

Assignment-3

NAME : K.NAVYA SRI.

ENROLL NO : 2503A52L12

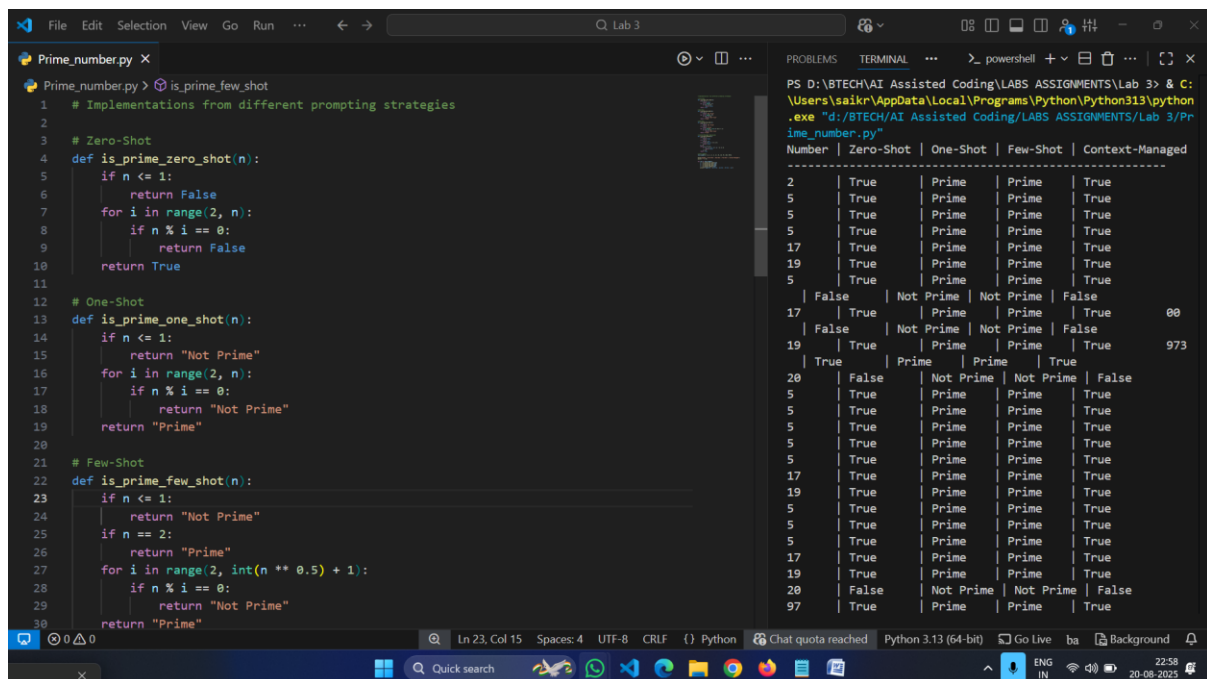
BATCH : 16

TASK 1: Select a simple task: "Write a Python function to check if a number is prime".

Prompt:

"Write a Python function to check if a number is prime that generate with the one shot, zero shot, few shot solution".

CODE&OUTPUT:



The screenshot shows a code editor with three Python functions: `is_prime_zero_shot`, `is_prime_one_shot`, and `is_prime_few_shot`. The `is_prime_few_shot` function uses a range up to \sqrt{n} . The terminal on the right displays the output of these functions for various numbers, organized in a table with columns: Number, Zero-Shot, One-Shot, Few-Shot, and Context-Managed.

Number	Zero-Shot	One-Shot	Few-Shot	Context-Managed
2	True	Prime	Prime	True
5	True	Prime	Prime	True
5	True	Prime	Prime	True
5	True	Prime	Prime	True
17	True	Prime	Prime	True
19	True	Prime	Prime	True
5	True	Prime	Prime	True
17	False	Not Prime	Not Prime	False
17	True	Prime	Prime	True
19	False	Not Prime	Not Prime	False
19	True	Prime	Prime	True
20	True	Prime	Prime	True
20	False	Not Prime	Not Prime	False
5	True	Prime	Prime	True
5	True	Prime	Prime	True
5	True	Prime	Prime	True
5	True	Prime	Prime	True
5	True	Prime	Prime	True
17	True	Prime	Prime	True
19	True	Prime	Prime	True
5	True	Prime	Prime	True
5	True	Prime	Prime	True
17	True	Prime	Prime	True
19	True	Prime	Prime	True
20	False	Not Prime	Not Prime	False
97	True	Prime	Prime	True

Task 2: Mobile Data Usage Billing Application

PROMPT:

I want to create a simple Python program for an LPG Billing System.

The program should ask the user for:

- Cylinder type (Domestic 14.2 kg / Domestic 5 kg / Commercial 19 kg / Commercial 47.5 kg)
- Number of cylinders booked

- Subsidy amount (only for domestic cylinders)
- Delivery charges (between ₹10 and ₹50)

Then, based on this input, it should calculate the total LPG bill using this formula:

Bill Amount = (Price per Cylinder × Quantity) - Subsidy (if applicable) + Delivery Charges

Use these LPG prices:

- Domestic 14.2 kg → ₹905.00
- Domestic 5 kg → ₹335.50
- Commercial 19 kg → ₹1,886.50
- Commercial 47.5 kg → ₹4,712.00

Finally, the program should display a clear and neat **itemized bill** showing:

- Cylinder Type
- Number of Cylinders
- Base Amount
- Subsidy
- Delivery Charges
- Total Bill Amount

CODE & OUTPUT:

The screenshot shows a code editor with a Python script named `Cylinder.py`. The script defines three functions: `calculate_data_charges`, `calculate_value_added_charges`, and `calculate_tax`, along with a `main` function that takes user input and prints the bill details.

```

1 def calculate_data_charges(data_gb, plan_type):
2     """calculate data charges based on plan type and usage."""
3     if plan_type.lower() == "pre-paid":
4         rate = 10 # Rs. per GB for pre-paid
5     else:
6         rate = 8 # Rs. per GB for post-paid
7     return data_gb * rate
8
9 def calculate_value_added_charges(services):
10    """calculate charges for value-added services."""
11    service_rates = {
12        "caller tune": 30,
13        "ott subscription": 100,
14        "international roaming": 200
15    }
16    total = 0
17    for service in services:
18        total += service_rates.get(service.lower(), 0)
19    return total
20
21 def calculate_tax(amount):
22    """calculate tax (18% GST)."""
23    return amount * 0.18
24
25 def main():
26    data_gb = float(input("Enter data consumed (in GB): "))
27    plan_type = input("Enter plan type (pre-paid or post-paid): ")

```

The terminal output shows the execution of the program with the following inputs and results:

```

Plan Type: pre-paid
Data Usage: 25.0 GB
Data Charges (DC): Rs. 250.00
Value-added services: caller tune
Value-added Charges (VC): Rs. 30.00
Tax (18% GST): Rs. 50.40
Total Bill Amount: Rs. 330.40
PS C:\Users\win10>

```

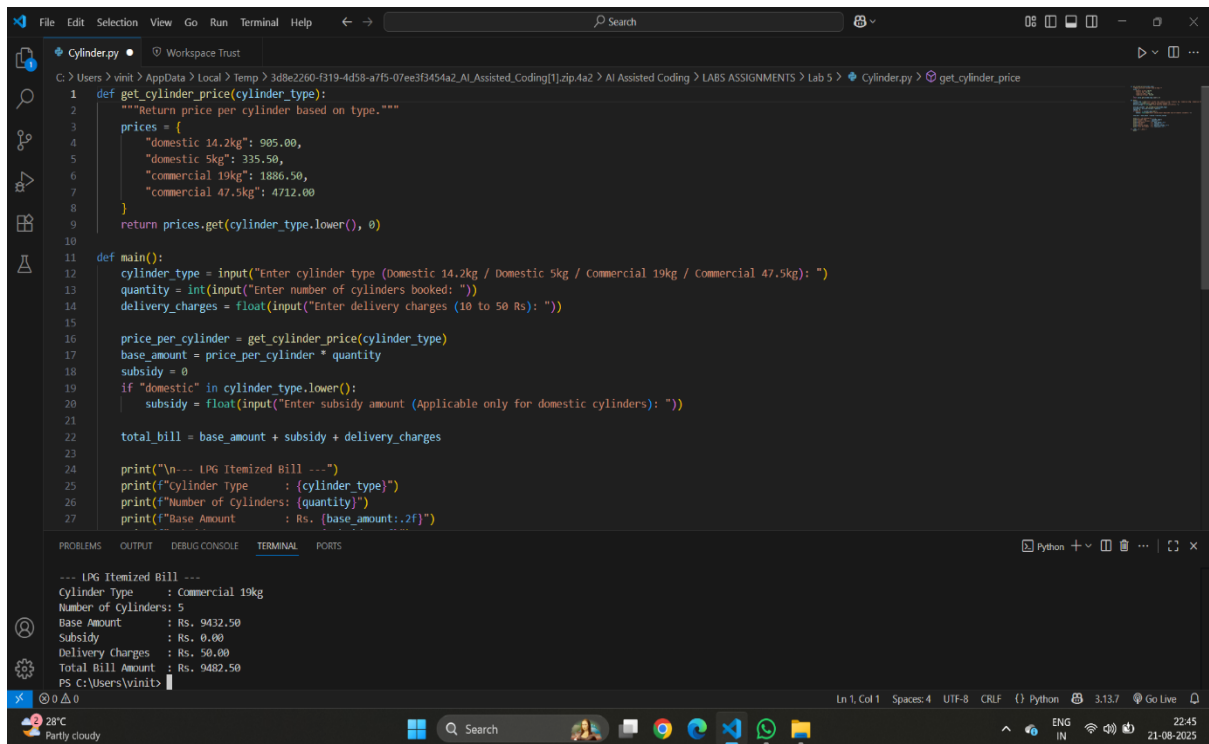
Task 3: Develop an LPG Billing System

Objective

Apply your Python programming skills and utilize AI-assisted coding tools to build an application that calculates the LPG bill based on specified customer inputs and billing parameters.

1. Use GitHub Copilot or Google Gemini to assist in writing and refining the program.
2. Read the following user inputs:
 - Cylinder Type (Domestic 14.2 kg / Domestic 5 kg / Commercial 19 kg / Commercial 47.5 kg)
 - Number of Cylinders Booked
 - Subsidy Amount (applicable only for domestic cylinders)
3. Refer to the given LPG Price List to determine the price per cylinder:
 - Domestic LPG (14.2 kg) → ₹905.00
 - Domestic LPG (5 kg) → ₹335.50
 - Commercial LPG (19 kg) → ₹1,886.50
 - Commercial LPG (47.5 kg) → ₹4,712.00
 - Delivery Charges (₹10 to ₹50)
4. Implement the billing formula:
$$\text{Bill Amount} = (\text{Price per Cylinder} \times \text{Quantity}) - \text{Subsidy (if applicable)} + \text{Delivery Charges}$$
5. Calculate and display an itemized bill including:
 - Cylinder Type
 - Number of Cylinders
 - Base Amount
 - Subsidy
 - Delivery Charges
 - Total Bill Amount

CODE&OUTPUT:



The screenshot shows a Visual Studio Code editor window with a Python file named `Cylinder.py`. The code defines a function `get_cylinder_price` that returns prices for different cylinder types, and a `main` function that takes user input for cylinder type, quantity, delivery charges, and subsidy, then calculates and prints the total bill.

```
1 def get_cylinder_price(cylinder_type):
2     """Return price per cylinder based on type."""
3     prices = {
4         "domestic 14.2kg": 905.00,
5         "domestic 5kg": 335.50,
6         "commercial 19kg": 1886.50,
7         "commercial 47.5kg": 4712.00
8     }
9     return prices.get(cylinder_type.lower(), 0)
10
11 def main():
12     cylinder_type = input("Enter cylinder type (Domestic 14.2kg / Domestic 5kg / Commercial 19kg / Commercial 47.5kg): ")
13     quantity = int(input("Enter number of cylinders booked: "))
14     delivery_charges = float(input("Enter delivery charges (10 to 50 Rs): "))
15
16     price_per_cylinder = get_cylinder_price(cylinder_type)
17     base_amount = price_per_cylinder * quantity
18     subsidy = 0
19     if "domestic" in cylinder_type.lower():
20         subsidy = float(input("Enter subsidy amount (Applicable only for domestic cylinders): "))
21
22     total_bill = base_amount + subsidy + delivery_charges
23
24     print("\n-- LPG Itemized Bill --")
25     print(f"Cylinder Type      : {cylinder_type}")
26     print(f"Number of Cylinders: {quantity}")
27     print(f"Base Amount         : Rs. {base_amount:.2f}")
```

The terminal output shows the execution of the program with the following input and output:

```
-- LPG Itemized Bill --
Cylinder Type      : Commercial 19kg
Number of Cylinders: 5
Base Amount       : Rs. 9432.50
Subsidy           : Rs. 0.00
Delivery Charges  : Rs. 50.00
Total Bill Amount : Rs. 9482.50
PS C:\Users\win10>
```

The status bar at the bottom indicates the file is at Line 1, Column 1, using UTF-8 encoding with CRLF line endings, and the Python interpreter is at version 3.13.7.