

SCHOOL OF COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE		DEPARTMENT OF COMPUTER SCIENCE ENGINEERING	
Program Name: M. Tech/MCA		Assignment Type: Lab	AcademicYear:2025-2026
Course Coordinator Name		Venkataramana Veeramsetty	
Course Code	24CS002PC215	Course Title	AI Assisted Problem Solving Using Python
Year/Sem	I/I	Regulation	R24
Date and Day of Assignment	Week1 - Tuesday	Time(s)	
Duration	2 Hours	Applicable to Batches	M. Tech/MCA
AssignmentNumber:03.3(Present assignment number)/24(Total number of assignments)			
Q.No.	Question		ExpectedTime to complete
1	<p>Application for TGNPDCL</p> <p>Objective: Build an application using Python program for TGNPDCL, to generate the bill based on energy consumption and type of customer with the help of AI tools.</p> <p>Build a python application as per below instructions</p> <ul style="list-style-type: none"> Read all the required data like PU,CU and Type of customer Calculate bill amount based on number of units consumed, type of customer and other charges Finally print the values of EC(Energy Charges),FC(Fixed Charges),CC(Customer Char-ges),ED(Electricity Duty Charges),bill as per expected output <p>Requirements:</p> <ul style="list-style-type: none"> VS Code with Github Copilot and/or Google Colab with Gemini Students should bring power bill from their home <p>Deliverables:</p> <ul style="list-style-type: none"> Print energy bill for given inputs and verify with bill taken by students 		Week2 - Wednesday

Deliverables:

- Print energy bill for given inputs and verify with bill taken by students

```
TASK 3.py  def compute_charges(pu, cu, cust_type): Untitled-3  def compute_charges(pu, cu, cust_type):
1 def compute_charges(pu, cu, cust_type):
2     # Energy charges
3     ec = pu * cu
4
5     # Rules for Fixed Charges (FC) and Customer Charges (CC)
6     ct = cust_type.lower()
7     if ct in ("d", "domestic", "residential"):
8         # Domestic / Residential
9         if cu <= 100:
10            fc = 50.0
11        elif cu <= 300:
12            fc = 75.0
13        else:
14            fc = 100.0
15        cc = 30.0
16        ed_rate = 0.05 # 5% electricity duty on energy charges
17    elif ct in ("c", "commercial", "industrial"):
18        # Commercial / Industrial
19        if cu <= 100:
20            fc = 100.0
21        elif cu <= 300:
22            fc = 150.0
23        else:
24            fc = 200.0
25        cc = 50.0
26        ed_rate = 0.10 # 10% electricity duty on energy charges
27    else:
28        raise ValueError("Unknown customer type. Use Domestic/Commercial (D/C).")
29
30    ed = ed_rate * ec
31
32    total = ec + fc + cc + ed
33    return ec, fc, cc, ed, total
34
35    def read_float(prompt):
36        while True:
37            try:
38                return float(input(prompt).strip())
39            except ValueError:
40                print("Invalid number. Please try again.")
41
42    def read_cu(prompt):
43        while True:
44            try:
45                v = input(prompt).strip()
46                # allow integer or float units
47                return float(v)
48            except ValueError:
49                print("Invalid units. Please enter numeric value.")
50
51    def main():
52        print("Electricity Bill Calculator")
53        pu = read_float("Enter Price per Unit (PU): ")
54        cu = read_cu("Enter Units Consumed (CU): ")
55        cust_type = input("Enter Customer Type (Domestic/Commercial) [D/C]: ").strip()
56
57        try:
58            ec, fc, cc, ed, total = compute_charges(pu, cu, cust_type)
59        except ValueError as e:
60            print(e)
61
62        # Print results (2 decimal places)
63        print(f"EC(Energy Charges): {ec:.2f}")
64        print(f"FC(Fixed Charges): {fc:.2f}")
65        print(f"CC(Customer Charges): {cc:.2f}")
66        print(f"ED(Electricity Duty Charges): {ed:.2f}")
67        print(f"Bill Amount: {total:.2f}")
68
69    if __name__ == "__main__":
70        main()
```

Electricity Bill (Taken From Home)

Energy Charges:	2447.10
Fixed Charges:	50.00
Customer Charges:	140.00
Electricity Duty:	20.64
Interest on ED:	0.00
Surcharge:	0.00
ACD Surcharge:	0.00
FSA/FCA Charges:	0.00
Adjustment:	0.00
Interest on CD:	0.00
Loss/Gain:	0.26
Bill Amount :	2658.00
Arrears:	
Arrears as on 31-03-2025:	0.00
Arrears after 01-04-2025:	0.00
Total Due:	2658.00
MATS Amount :	0.00
SUBSIDY/UNIT :	0.65
SUBSIDY AMOUNT :	223.59

Output

```
● mpCodeRunnerFile.python"
Electricity Bill Calculator
Enter Price per Unit (PU): 0.65
Enter Units Consumed (CU): 223.59
Enter Customer Type (Domestic/Commercial) [D/C]: D
EC(Energy Charges): 145.33
FC(Fixed Charges): 75.00
CC(Customer Charges): 30.00
ED(Electricity Duty Charges): 7.27
Bill Amount: 257.60
```