SR UNIVERSITY
AI ASSISTED CODING
ASSIGNMENT-03

NAME:SHAIK FAHEEM
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TASK1

TASK1 DESCRIPTION:- Ask AI to write a function to calculate compound interest, starting with only the function name. Then add a docstring, then input-output example

PROMPT:- "Write a Python function to calculate compound interest. Start by providing only the function name. Next, add a docstring that explains what the function does, its parameters, and its return value. Then, include an input-output example that demonstrates how to use the function and what result it produces." implement with example

CODE

aiii.py

C: > Users > Shaik Faheem > Desktop > aiii.py > calculate_compound_interest

```python
def calculate_compound_interest(principal, rate, times_compounded, years):
    """
    Calculate the compound interest.

    Args:
        principal (float): The initial amount of money.
        rate (float): The annual interest rate (as a decimal, e.g., 0.05 for
        times_compounded (int): Number of times interest is compounded per y
        years (float): Number of years the money is invested.

    Returns:
        float: The amount after compound interest is applied.

    Example:
        >>> calculate_compound_interest(1000, 0.05, 4, 5)
        1283.68
    """
    amount = principal * (1 + rate / times_compounded) ** (times_compounded
    return round(amount, 2)

if __name__ == "__main__":
    result = calculate_compound_interest(1000, 0.05, 4, 5)
    print("Compound Interest Amount:",result)
```

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OUTPUT

TASK2

TASK2 DESCRIPTION:- Do math stuff, then refine it to: # Write a function to calculate average, median, and mode of a list of numbers

PROMPT:- generate a python function to calculate average, median, and mode of a list of numbers that should be enter at runtime

CODE

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aiii.py

C: > Users > Shaik Faheem > Desktop > aiii.py > ...

```python
from statistics import mean, median, mode, multimode

def calculate_stats(numbers):
    """
    Calculate the average (mean), median, and mode of a list of numbers.

    Parameters:
        numbers (list): A list of integers or floats.

    Returns:
        dict: A dictionary containing average, median, and mode(s).
    """
    if not numbers:
        return {"average": None, "median": None, "mode": None}

    avg = mean(numbers)
    med = median(numbers)

    try:
        mod = mode(numbers)  # If only one mode exists
    except:
        mod = multimode(numbers)  # If multiple modes exist

    return {"average": avg, "median": med, "mode": mod}


# Example usage
data = [4, 2, 8, 6, 4, 2, 4, 6, 2]
result = calculate_stats(data)
print(result)
```

OUTPUT

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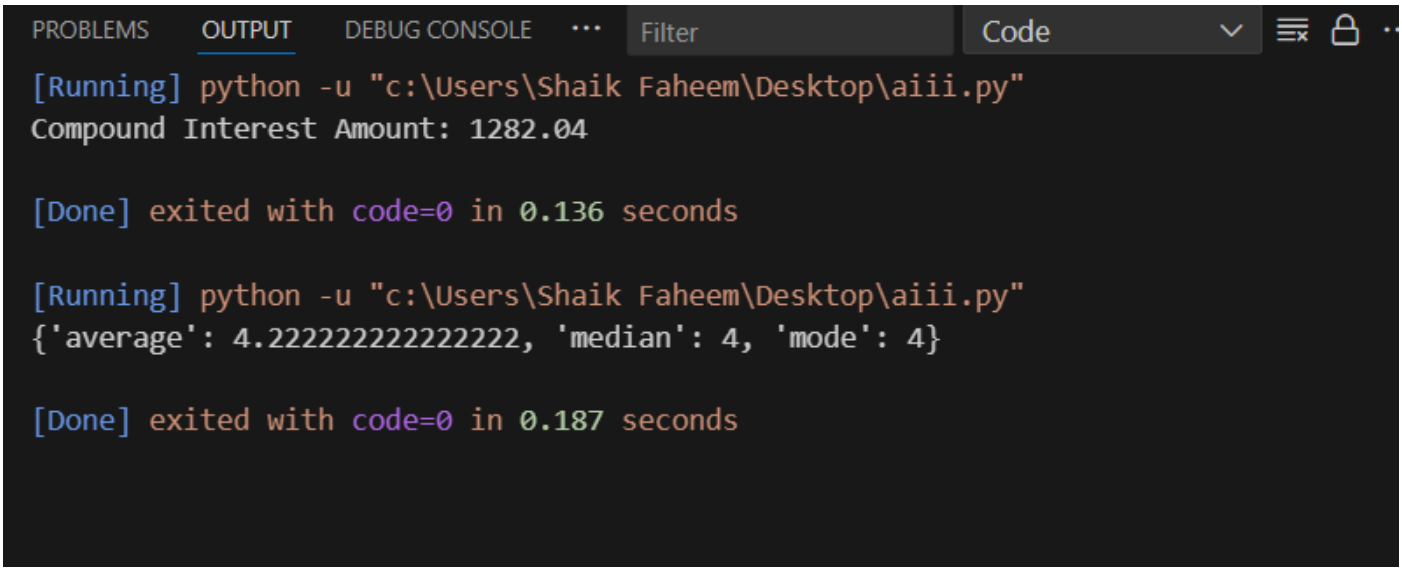

TASK3

TASK3 DESCRIPTION:- Provide multiple examples of input-output to the AI for convert_to_binary(num) function. Observe how AI uses few-shot prompting to generalize.

PROMPT:- generate a python program that provides multiple input–output examples for a Python function convert_to_binary(num) that converts a decimal number into its binary representation

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CODE

C: > Users > Shaik Faheem > Desktop > aiii.py > ...

```python
def convert_to_binary(num):
    return bin(num).replace("0b", "")

# Multiple input-output examples
examples = [2, 5, 10, 15, 32, 50, 100]

for num in examples:
    print(f"Q: convert_to_binary({num})")
    print(f"A: \"{convert_to_binary(num)}\"\n")

```

OUTPUT

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS Python

```
PS C:\Users\Shaik Faheem\Desktop\asisteddd> & "C:/Users/Shaik Faheem/AppData/Local/Prog
on/Python312/python.exe" "c:/Users/Shaik Faheem/Desktop/aiii.py"
Q: convert_to_binary(2)
A: "10"

Q: convert_to_binary(5)
A: "101"

Q: convert_to_binary(10)
A: "1010"

Q: convert_to_binary(15)
A: "1111"
```

Ln 10, Col 1 Spaces: 4 UTF-8 CRLF

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TASK4

TASK4 DESCRIPTION:-Create an user interface for an hotel to generate bill based on customer requirements

PROMPT:- Generate a python program to Create an user interface for an hotel to generate bill based on customer requirements

CODE

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aiii.py

C: > Users > Shaik Faheem > Desktop > aiii.py > ...

```python
import tkinter as tk

def generate_bill():
    name = entry_name.get()
    nights = int(entry_nights.get())
    room = room_var.get()
    total = rates[room] * nights
    if food_var.get(): total += 500 * nights
    if spa_var.get(): total += 1000
    result.set(f"{name}\nRoom: {room}\nNights: {nights}\nTotal: ₹{total}")

# Setup
root = tk.Tk()
root.title("Hotel Billing")

rates = {"Standard":2000, "Deluxe":4000, "Suite":6000}

tk.Label(root,text="Name").pack()
entry_name = tk.Entry(root); entry_name.pack()

tk.Label(root,text="Nights").pack()
entry_nights = tk.Entry(root); entry_nights.insert(0,"1"); entry_nights.pack

room_var = tk.StringVar(value="Standard")
tk.OptionMenu(root, room_var, *rates.keys()).pack()

food_var, spa_var = tk.BooleanVar(), tk.BooleanVar()
tk.Checkbutton(root,text="Food (₹500/night)",variable=food_var).pack()
tk.Checkbutton(root,text="Spa (₹1000)",variable=spa_var).pack()

tk.Button(root,text="Generate Bill",command=generate_bill).pack(pady=5)
result = tk.StringVar()
tk.Label(root,textvariable=result,justify="left").pack()

root.mainloop()
```

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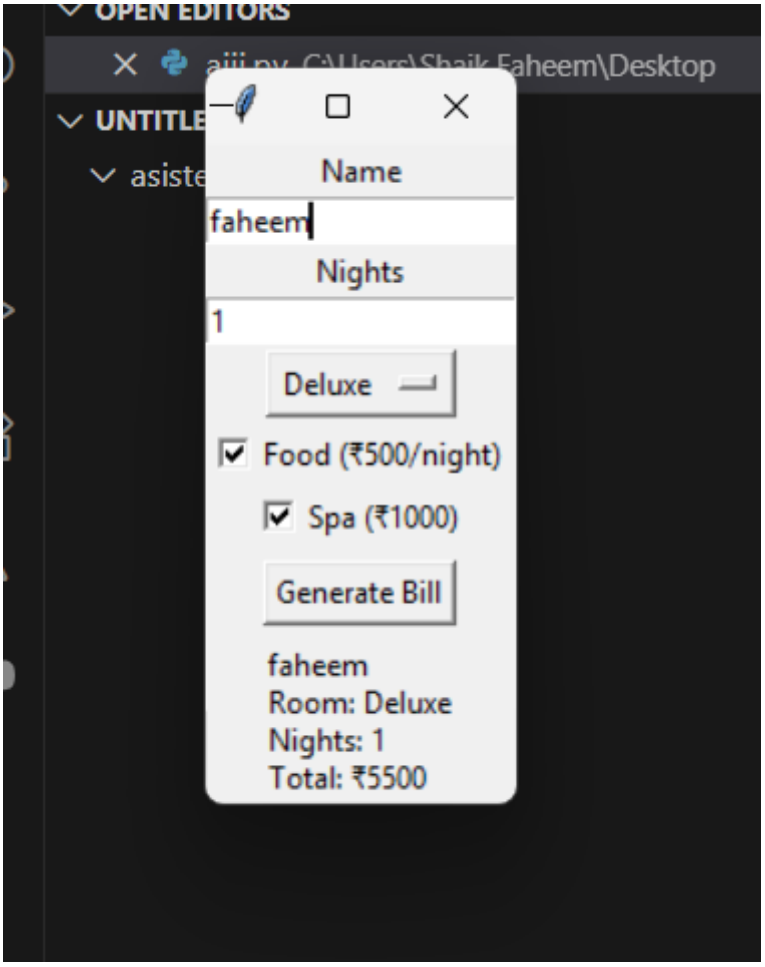
OUTPUT



TASK5

TASK5 DESCRIPTION:- Analyzing Prompt Specificity: Improving Temperature Conversion Function with Clear Instructions

PROMPT:- Generate a python program to Improving Temperature Conversion Function with Clear Instructions

CODE

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asisteddd > temperature.py > ...

```python
def convert_temperature():
    """
    A program to convert temperature between Celsius, Fahrenheit, and Kelvi
    Clear instructions are provided for user input.
    """
    print("Welcome to the Temperature Converter!")
    print("You can convert between Celsius (C), Fahrenheit (F), and Kelvin (
    print("Example: Enter 'C' for Celsius, 'F' for Fahrenheit, 'K' for Kelvi

    # Ask user for input temperature and unit
    try:
        temp = float(input("Enter the temperature value: "))
        unit = input("Enter the current unit (C/F/K): ").strip().upper()

        if unit not in ['C', 'F', 'K']:
            print("❌ Invalid unit. Please enter C, F, or K only.")
            return

        print("\nConverting temperature...")

        # Conversion logic
        if unit == 'C':
            f = (temp * 9/5) + 32
            k = temp + 273.15
            print(f"{temp}°C = {f:.2f}°F")
            print(f"{temp}°C = {k:.2f}K")

        elif unit == 'F':
            c = (temp - 32) * 5/9
            k = c + 273.15
            print(f"{temp}°F = {c:.2f}°C")
            print(f"{temp}°F = {k:.2f}K")

        elif unit == 'K':
            c = temp - 273.15
            f = (c * 9/5) + 32
```

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OUTPUT

```
Welcome to the Temperature Converter!
You can convert between Celsius (C), Fahrenheit (F), and Kelvin (K).
Example: Enter 'C' for Celsius, 'F' for Fahrenheit, 'K' for Kelvin.

Enter the temperature value: 100
Enter the current unit (C/F/K): c

Converting temperature...
100.0°C = 212.00°F
100.0°C = 373.15K
PS C:\Users\Shaik Faheem\Desktop\asisteddd>
```

OBSERVATION:- From this assignment, I observed the practical role of prompt engineering and AI-assisted coding in generating Python programs. By giving different levels of instructions, the AI was able to produce complete implementations, examples, and even user interfaces

. • In Task 1, starting with only a function name and gradually adding docstrings and examples demonstrated how AI understands step-by-step instructions and builds code systematically.

• **In Task 2,** I observed how runtime inputs can be used for statistical calculations (average, median, mode), showing AI's capability to handle mathematical logic on user-provided data.

• **In Task 3**, by providing multiple input–output examples for the convert_to_binary(num) function, I noticed how AI applied few-shot prompting to generalize and generate correct binary conversions for any decimal input.

• **In Task 4**, the hotel billing program highlighted how AI can extend beyond simple functions to build user-oriented applications, combining logic with interface design.

• **In Task 5**, refining the temperature conversion function showed how prompt specificity directly affects the accuracy, clarity, and usability of AI-generated code.

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