorer on the left. The file explorer shows a project structure with folders 'CUARTO NIVEL', 'PROGRAPC...', 'parcial1', and 'lecciónDifícil'. The file 'difícil07.py' is selected. The editor displays the following code:

```
2 lista = [1,2,3,4]
3 print(sum(lista))
4
5 cadena1 = 'abc1de2fghi3jk1m4'
6
7 def sumarDigitos(cadena):
8     suma = 0
9     for c in cadena:
10         if c.isdigit():
11             suma = suma + int(c)
12     return suma
13
14 lambda_sumardigitos = Lambda cadena: sum([int(c) for c in cadena if c.isdigit()])
15
16 print(f'Sumar digitos: {sumarDigitos(cadena1)}')
17 print(f'Sumar digitos con lambdas: {(lambda_sumardigitos(cadena1))}')
18
```

The terminal output shows the execution of the script:

```
PS C:\Users\homer\OneDrive\Documentos\CUARTO NIVEL> & C:/Users/homer/AppData/Local/Microsoft/WindowsApps/python3.11.exe "c:/Users/homer/OneDrive\Documentos\CUARTO NIVEL\difícil07.py"
10
Sumar digitos: 10
Sumar digitos con lambdas: 10
PS C:\Users\homer\OneDrive\Documentos\CUARTO NIVEL>
```



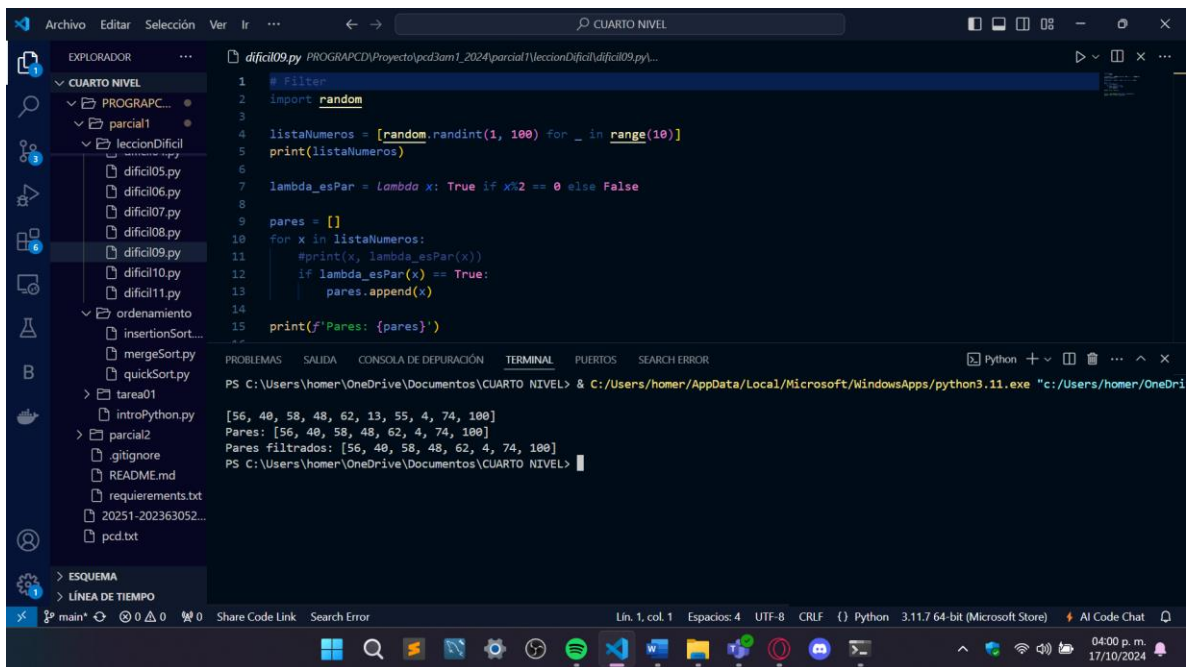
```
1 #list comprehension
2 import random
3
4 x = [random.randint(1,100) for _ in range(10)]
5 print(f'Numeros aleatorios: {x}')
6
```

PROBLEMAS SALIDA CONSOLA DE DEPURACIÓN TERMINAL PUERTOS SEARCH ERROR

PS C:\Users\homer\OneDrive\Documentos\CUARTO NIVEL> & C:/Users/homer/AppData/Local/Microsoft/WindowsApps/python3.11.exe "c:/Users/homer/OneDrive\Documentos\CUARTO NIVEL\difícil08.py"

10
Sumar dígitos: 10
Sumar dígitos con lambdas: 10
PS C:\Users\homer\OneDrive\Documentos\CUARTO NIVEL> & C:/Users/homer/AppData/Local/Microsoft/WindowsApps/python3.11.exe "c:/Users/homer/OneDrive\Documentos\CUARTO NIVEL\difícil08.py"

Numeros aleatorios: [25, 79, 8, 81, 58, 18, 97, 39, 29, 54]
PS C:\Users\homer\OneDrive\Documentos\CUARTO NIVEL>

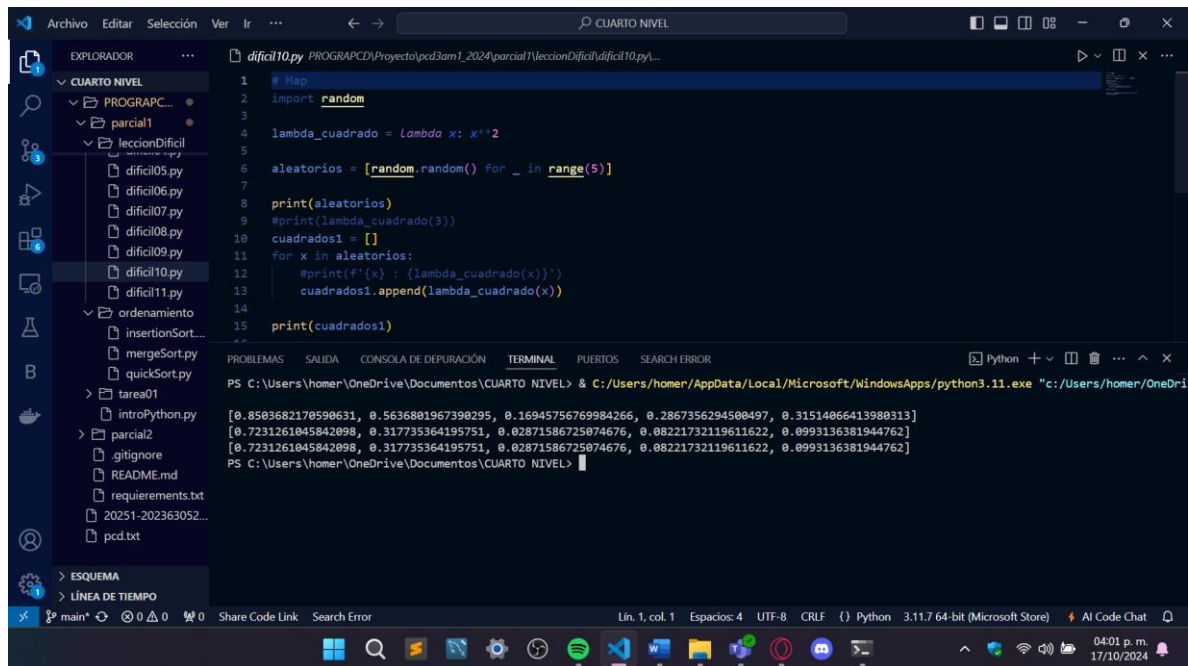


```
1 #Filter
2 import random
3
4 listaNumeros = [random.randint(1, 100) for _ in range(10)]
5 print(listaNumeros)
6
7 lambda_esPar = lambda x: True if x%2 == 0 else False
8
9 pares = []
10 for x in listaNumeros:
11     #print(x, lambda_esPar(x))
12     if lambda_esPar(x) == True:
13         pares.append(x)
14
15 print(f'Pares: {pares}')
```

PROBLEMAS SALIDA CONSOLA DE DEPURACIÓN TERMINAL PUERTOS SEARCH ERROR

PS C:\Users\homer\OneDrive\Documentos\CUARTO NIVEL> & C:/Users/homer/AppData/Local/Microsoft/WindowsApps/python3.11.exe "c:/Users/homer/OneDrive\Documentos\CUARTO NIVEL\difícil09.py"

[56, 40, 58, 48, 62, 13, 55, 4, 74, 100]
Pares: [56, 40, 58, 48, 62, 4, 74, 100]
Pares filtrados: [56, 40, 58, 48, 62, 4, 74, 100]
PS C:\Users\homer\OneDrive\Documentos\CUARTO NIVEL>



Archivo Editar Selección Ver Ir ... CUARTO NIVEL

EXPLORADOR

- CUARTO NIVEL
 - PROGRAPC...
 - parcial1
 - leccionDifícil
 - difícil05.py
 - difícil06.py
 - difícil07.py
 - difícil08.py
 - difícil09.py
 - difícil10.py
 - difícil11.py
 - ordenamiento
 - insertionSort...
 - mergeSort.py
 - quickSort.py
 - task01
 - introPython.py
 - parcial2
 - .gitignore
 - README.md
 - requirements.txt
 - 20251-202363052...
 - pcd.txt

ESQUEMA

LÍNEA DE TIEMPO

main*

PROBLEMAS SALIDA CONSOLA DE DEPURACIÓN TERMINAL PUERTOS SEARCH ERROR

Python + Python 3.11.7 64-bit (Microsoft Store) AI Code Chat

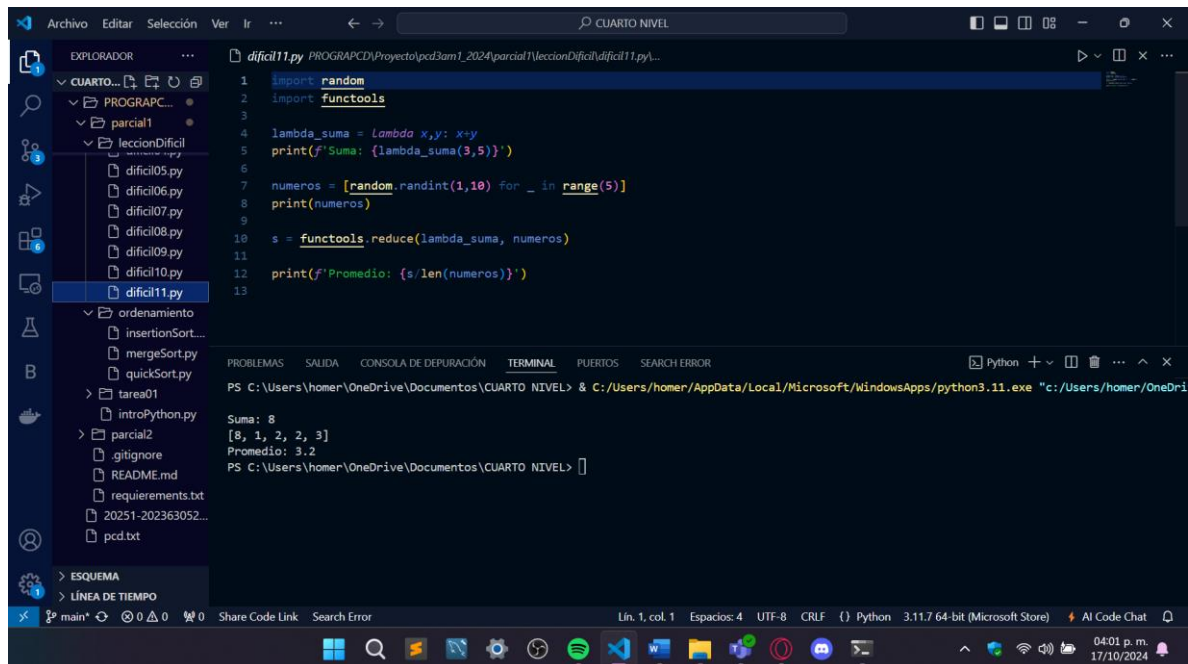
```
1 # Map
2 import random
3
4 lambda_cuadrado = lambda x: x**2
5
6 aleatorios = [random.random() for _ in range(5)]
7
8 print(aleatorios)
9 #print(lambda_cuadrado(3))
10 cuadrados1 = []
11 for x in aleatorios:
12     #print(f'{x} : {lambda_cuadrado(x)}')
13     cuadrados1.append(lambda_cuadrado(x))
14
15 print(cuadrados1)
```

PS C:\Users\homer\OneDrive\Documentos\CUARTO NIVEL> & C:/Users/homer/AppData/Local/Microsoft/WindowsApps/python3.11.exe "c:/Users/homer/OneDrive\Documentos\CUARTO NIVEL\leccionDifícil\difícil10.py"

[0.8503682170590631, 0.5636801967398295, 0.16945756769984266, 0.2867356294500497, 0.31514066413980313]
[0.7231261045842098, 0.317735364195751, 0.02871586725074676, 0.08221732119611622, 0.0993136381944762]
[0.7231261045842098, 0.317735364195751, 0.02871586725074676, 0.08221732119611622, 0.0993136381944762]
PS C:\Users\homer\OneDrive\Documentos\CUARTO NIVEL>

Lin. 1, col. 1 Espacios: 4 UTF-8 CRLF () Python 3.11.7 64-bit (Microsoft Store) AI Code Chat

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EXPLORADOR

- CUARTO NIVEL
 - PROGRAPC...
 - parcial1
 - leccionDifícil
 - difícil05.py
 - difícil06.py
 - difícil07.py
 - difícil08.py
 - difícil09.py
 - difícil10.py
 - difícil11.py
 - ordenamiento
 - insertionSort...
 - mergeSort.py
 - quickSort.py
 - task01
 - introPython.py
 - parcial2
 - .gitignore
 - README.md
 - requirements.txt
 - 20251-202363052...
 - pcd.txt

ESQUEMA

LÍNEA DE TIEMPO

main*

PROBLEMAS SALIDA CONSOLA DE DEPURACIÓN TERMINAL PUERTOS SEARCH ERROR

Python + Python 3.11.7 64-bit (Microsoft Store) AI Code Chat

```
1 import random
2 import functools
3
4 lambda_suma = lambda x,y: x+y
5 print(f'Suma: {lambda_suma(3,5)}')
6
7 numeros = [random.randint(1,10) for _ in range(5)]
8 print(numeros)
9
10 s = functools.reduce(lambda_suma, numeros)
11
12 print(f'Promedio: {s/len(numeros)}')
```

PS C:\Users\homer\OneDrive\Documentos\CUARTO NIVEL> & C:/Users/homer/AppData/Local/Microsoft/WindowsApps/python3.11.exe "c:/Users/homer/OneDrive\Documentos\CUARTO NIVEL\leccionDifícil\difícil11.py"

Suma: 8
[8, 1, 2, 2, 3]
Promedio: 3.2
PS C:\Users\homer\OneDrive\Documentos\CUARTO NIVEL>

Lin. 1, col. 1 Espacios: 4 UTF-8 CRLF () Python 3.11.7 64-bit (Microsoft Store) AI Code Chat

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