

# SR UNIVERSITY

## ASSIGNMENT-3

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### TASK 1

#### GIVEN PROMPT

Lab 3: Application for TGNPDCL – Electricity Bill Generation Using Python & AI Tools Lab Objectives • To design a real-world electricity billing application using Python • To use AI-assisted coding tools for logic generation and optimization • To understand conditional logic and arithmetic operations • To generate structured billing output similar to utility bills Lab Outcomes (LOs) After completing this lab, students will be able to: Week2 - Wednesday • Read and validate user input in Python • Apply conditional logic for tariff-based billing • Use AI tools to assist in program development • Calculate and display electricity bill components • Build a complete real-time application. The above is the context Task 1: AI-Generated Logic for Reading Consumer Details Scenario An electricity billing system must collect accurate consumer data. Task Description Use an AI tool (GitHub Copilot / Gemini) to generate a Python program that: • Reads: o Previous Units (PU) o Current Units (CU) o Type of Customer • Calculates units consumed • Implements logic directly in the main program (no functions) Expected Output • Correct input reading • Units consumed calculation • Screenshot showing AI-generated code • Sample input and output we have to do task 1 the details must be created in code itself , about 15 entry every entry must be different ask the questions if u have any doubts

#### CODE

```
1 # TGNPDCL Electricity Bill Generation - Task 1
2 # Customer Type: Domestic (LT-I)
3
4 print("TGNPDCL ELECTRICITY BILL GENERATION - DOMESTIC\n")
5
6 # Hardcoded consumer data (15 different entries)
7 consumers = [
8     ("Ramesh Kumar", 120, 165),
9     ("Sita Devi", 80, 130),
10    ("Anil Reddy", 200, 260),
11    ("Priya Sharma", 50, 90),
12    ("Kiran Rao", 300, 380),
13    ("Sunitha", 95, 140),
14    ("Mahesh", 400, 520),
15    ("Lakshmi", 60, 100),
16    ("Arjun", 150, 210),
17    ("Pooja", 220, 310),
18    ("Vijay", 500, 650),
19    ("Deepika", 70, 115),
20    ("Naveen", 180, 260),
21    ("Suresh", 250, 360),
22    ("Radha", 30, 75)
23 ]
24
25 for name, pu, cu in consumers:
26     units = cu - pu
27
28     # Tariff logic for Domestic (LT-I)
29     if units <= 50:
30         rate = 1.95
31     elif units <= 100:
```

```
31 - elif units <= 100:
32     rate = 3.10
33 - elif units <= 200:
34     rate = 3.40
35 - elif units <= 300:
36     rate = 5.10
37 - elif units <= 400:
38     rate = 7.70
39 - elif units <= 800:
40     rate = 9.50
41 - else:
42     rate = 10.00
43
44     energy_charge = units * rate
45
46     print("Registered Owner :", name)
47     print("Customer Type      : Domestic (LT-I)")
48     print("Previous Units     :", pu)
49     print("Current Units      :", cu)
50     print("Units Consumed     :", units)
51     print("Rate per Unit      : Rs.", rate)
52     print("Energy Charges     : Rs.", round(energy_charge, 2))
53     print("-" * 40)
54
```

OUTPUT

## Output

### TGNPDCL ELECTRICITY BILL GENERATION - DOMESTIC

Registered Owner : Ramesh Kumar  
Customer Type : Domestic (LT-I)  
Previous Units : 120  
Current Units : 165  
Units Consumed : 45  
Rate per Unit : Rs. 1.95  
Energy Charges : Rs. 87.75

-----  
Registered Owner : Sita Devi  
Customer Type : Domestic (LT-I)  
Previous Units : 80  
Current Units : 130  
Units Consumed : 50  
Rate per Unit : Rs. 1.95  
Energy Charges : Rs. 97.5

-----  
Registered Owner : Anil Reddy  
Customer Type : Domestic (LT-I)  
Previous Units : 200  
Current Units : 260  
Units Consumed : 60  
Rate per Unit : Rs. 3.1  
Energy Charges : Rs. 186.0

-----  
Registered Owner : Priya Sharma  
Customer Type : Domestic (LT-I)  
Previous Units : 50  
Current Units : 90  
Units Consumed : 40

## Output

[Clear](#)

-----  
Registered Owner : Kiran Rao  
Customer Type : Domestic (LT-I)  
Previous Units : 300  
Current Units : 380  
Units Consumed : 80  
Rate per Unit : Rs. 3.1  
Energy Charges : Rs. 248.0  
-----

Registered Owner : Sunitha  
Customer Type : Domestic (LT-I)  
Previous Units : 95  
Current Units : 140  
Units Consumed : 45  
Rate per Unit : Rs. 1.95  
Energy Charges : Rs. 87.75  
-----

Registered Owner : Mahesh  
Customer Type : Domestic (LT-I)  
Previous Units : 400  
Current Units : 520  
Units Consumed : 120  
Rate per Unit : Rs. 3.4  
Energy Charges : Rs. 408.0  
-----

Registered Owner : Lakshmi  
Customer Type : Domestic (LT-I)  
Previous Units : 60  
Current Units : 100  
Units Consumed : 40  
Rate per Unit : Rs. 1.95  
Energy Charges : Rs. 78.0  
-----

```
Output
Registered Owner : Arjun
Customer Type    : Domestic (LT-I)
Previous Units   : 150
Current Units    : 210
Units Consumed   : 60
Rate per Unit    : Rs. 3.1
Energy Charges   : Rs. 186.0
-----
Registered Owner : Pooja
Customer Type    : Domestic (LT-I)
Previous Units   : 220
Current Units    : 310
Units Consumed   : 90
Rate per Unit    : Rs. 3.1
Energy Charges   : Rs. 279.0
-----
Registered Owner : Vijay
Customer Type    : Domestic (LT-I)
Previous Units   : 500
Current Units    : 650
Units Consumed   : 150
Rate per Unit    : Rs. 3.4
Energy Charges   : Rs. 510.0
-----
Registered Owner : Deepika
Customer Type    : Domestic (LT-I)
Previous Units   : 70
Current Units    : 115
Units Consumed   : 45
Rate per Unit    : Rs. 1.95
Energy Charges   : Rs. 87.75
```

## TASK 2

### Prompt

Task 2: Energy Charges Calculation Based on Units Consumed Scenario Energy charges depend on the number of units consumed and customer type. Task Description Review the AI-generated code from Task 1 and extend it to:

- Calculate Energy Charges (EC)
- Use conditional statements based on:
  - o Domestic
  - o Commercial
  - o Industrial consumers
- Improve readability using AI prompts such as:
  - o “Simplify energy charge calculation logic”
  - o “Optimize conditional statements”

Expected Output

- Correct EC calculation
- Clear conditional logic
- Original and improved versions (optional)
- Sample execution results do u understand ask questions

### Code

# Task 2: Energy Charges Calculation Based on Units Consumed

```
# Combined program for Domestic, Commercial, and Industrial consumers
```

```
print("TGNDCL ENERGY CHARGE CALCULATION\n")
```

```
# Consumer data: (Name, Previous Units, Current Units, Consumer Type)
```

```
consumers = [  
    ("Ramesh Kumar", 120, 165, "Domestic"),  
    ("Sita Devi", 80, 140, "Domestic"),  
    ("Anil Reddy", 200, 260, "Domestic"),  
    ("Priya Stores", 50, 120, "Commercial"),  
    ("City Mart", 300, 420, "Commercial"),  
    ("Sai Industries", 1000, 1180, "Industrial"),  
    ("Lakshmi", 30, 90, "Domestic"),  
    ("Mega Mall", 600, 760, "Commercial"),  
    ("Steel Works", 2000, 2250, "Industrial"),  
    ("Radha", 70, 115, "Domestic"),  
    ("Kiran Shop", 40, 95, "Commercial"),  
    ("Power Plastics", 1500, 1650, "Industrial"),  
    ("Sunitha", 95, 145, "Domestic"),  
    ("Ravi Traders", 110, 190, "Commercial"),  
    ("Agro Mills", 800, 980, "Industrial")  
]
```

```
for name, pu, cu, ctype in consumers:
```

```
    units = cu - pu
```

```
# Energy Charge calculation based on consumer type
```

```
if ctype == "Domestic":
```

```
    if units <= 50:
```

```
        rate = 1.95
```

```
    elif units <= 100:
```

```
        rate = 3.10
```

```
    elif units <= 200:
```

```
        rate = 3.40
```

```
    elif units <= 300:
```

```
        rate = 5.10
```

```
    elif units <= 400:
```

```
        rate = 7.70
```

```
    elif units <= 800:
```

```
        rate = 9.50
```

```
    else:
        rate = 10.00

elif ctype == "Commercial":
    if units <= 50:
        rate = 7.00
    else:
        rate = 8.50

elif ctype == "Industrial":
    rate = 7.70

energy_charge = units * rate

print("Registered Owner :", name)
print("Consumer Type   :", ctype)
print("Previous Units   :", pu)
print("Current Units    :", cu)
print("Units Consumed   :", units)
print("Rate per Unit    : Rs.", rate)
print("Energy Charges   : Rs.", round(energy_charge, 2))
print("-" * 45)
```

## Output

### TGNPDCL ENERGY CHARGE CALCULATION

Registered Owner : Ramesh Kumar  
Consumer Type : Domestic  
Previous Units : 120  
Current Units : 165  
Units Consumed : 45  
Rate per Unit : Rs. 1.95  
Energy Charges : Rs. 87.75

---

Registered Owner : Sita Devi  
Consumer Type : Domestic  
Previous Units : 80

Current Units : 140  
Units Consumed : 60  
Rate per Unit : Rs. 3.1  
Energy Charges : Rs. 186.0

---

Registered Owner : Anil Reddy  
Consumer Type : Domestic  
Previous Units : 200  
Current Units : 260  
Units Consumed : 60  
Rate per Unit : Rs. 3.1  
Energy Charges : Rs. 186.0

---

Registered Owner : Priya Stores  
Consumer Type : Commercial  
Previous Units : 50  
Current Units : 120  
Units Consumed : 70  
Rate per Unit : Rs. 8.5  
Energy Charges : Rs. 595.0

---

Registered Owner : City Mart  
Consumer Type : Commercial  
Previous Units : 300  
Current Units : 420  
Units Consumed : 120  
Rate per Unit : Rs. 8.5  
Energy Charges : Rs. 1020.0

---

Registered Owner : Sai Industries  
Consumer Type : Industrial  
Previous Units : 1000  
Current Units : 1180  
Units Consumed : 180  
Rate per Unit : Rs. 7.7  
Energy Charges : Rs. 1386.0

---

Registered Owner : Lakshmi  
Consumer Type : Domestic  
Previous Units : 30

Current Units : 90  
Units Consumed : 60  
Rate per Unit : Rs. 3.1  
Energy Charges : Rs. 186.0

---

Registered Owner : Mega Mall  
Consumer Type : Commercial  
Previous Units : 600  
Current Units : 760  
Units Consumed : 160  
Rate per Unit : Rs. 8.5  
Energy Charges : Rs. 1360.0

---

Registered Owner : Steel Works  
Consumer Type : Industrial  
Previous Units : 2000  
Current Units : 2250  
Units Consumed : 250  
Rate per Unit : Rs. 7.7  
Energy Charges : Rs. 1925.0

---

Registered Owner : Radha  
Consumer Type : Domestic  
Previous Units : 70  
Current Units : 115  
Units Consumed : 45  
Rate per Unit : Rs. 1.95  
Energy Charges : Rs. 87.75

---

Registered Owner : Kiran Shop  
Consumer Type : Commercial  
Previous Units : 40  
Current Units : 95  
Units Consumed : 55  
Rate per Unit : Rs. 8.5  
Energy Charges : Rs. 467.5

---

Registered Owner : Power Plastics  
Consumer Type : Industrial  
Previous Units : 1500

Current Units : 1650  
Units Consumed : 150  
Rate per Unit : Rs. 7.7  
Energy Charges : Rs. 1155.0

---

Registered Owner : Sunitha  
Consumer Type : Domestic  
Previous Units : 95  
Current Units : 145  
Units Consumed : 50  
Rate per Unit : Rs. 1.95  
Energy Charges : Rs. 97.5

---

Registered Owner : Ravi Traders  
Consumer Type : Commercial  
Previous Units : 110  
Current Units : 190  
Units Consumed : 80  
Rate per Unit : Rs. 8.5  
Energy Charges : Rs. 680.0

---

Registered Owner : Agro Mills  
Consumer Type : Industrial  
Previous Units : 800  
Current Units : 980  
Units Consumed : 180  
Rate per Unit : Rs. 7.7  
Energy Charges : Rs. 1386.0

---

## Task 3

### Prompt

Task 3: Modular Design Using AI Assistance (Using Functions) Scenario Billing logic must be

reusable for multiple consumers. Task Description Use AI assistance to generate a Python program that:

- Uses user-defined functions to:
  - o Calculate Energy Charges
  - o Calculate Fixed Charges
- Returns calculated values
- Includes meaningful comments

Expected Output

- Function-based Python program
- Correct EC and FC values
- Screenshots of AI-assisted function generation
- Test cases with outputs

ask any questions if u need

## Code

```
# Task 3: Modular Electricity Billing System using Functions
# TGNPDCL Tariff based calculation
```

```
# Function to calculate Energy Charges (EC)
```

```
def calculate_energy_charge(units, consumer_type):
```

```
    ec = 0
```

```
    if consumer_type == "Domestic":
```

```
        if units <= 50:
```

```
            ec = units * 1.95
```

```
        elif units <= 100:
```

```
            ec = (50 * 1.95) + ((units - 50) * 3.10)
```

```
        elif units <= 200:
```

```
            ec = (50 * 1.95) + (50 * 3.10) + ((units - 100) * 3.40)
```

```
        elif units <= 300:
```

```
            ec = (50 * 1.95) + (50 * 3.10) + (100 * 3.40) + ((units - 200) * 5.10)
```

```
        elif units <= 400:
```

```
            ec = (50 * 1.95) + (50 * 3.10) + (100 * 3.40) + (100 * 5.10) + ((units - 300) * 7.70)
```

```
        elif units <= 800:
```

```
            ec = (50 * 1.95) + (50 * 3.10) + (100 * 3.40) + (100 * 5.10) + (100 * 7.70) + ((units - 400) * 9.50)
```

```
        else:
```

```
            ec = (50 * 1.95) + (50 * 3.10) + (100 * 3.40) + (100 * 5.10) + (100 * 7.70) + (400 * 9.50) + ((units - 800) * 10.00)
```

```
    elif consumer_type == "Commercial":
```

```
        if units <= 50:
```

```
            ec = units * 7.00
```

```
        else:
```

```
            ec = (50 * 7.00) + ((units - 50) * 8.50)
```

```
elif consumer_type == "Industrial":  
    ec = units * 7.70
```

```
return ec
```

```
# Function to calculate Fixed Charges (FC)  
def calculate_fixed_charge(consumer_type):  
    contract_load = 1 # in kW
```

```
    if consumer_type == "Domestic":  
        return contract_load * 10  
    elif consumer_type == "Commercial":  
        return contract_load * 70  
    elif consumer_type == "Industrial":  
        return contract_load * 75
```

```
# Hardcoded consumer test cases  
consumers = [  
    ("Ramesh Kumar", 120, 165, "Domestic"),  
    ("Priya Stores", 50, 120, "Commercial"),  
    ("Agro Mills", 800, 980, "Industrial"),  
    ("Lakshmi", 30, 110, "Domestic"),  
    ("City Mart", 200, 350, "Commercial")  
]
```

```
print("TG NPDCL ELECTRICITY BILL\n")
```

```
for name, pu, cu, ctype in consumers:  
    units = cu - pu  
    ec = calculate_energy_charge(units, ctype)  
    fc = calculate_fixed_charge(ctype)  
    total = ec + fc
```

```
print("Registered Owner :", name)  
print("Consumer Type   :", ctype)  
print("Previous Units   :", pu)  
print("Current Units    :", cu)  
print("Units Consumed   :", units)
```

```
print("Energy Charges : Rs.", round(ec, 2))
print("Fixed Charges : Rs.", fc)
print("Total Bill : Rs.", round(total, 2))
print("-" * 45)
```

## Output

### Output

#### TGNPDCL ELECTRICITY BILL

Registered Owner : Ramesh Kumar  
Consumer Type : Domestic  
Previous Units : 120  
Current Units : 165  
Units Consumed : 45  
Energy Charges : Rs. 87.75  
Fixed Charges : Rs. 10  
Total Bill : Rs. 97.75

-----  
Registered Owner : Priya Stores  
Consumer Type : Commercial  
Previous Units : 50  
Current Units : 120  
Units Consumed : 70  
Energy Charges : Rs. 520.0  
Fixed Charges : Rs. 70  
Total Bill : Rs. 590.0

-----  
Registered Owner : Agro Mills  
Consumer Type : Industrial  
Previous Units : 800  
Current Units : 980  
Units Consumed : 180  
Energy Charges : Rs. 1386.0  
Fixed Charges : Rs. 75  
Total Bill : Rs. 1461.0

```
-----  
Registered Owner : Lakshmi  
Consumer Type    : Domestic  
Previous Units   : 30  
Current Units    : 110  
Units Consumed   : 80  
Energy Charges   : Rs. 190.5  
Fixed Charges    : Rs. 10  
Total Bill       : Rs. 200.5  
-----
```

```
-----  
Registered Owner : City Mart  
Consumer Type     : Commercial  
Previous Units    : 200  
Current Units     : 350  
Units Consumed    : 150  
Energy Charges    : Rs. 1200.0  
Fixed Charges     : Rs. 70  
Total Bill        : Rs. 1270.0  
-----
```

## Task 4

### Prompt

Task 4: Calculation of Additional Charges Scenario Electricity bills include multiple additional charges.

Task Description Extend the program to calculate: • FC – Fixed Charges • CC – Customer Charges • ED – Electricity Duty (percentage of EC) Use AI prompts like: • “Add electricity duty calculation” • “Improve billing accuracy” ask any question if u need Expected Output • Individual charge values printed • Correct duty calculation • Well-structured output • Verified intermediate results

# Code

```
4 def calculate_energy_charge(units, consumer_type):
5     ec = 0
6
7     if consumer_type == "Domestic":
8         if units <= 50:
9             ec = units * 1.95
10        elif units <= 100:
11            ec = (50 * 1.95) + ((units - 50) * 3.10)
12        elif units <= 200:
13            ec = (50 * 1.95) + (50 * 3.10) + ((units - 100) * 3.40)
14        elif units <= 300:
15            ec = (50 * 1.95) + (50 * 3.10) + (100 * 3.40) + ((units - 200) * 5.10)
16        elif units <= 400:
17            ec = (50 * 1.95) + (50 * 3.10) + (100 * 3.40) + (100 * 5.10) + ((units - 300) * 7.70)
18        elif units <= 800:
19            ec = (50 * 1.95) + (50 * 3.10) + (100 * 3.40) + (100 * 5.10) + (100 * 7.70) + ((units - 400) * 9.50)
20        else:
21            ec = (50 * 1.95) + (50 * 3.10) + (100 * 3.40) + (100 * 5.10) + (100 * 7.70) + (400 * 9.50) + ((units - 800) * 10.00)
22
23    elif consumer_type == "Commercial":
24        if units <= 50:
25            ec = units * 7.00
26        else:
27            ec = (50 * 7.00) + ((units - 50) * 8.50)
28
29    elif consumer_type == "Industrial":
30        ec = units * 7.70
31
32    return ec
33
34
35 def calculate_fixed_charge(consumer_type):
36     if consumer_type == "Domestic":
37         return 10
38
39
40 def calculate_fixed_charge(consumer_type):
41     if consumer_type == "Domestic":
42         return 10
43     elif consumer_type == "Commercial":
44         return 70
45     elif consumer_type == "Industrial":
46         return 75
47
48
49 def calculate_customer_charge(consumer_type):
50     if consumer_type == "Domestic":
51         return 25
52     elif consumer_type == "Commercial":
53         return 50
54     elif consumer_type == "Industrial":
55         return 100
56
57
58 def calculate_electricity_duty(ec):
59     return ec * 0.05
60
61
62 # Hardcoded test cases
63 consumers = [
64     ("Ramesh Kumar", 120, 165, "Domestic"),
65     ("Priya Stores", 50, 120, "Commercial"),
66     ("Agro Mills", 800, 980, "Industrial")
67 ]
68
69 print("TGNPDCL ELECTRICITY BILL WITH ADDITIONAL CHARGES\n")
70
71 for name, pu, cu, ctype in consumers:
72     units = cu - pu
73
74
```

```

print("TGNPDCL ELECTRICITY BILL WITH ADDITIONAL CHARGES\n")

for name, pu, cu, ctype in consumers:
    units = cu - pu

    ec = calculate_energy_charge(units, ctype)
    fc = calculate_fixed_charge(ctype)
    cc = calculate_customer_charge(ctype)
    ed = calculate_electricity_duty(ec)

    total_bill = ec + fc + cc + ed

    print("Registered Owner :", name)
    print("Consumer Type    :", ctype)
    print("Previous Units   :", pu)
    print("Current Units    :", cu)
    print("Units Consumed   :", units)
    print("Energy Charges   : Rs.", round(ec, 2))
    print("Fixed Charges    : Rs.", fc)
    print("Customer Charges : Rs.", cc)
    print("Electricity Duty : Rs.", round(ed, 2))
    print("Total Bill      : Rs.", round(total_bill, 2))
    print("-" * 50)

```

## Output

TGNPDCL ELECTRICITY BILL WITH ADDITIONAL CHARGES

```

Registered Owner : Ramesh Kumar
Consumer Type    : Domestic
Previous Units   : 120
Current Units    : 165
Units Consumed   : 45
Energy Charges   : Rs. 87.75
Fixed Charges    : Rs. 10
Customer Charges : Rs. 25
Electricity Duty : Rs. 4.39
Total Bill      : Rs. 127.14
-----

```

```

Registered Owner : Priya Stores
Consumer Type     : Commercial
Previous Units    : 50
Current Units     : 120
Units Consumed    : 70
Energy Charges    : Rs. 520.0
Fixed Charges     : Rs. 70
Customer Charges  : Rs. 50
Electricity Duty  : Rs. 26.0
Total Bill        : Rs. 666.0
-----

```

```

Registered Owner : Agro Mills
Consumer Type     : Industrial
Previous Units    : 800
Previous Units    : 800
Current Units     : 980
Units Consumed    : 180
Energy Charges    : Rs. 1386.0
Energy Charges    : Rs. 1386.0
Fixed Charges     : Rs. 75
Customer Charges  : Rs. 100
Electricity Duty  : Rs. 69.3
Total Bill        : Rs. 1630.3

```

## Task 5

### Prompt

Task 5: Final Bill Generation and Output Analysis Scenario The final electricity bill must present all values clearly. Task Description Develop the final Python application to:

- Calculate total bill:
- Total Bill = EC + FC + CC + ED
- Display:
- o Energy Charges (EC)
- o Fixed Charges (FC)
- o Customer Charges (CC)
- o Electricity Duty (ED)
- o Total Bill Amount
- Analyze the program based on:
- o Accuracy
- o Readability
- o Real-world applicability

Expected Output

- Complete electricity bill output
- Neatly formatted display
- Sample input/output
- Short analysis paragraph

### Code

```
def calculate_energy_charge(units, consumer_type):
    ec = 0

    if consumer_type == "Domestic":
        if units <= 50:
            ec = units * 1.95
        elif units <= 100:
            ec = (50 * 1.95) + ((units - 50) * 3.10)
        elif units <= 200:
            ec = (50 * 1.95) + (50 * 3.10) + ((units - 100) * 3.40)
        elif units <= 300:
            ec = (50 * 1.95) + (50 * 3.10) + (100 * 3.40) + ((units - 200) * 5.10)
        else:
            ec = (50 * 1.95) + (50 * 3.10) + (100 * 3.40) + (100 * 5.10) + ((units - 300) * 7.70)

    elif consumer_type == "Commercial":
        if units <= 50:
            ec = units * 7.00
        else:
            ec = (50 * 7.00) + ((units - 50) * 8.50)

    elif consumer_type == "Industrial":
        ec = units * 7.70

    return ec

def calculate_fixed_charge(consumer_type):
    if consumer_type == "Domestic":
        return 10
    elif consumer_type == "Commercial":
        return 70
    elif consumer_type == "Industrial":
        return 75
```

```

0 def calculate_customer_charge(consumer_type):
1     if consumer_type == "Domestic":
2         return 25
3     elif consumer_type == "Commercial":
4         return 50
5     elif consumer_type == "Industrial":
6         return 100
7
8
9 def calculate_electricity_duty(ec):
0     return ec * 0.05
1
2
3 # Sample consumer (hardcoded for demonstration)
4 name = "Agro Mills"
5 previous_units = 800
6 current_units = 980
7 consumer_type = "Industrial"
8
9 units_consumed = current_units - previous_units
0
1 ec = calculate_energy_charge(units_consumed, consumer_type)
2 fc = calculate_fixed_charge(consumer_type)
3 cc = calculate_customer_charge(consumer_type)
4 ed = calculate_electricity_duty(ec)
5
6 total_bill = ec + fc + cc + ed
7
8 print("\n===== TGNPDCL ELECTRICITY BILL =====\n")
9 print("Registered Owner   :", name)
0 print("Consumer Type      :", consumer_type)
1 print("Previous Units       :", previous_units)
2 print("Current Units         :", current_units)
3 print("Units Consumed        :", units_consumed)
4 print("-----")
5 print("Energy Charges (EC): Rs.", round(ec, 2))
6 print("Fixed Charges (FC) : Rs.", fc)
7 print("Customer Charges   : Rs.", cc)
8 print("Electricity Duty   : Rs.", round(ed, 2))
9 print("-----")
0 print("TOTAL BILL AMOUNT   : Rs.", round(total_bill, 2))
1 print("\n=====")
2

```

## Output

```

===== TGNPDCL ELECTRICITY BILL =====

Registered Owner   : Agro Mills
Consumer Type      : Industrial
Previous Units     : 800
Current Units      : 980
Units Consumed     : 180
-----
Energy Charges (EC): Rs. 1386.0
Fixed Charges (FC) : Rs. 75
Customer Charges   : Rs. 100
Electricity Duty   : Rs. 69.3
-----
TOTAL BILL AMOUNT   : Rs. 1630.3
=====

PS C:\Users\koushik reddy\Desktop\python practice>

```