

Lab Assignment – 4.2

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Batch – 29

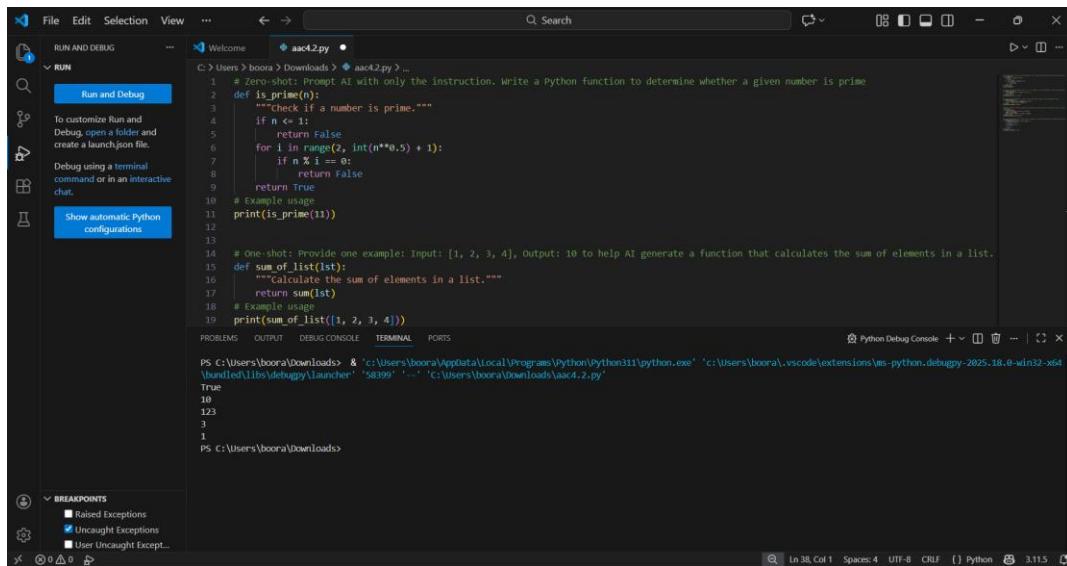
Task Description-1

- Zero-shot: Prompt AI with only the instruction. Write a Python function to determine whether a given number is prime

Expected Output-1

- A basic Python function to check if a number is prime, demonstrating correct logical conditions without relying on examples or additional context

CODE & OUTPUT



The screenshot shows the Visual Studio Code interface with the following details:

- File Structure:** The left sidebar shows a "RUN AND DEBUG" section with a "RUN" button highlighted.
- Code Editor:** The main editor window contains the following Python code:

```
C:\> Users > boora > Downloads > aac4.2.py > ...
1 # Zero-shot: Prompt AI with only the instruction. Write a Python function to determine whether a given number is prime
2 def is_prime(n):
3     """Check if a number is prime."""
4     if n <= 1:
5         return False
6     for i in range(2, int(n**0.5) + 1):
7         if n % i == 0:
8             return False
9     return True
10 # Example usage
11 print(is_prime(11))
12
13
14 # One-shot: Provide one example: Input: [1, 2, 3, 4], Output: 10 to help AI generate a function that calculates the sum of elements in a list.
15 def sum_of_list(lst):
16     """Calculate the sum of elements in a list."""
17     return sum(lst)
18 # Example usage
19 print(sum_of_list([1, 2, 3, 4]))
```
- Terminal:** The bottom terminal shows the output of running the script:

```
PS C:\Users\boora\Downloads> & 'c:\Users\boora\AppData\Local\Programs\Python\Python311\python.exe' 'c:\Users\boora\vscode\extensions\ms-python.debugger-2025.18.0-win32-x64\out\debug\libs\debugpy\launcher' '58399' -- 'c:\Users\boora\Downloads\aac4.2.py'
True
10
123
3
1
PS C:\Users\boora\Downloads>
```
- Bottom Status Bar:** Shows the current file is "aac4.2.py", line 38, column 1, spaces: 4, encoding: UTF-8, CR/LF: {} Python, and version 3.11.5.

OUTPUT - True

Task Description-2

- One-shot: Provide one example: Input: [1, 2, 3, 4], Output: 10 to help AI generate a function that calculates the sum of elements in a list.

Expected Output-2

- A correct conversion function guided by the single example.

CODE & OUTPUT

The screenshot shows the Visual Studio Code interface. On the left, the 'RUN AND DEBUG' sidebar is open, showing options like 'RUN', 'Debug', and 'Show automatic Python configurations'. The main editor area contains Python code for generating prime numbers and calculating the sum of elements in a list. The terminal at the bottom shows the command `python aac4.2.py` being run, followed by the output: 19, 123, 3, 1. The status bar at the bottom right indicates the file has 3115 characters.

```

File Edit Selection View ... ← → Search
RUN AND DEBUG Welcome aac4.2.py ...
C:\> users > boora > Downloads > aac4.2.py > ...
2 def is_prime(n):
6     for i in range(2, int(n**0.5) + 1):
7         if n % i == 0:
8             return False
9     return True
10 # Example usage
11 print(is_prime(11))
12
13
14 # One-shot: Provide one example: Input: [1, 2, 3, 4], Output: 10 to help AI generate a function that calculates the sum of elements in a list.
15 def sum_of_list(lst):
16     """Calculate the sum of elements in a list."""
17     return sum(lst)
18 # Example usage
19 print(sum_of_list([1, 2, 3, 4]))
20
21
22 # Few-shot: Give 2-3 examples to create a function that extracts digits from an alphanumeric string.
23 def extract_digits(s):
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
Python Debug Console + ×
PS C:\Users\boora\Downloads> & "c:\Users\boora\AppData\Local\Programs\Python\Python311\python.exe" "c:\Users\boora\.vscode\extensions\ms-python.python.debug-2025.18.0\win32\x64\handled\libs\debug\launcher" "58399" --> "c:\Users\boora\Downloads\aac4.2.py"
True
19
123
3
1
PS C:\Users\boora\Downloads>

```

OUTPUT - 10

Task Description-3

- Few-shot: Give 2–3 examples to create a function that extracts digits from an alphanumeric string.

Expected Output-3

- Accur

ate function that returns only the digits from alphanumeric string.

CODE & OUTPUT

The screenshot shows the VS Code interface with the following details:

- Code Editor:** The file `aac4.2.py` is open, containing Python code for extracting digits from a string and counting vowels.
- Terminal:** The terminal shows the command `python aac4.2.py` being run, resulting in the output:

```
PS C:\Users\boora\Downloads> & 'c:\Users\boora\AppData\Local\Programs\Python\Python311\python.exe' 'c:\Users\boora\.vscode\extensions\ms-python.python-2025.18.0-win32-x64\bundled\libs\debugpy\launcher' '58399' '--' 'C:\Users\boora\Downloads\aac4.2.py'
True
123
3
1
```
- Breakpoints:** A breakpoint is set at line 10 of the code.

OUTPUT - 123

Task Description-4

- Compare zero-shot vs few-shot prompting for generating a function that counts the number of vowels in a string.

Expected Output-4

- Output comparison + student explanation on how examples helped the model.

CODE & OUTPUT

The screenshot shows the VS Code interface with the following details:

- Code Editor:** The file `aac4.2.py` is open, containing Python code for extracting digits from a string and counting vowels.
- Terminal:** The terminal shows the command `python aac4.2.py` being run, resulting in the output:

```
PS C:\Users\boora\Downloads> & 'c:\Users\boora\AppData\Local\Programs\Python\Python311\python.exe' 'c:\Users\boora\.vscode\extensions\ms-python.python-2025.18.0-win32-x64\bundled\libs\debugpy\launcher' '58399' '--' 'C:\Users\boora\Downloads\aac4.2.py'
True
123
3
1
```
- Breakpoints:** A breakpoint is set at line 10 of the code.

OUTPUT - 3

Task Description-5

- Use few-shot prompting with 3 sample inputs to generate a function that determines the minimum of three numbers without using the built-in min() function.

Expected Output-5

- A function that handles all cases with correct logic based on example patterns.

CODE & OUTPUT

The screenshot shows the Visual Studio Code interface. On the left, the sidebar has 'RUN AND DEBUG' selected under 'RUN'. Below it, there's a message about customizing run and debug settings. The main area shows a Python file named 'aac4.2.py' with the following code:

```
39
40 # Use few-shot prompting with 3 sample inputs to generate a function that determines the minimum of three numbers
41 def min_of_three(a, b, c):
42     """Determine the minimum of three numbers."""
43     if a <= b and a <= c:
44         return a
45     elif b <= a and b <= c:
46         return b
47     else:
48         return c
49 # Examples:
50 print(min_of_three(3, 1, 2))
```

The terminal at the bottom shows the output of running the script:

```
PS C:\Users\boora\Downloads> & 'c:\Users\boora\AppData\Local\Programs\Python\Python311\python.exe' 'c:\Users\boora\.vscode\extensions\ms-python.python-2025.18.0-win32-x64\bundled\libs\debugpy\launcher' '58399' '--' 'C:\Users\boora\Downloads\aac4.2.py'
True
10
123
3
1
PS C:\Users\boora\Downloads>
```

OUTPUT - 1