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	**Application for TGNPDCL** **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. Build a python application as per below instructions • 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 **Requirements:** • VS Code with Github Copilot and/or Google Colab with Gemini • Students should bring power bill from their home **Deliverables:** • 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

```python
def compute_charges(pu, cu, cust_type):
    # Energy charges
    ec = pu * cu

    # Rules for Fixed Charges (FC) and Customer Charges (CC)
    ct = cust_type.lower()
    if ct in ("d", "domestic", "residential"):
        # Domestic / Residential
        if cu <= 100:
            fc = 50.0
        elif cu <= 300:
            fc = 75.0
        else:
            fc = 100.0
        cc = 30.0
        ed_rate = 0.05  # 5% electricity duty on energy charges
    elif ct in ("c", "commercial", "industrial"):
        # Commercial / Industrial
        if cu <= 100:
            fc = 100.0
        elif cu <= 300:
            fc = 150.0
        else:
            fc = 200.0
        cc = 50.0
        ed_rate = 0.10  # 10% electricity duty on energy charges
    else:
        raise ValueError("Unknown customer type. Use Domestic/Commercial (D/C).")

    ed = ed_rate * ec
    total = ec + fc + cc + ed
    return ec, fc, cc, ed, total

def read_float(prompt):
    while True:
        try:
            return float(input(prompt).strip())
        except ValueError:
            print("Invalid number. Please try again.")

def read_cu(prompt):
    while True:
        try:
            v = input(prompt).strip()
            # allow integer or float units
            return float(v)
        except ValueError:
            print("Invalid units. Please enter numeric value.")

def main():
    print("Electricity Bill Calculator")
    pu = read_float("Enter Price per Unit (PU): ")
    cu = read_cu("Enter Units Consumed (CU): ")
    cust_type = input("Enter Customer Type (Domestic/Commercial) [D/C]: ").strip()

    try:
        ec, fc, cc, ed, total = compute_charges(pu, cu, cust_type)
    except ValueError as e:
        print(e)
        return

    # Print results (2 decimal places)
    print(f"EC(Energy Charges): {ec:.2f}")
    print(f"FC(Fixed Charges): {fc:.2f}")
    print(f"CC(Customer Charges): {cc:.2f}")
    print(f"ED(Electricity Duty Charges): {ed:.2f}")
    print(f"Bill Amount: {total:.2f}")

if __name__ == "__main__":
    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

```
PS C:\Users\rimsha> python -u "C:\Users\rimsha\AppData\Local\Temp\tempCodeRunnerFile.python"
Electricity Bill Calculator
Enter Price per Unit (PU): python -u "c:\Users\rimsha\OneDrive\Desktop\rim python assessment
\lab 3 assessment\TASK 1.py"
Invalid number. Please try again.
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
PS C:\Users\rimsha>
```

.