

ASSIGNMENT-4.2

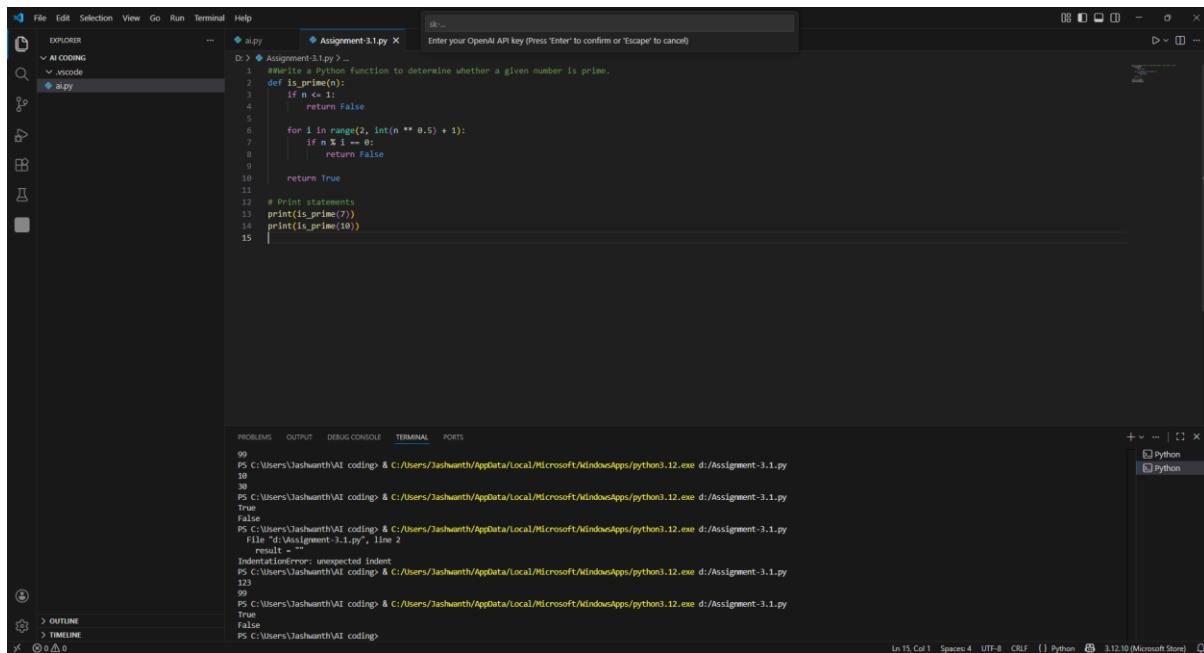
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TASK-1: ZERO-SHOT PROMPTING

PROMPT: Write a Python function to determine whether a given number is prime.

CODE:



```
File Edit Selection View Go Run Terminal Help
EXPLORER ai.py Assignment-3.1.py Enter your OpenAI API key (Press 'Enter' to confirm or 'Escape' to cancel)
1 #Write a Python function to determine whether a given number is prime.
2 def is_prime(n):
3     if n <= 1:
4         return False
5
6     for i in range(2, int(n ** 0.5) + 1):
7         if n % i == 0:
8             return False
9
10    return True
11
12 # Print statements
13 print(is_prime(7))
14 print(is_prime(10))
15
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
99
PS C:\Users\Jashwanth\AI coding> & C:/Users/Jashwanth/AppData/Local/Microsoft/WindowsApps/python3.12.exe d:/Assignment-3.1.py
10
10
PS C:\Users\Jashwanth\AI coding> & C:/Users/Jashwanth/AppData/Local/Microsoft/WindowsApps/python3.12.exe d:/Assignment-3.1.py
True
False
PS C:\Users\Jashwanth\AI coding> & C:/Users/Jashwanth/AppData/Local/Microsoft/WindowsApps/python3.12.exe d:/Assignment-3.1.py
File "d:/Assignment-3.1.py", line 2
    result = --
IndentationError: unexpected indent
PS C:\Users\Jashwanth\AI coding> & C:/Users/Jashwanth/AppData/Local/Microsoft/WindowsApps/python3.12.exe d:/Assignment-3.1.py
11
99
PS C:\Users\Jashwanth\AI coding> & C:/Users/Jashwanth/AppData/Local/Microsoft/WindowsApps/python3.12.exe d:/Assignment-3.1.py
True
False
PS C:\Users\Jashwanth\AI coding>
In 15, Col 1 Spaces: 4 UTF-8 CR/LF ( ) Python 3.12.10 (Microsoft Store) □
```

OBSERVATION:

- AI model understands the concept of a prime number without being given any examples or additional guidance -It applies correct mathematical reasoning purely from the instruction -The model generates syntactically correct and logically sound Python code

TASK-2

PROMPT: Write a Python function that calculates the sum of elements in a list.

Example:

Input: [1, 2, 3, 4]

Output: 10

CODE:

The screenshot shows the Microsoft Visual Studio Code interface. The top menu bar includes File, Edit, Selection, View, Go, Run, Terminal, and Help. The title bar says "D:\ AI coding". The Explorer sidebar on the left shows a folder named "AI CODING" containing "Assignment-3.1.py" and ".vscode". The main editor area contains the following Python code:

```
D:\ > Assignment-3.1.py >_
1
2
3     def sum_of_list(numbers):
4         total = 0
5         for num in numbers:
6             total += num
7
8         return total
9
10    # Print statements
11    print(sum_of_list([1, 2, 3, 4]))
12    print(sum_of_list([5, 10, 15]))
```

The terminal below the editor shows the output of running the script:

```
PS C:\Users\Jashwanth\AI coding> & C:/Users/Jashwanth/AppData/Local/Microsoft/WindowsApps/python3.12.exe d:/Assignment-3.1.py
123
99
PS C:\Users\Jashwanth\AI coding> & C:/Users/Jashwanth/AppData/Local/Microsoft/WindowsApps/python3.12.exe d:/Assignment-3.1.py
18
30
PS C:\Users\Jashwanth\AI coding>
```

The status bar at the bottom indicates "In 1, Col 2 / Spaces: 4 / UTF-8 / CR LF / Python / 3.12.12 (Microsoft Store) /".

OBSERVATION:

The single example guides the AI model to understand the expected input and output relationship. The model correctly generalizes the pattern from the example to any list of numbers.

TASK-3

PROMPT: Write a Python function that extracts only digits from an alphanumeric string.

Examples:

Input: "a1b2c3"

Output: "123"

Input: "x9y8z7"

Output: "987"

Input: "abc123def"

Output: "123"

CODE:

```
File Edit Selection View Go Run Terminal Help
... Assignment3.1.py X
EXPLORER AI CODING .vscode aipy
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
PS C:\Users\Jashwanth\AI coding> & C:/Users/Jashwanth/AppData/Local/Microsoft/WindowsApps/python3.12.exe d:/Assignment-3.1.py
123
59
PS C:\Users\Jashwanth\AI coding>
In 12, Col 1 Spaces:4: UTF-8: CR/LF: Python 3.12.10 (Microsoft Store)
```

OBSERVATION:

- Multiple examples help the AI model clearly identify the pattern to be learned -The model focuses only on digit characters and ignores alphabetic content
- The AI demonstrates improved confidence and reduced ambiguity compared to zero shot and one shot prompting

TASK-4

PROMPT: ZERO-SHOT: Write a Python function that counts the number of vowels in a string.

FEW-SHOT: Write a Python function that counts the number of vowels in a string.

Examples:

Input: "hello"

Output: 2

Input: "AEIOU"

Output: 5

Input: "chatgpt"

Output: 2

CODE:

ZERO-SHOT:

A screenshot of the Visual Studio Code interface. The top bar shows 'File Edit Selection View Go Run Terminal Help'. The left sidebar has 'EXPLORER' and 'AI CODING' sections, with 'vscode' and 'ai.py' listed under 'AI CODING'. The main editor window contains the following Python code:

```
1 # Write a python function to determine whether a given number is prime.
2 def is_prime(n):
3     if n <= 1:
4         return False
5
6     for i in range(2, int(n ** 0.5) + 1):
7         if n % i == 0:
8             return False
9
10    return True
11
12 # Print statements
13 print(is_prime(7))
14 print(is_prime(10))
15
```

The terminal below shows the execution of the code:

```
PS C:\Users\Jashwanth\AI\coding> & C:/Users/Jashwanth/AppData/Local/Microsoft/WindowsApps/python3.12.exe d:/Assignment-3.1.py
99
PS C:\Users\Jashwanth\AI\coding> & C:/Users/Jashwanth/AppData/Local/Microsoft/WindowsApps/python3.12.exe d:/Assignment-3.1.py
10
30
30
PS C:\Users\Jashwanth\AI\coding> & C:/Users/Jashwanth/AppData/Local/Microsoft/WindowsApps/python3.12.exe d:/Assignment-3.1.py
True
False
PS C:\Users\Jashwanth\AI\coding> & C:/Users/Jashwanth/AppData/Local/Microsoft/WindowsApps/python3.12.exe d:/Assignment-3.1.py
File "d:/Assignment-3.1.py", line 2
    print(is_prime(7))
IndentationError: unexpected indent
PS C:\Users\Jashwanth\AI\coding> & C:/Users/Jashwanth/AppData/Local/Microsoft/WindowsApps/python3.12.exe d:/Assignment-3.1.py
123
99
PS C:\Users\Jashwanth\AI\coding> & C:/Users/Jashwanth/AppData/Local/Microsoft/WindowsApps/python3.12.exe d:/Assignment-3.1.py
True
False
PS C:\Users\Jashwanth\AI\coding>
```

The status bar at the bottom indicates 'In 1, Col 2 | Spaces: 4 | UTF-8 | CR/LF | Python | 3.12.10 (Microsoft Store)'.

FEW-SHOT:

A screenshot of the Visual Studio Code interface. The top bar shows 'File Edit Selection View Go Run Terminal Help'. The left sidebar has 'EXPLORER' and 'AI CODING' sections, with 'vscode' and 'ai.py' listed under 'AI CODING'. The main editor window contains the following Python code:

```
1 #
2 def extract_digits(text):
3     result = 0
4     for ch in text:
5         if ch.isdigit():
6             result += int(ch)
7     return result
8
9 # Print statements
10 print(extract_digits("aibc3"))
11 print(extract_digits("abc99xyz"))
12
```

The terminal below shows the execution of the code:

```
PS C:\Users\Jashwanth\AI\coding> & C:/Users/Jashwanth/AppData/Local/Microsoft/WindowsApps/python3.12.exe d:/Assignment-3.1.py
123
99
PS C:\Users\Jashwanth\AI\coding> & C:/Users/Jashwanth/AppData/Local/Microsoft/WindowsApps/python3.12.exe d:/Assignment-3.1.py
10
30
30
PS C:\Users\Jashwanth\AI\coding> & C:/Users/Jashwanth/AppData/Local/Microsoft/WindowsApps/python3.12.exe d:/Assignment-3.1.py
True
False
PS C:\Users\Jashwanth\AI\coding> & C:/Users/Jashwanth/AppData/Local/Microsoft/WindowsApps/python3.12.exe d:/Assignment-3.1.py
File "d:/Assignment-3.1.py", line 2
    result += int(ch)
IndentationError: unexpected indent
PS C:\Users\Jashwanth\AI\coding> & C:/Users/Jashwanth/AppData/Local/Microsoft/WindowsApps/python3.12.exe d:/Assignment-3.1.py
123
99
PS C:\Users\Jashwanth\AI\coding>
```

The status bar at the bottom indicates 'In 1, Col 2 | Spaces: 4 | UTF-8 | CR/LF | Python | 3.12.10 (Microsoft Store)'.

```
def count_vowels(text):
```

```
vowels = "aeiouAEIOU"
```

```
count = 0
```

```
for ch in text:
```

```
if ch in vowels:  
    count += 1  
return count
```

OBSERVATION:

FEW-SHOT OBSERVATION

The provided examples clearly define what characters should be counted as vowels. The model confidently includes both uppercase and lowercase vowels due to examples.

ZERO SHOT:

zero shot prompting the AI guesses the intent based on general knowledge which may vary for ambiguous tasks

TASK-5

PROMPT:

Write a Python function that determines the minimum of three numbers without using the built-in min() function.

Examples:

Input: 3, 7, 5

Output: 3

Input: 10, 2, 8

Output: 2

Input: 4, 4, 9

Output: 4

CODE:

```
File Edit Selection View Go Run Terminal Help
EXPLORER AI CODING .vscode ai.py Assignment-3.1.py X Enter your OpenAI API key (Press Enter to confirm or Escape to cancel)
1 def find_min(a, b, c):
2     if a <= b and a <= c:
3         return a
4     elif b <= a and b <= c:
5         return b
6     else:
7         return c
8
9 # Print statements
10 print(find_min(3, 7, 5))
11 print(find_min(10, 2, 8))
12 print(find_min(4, 4, 9))
13
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\Jashwanth\AI coding> & C:/Users/Jashwanth/AppData/Local/Microsoft/WindowsApps/python3.12.exe d:/Assignment-3.1.py
File "d:/Assignment-3.1.py", line 2
    if a <= b and a <= c:
          ^
IndentationError: unexpected indent
PS C:\Users\Jashwanth\AI coding> & C:/Users/Jashwanth/AppData/Local/Microsoft/WindowsApps/python3.12.exe d:/Assignment-3.1.py
123
59
PS C:\Users\Jashwanth\AI coding> & C:/Users/Jashwanth/AppData/Local/Microsoft/WindowsApps/python3.12.exe d:/Assignment-3.1.py
True
False
PS C:\Users\Jashwanth\AI coding> & C:/Users/Jashwanth/AppData/Local/Microsoft/WindowsApps/python3.12.exe d:/Assignment-3.1.py
True
False
PS C:\Users\Jashwanth\AI coding> & C:/Users/Jashwanth/AppData/Local/Microsoft/WindowsApps/python3.12.exe d:/Assignment-3.1.py
3
2
4
PS C:\Users\Jashwanth\AI coding>
```

OBSERVATION:

The examples clearly establish the comparison pattern needed to identify the smallest value. The AI model infers the requirement to handle equality cases correctly. Conditional logic is generated without relying on built-in functions.