

# Advanced Programming Practice

## Assignment

**Name: Mayank Sinha**

**Reg no: RA1911003010386**

### SET – 6

1. Develop a Python Application to get the number of units consumed of 5 users. The charges are given below and compute the total amount to be paid by the user.

Unit	Charge/Unit
Upto 199	@1.20
200 and above but less than 400	@1.50
400 and above but less than 600	@1.80
600 and above	@2.00
If bill exceeds 400 then surcharge of 15% will be charged and the minimum bill should be Rs.100	

The following details to be entered a. Customer Id, b. Customer Name, c. Month, d. Units Consumed. Generate the report for the 5 users.

```
n = 1
while n <= 5:
    print("Customer ", n)
    customerID = int(input("Enter Customer ID "))
    customerName = input("Enter Customer Name ")
    month = input("Enter Month ")
    units = int(input("Enter Units Consumed "))
    unitConsumed = 0
    surcharge = 0
    netCharge = 0
    if units < 200:
        unitConsumed = units * 1.20
    elif 200 <= units < 400:
        unitConsumed = units * 1.50
    elif 400 <= units < 600:
        unitConsumed = units * 1.80
    else:
        unitConsumed = units * 2.00

    if unitConsumed > 400:
        surcharge = 0.15*unitConsumed
        netCharge = surcharge + unitConsumed

    elif unitConsumed < 100:
        netCharge = 100
    else:
        netCharge = unitConsumed

    print("-----")
    print("Customer ID : ", customerID)
    print("Customer Name : ", customerName)
    print("Month : ", month)
    print("Units Consumed : ", units)
    print("Surcharge Amount : ", surcharge)
    print("Total Amount to be paid by the customer : ", netCharge)
    print("-----")
    n += 1
```

**Output:**

```
"C:\Users\Eishita Gupta\PycharmProjects\solve\venv\Scr
Customer 1
Enter Customer ID 101
Enter Customer Name Eishita Gupta
Enter Month May
Enter Units Consumed 150
-----
Customer ID : 101
Customer Name : Eishita Gupta
Month : May
Units Consumed : 150
Surcharge Amount : 0
Total Amount to be paid by the customer : 180.0
-----
Customer 2
Enter Customer ID 102
Enter Customer Name Abhijit Gupta
Enter Month March
Enter Units Consumed 250
-----
Customer ID : 102
Customer Name : Abhijit Gupta
Month : March
Units Consumed : 250
Surcharge Amount : 0
Total Amount to be paid by the customer : 375.0
-----
```

```
Customer 3
Enter Customer ID 103
Enter Customer Name Anupam Gupta
Enter Month April
Enter Units Consumed 350
-----
Customer ID : 103
Customer Name : Anupam Gupta
Month : April
Units Consumed : 350
Surcharge Amount : 78.75
Total Amount to be paid by the customer : 603.75
-----
Customer 4
Enter Customer ID 104
Enter Customer Name Sarvesh Gupta
Enter Month July
Enter Units Consumed 450
-----
Customer ID : 104
Customer Name : Sarvesh Gupta
Month : July
Units Consumed : 450
Surcharge Amount : 121.5
Total Amount to be paid by the customer : 931.5
```

```
Customer 5
Enter Customer ID 106
Enter Customer Name Hinata Shoyo
Enter Month October
Enter Units Consumed 612
-----
Customer ID : 106
Customer Name : Hinata Shoyo
Month : October
Units Consumed : 612
Surcharge Amount : 183.6
Total Amount to be paid by the customer : 1407.6
-----

Process finished with exit code 0
```

2. Develop a Python Application to get the details of 5 users (Customer Id, Customer Name, Month, Units Consumed, Bill paid, if yes date of payment). Generate the report for those users who have paid their bill where bill id to be automated (BCus\_001).

Bill id	Customer id	Name	Units	Date of payment	Amount paid
---------	-------------	------	-------	-----------------	-------------

```
n = 1
while n <= 5:
    print("Customer ", n)
    customerID = int(input("Enter Customer ID "))
    customerName = input("Enter Customer Name ")
    units = int(input("Enter Units Consumed "))
    date = input("Enter Date of Payment ")
    amountPaid = input("Amount Paid (YES/NO) ")

    print("-----")

    print("Bill ID : BCus_00", n)
    print("Customer ID : ", customerID)
    print("Customer Name : ", customerName)
    print("Units Consumed : ", units)
    if amountPaid == 'YES':
        print("Amount Paid : ", amountPaid)
        print("Date of Payment : ", date)
    else:
        print("Amount Paid : NO")

    print("-----")
    n += 1
```

**Output:**

```
Customer 1
Enter Customer ID 201
Enter Customer Name Hinata Shoyo
Enter Units Consumed 150
Enter Date of Payment 02.10.2020
Amount Paid (YES/NO) YES
-----
```

```
Bill ID : BCus_00 1
Customer ID : 201
Customer Name : Hinata Shoyo
Units Consumed : 150
Amount Paid : YES
Date of Payment : 02.10.2020
-----
```

```
Customer 2
Enter Customer ID 202
Enter Customer Name Kageyama Tobio
Enter Units Consumed 256
Enter Date of Payment 29.01.2021
Amount Paid (YES/NO) NO
-----
```

```
Bill ID : BCus_00 2
Customer ID : 202
Customer Name : Kageyama Tobio
Units Consumed : 256
Amount Paid : NO
-----
```

```
Customer 3
Enter Customer ID 203
Enter Customer Name Nishinoya
Enter Units Consumed 652
Enter Date of Payment 05.05.2019
Amount Paid (YES/NO) YES
-----
```

```
Bill ID : BCus_00 3
Customer ID : 203
Customer Name : Nishinoya
Units Consumed : 652
Amount Paid : YES
Date of Payment : 05.05.2019
-----
```

```
Customer 4
Enter Customer ID 204
Enter Customer Name Tanaka
Enter Units Consumed 847
Enter Date of Payment 02.02.2021
Amount Paid (YES/NO) NO
-----
```

```
Bill ID : BCus_00 4
Customer ID : 204
Customer Name : Tanaka
Units Consumed : 847
Amount Paid : NO
-----
```

```
Customer 5
Enter Customer ID 205
Enter Customer Name Daichi
Enter Units Consumed 745
Enter Date of Payment 02.10.2020
Amount Paid (YES/NO) YES
-----
```

```
Bill ID : BCus_00 5
Customer ID : 205
Customer Name : Daichi
Units Consumed : 745
Amount Paid : YES
Date of Payment : 02.10.2020
-----
```

```
Process finished with exit code 0
```

3. Develop a Python Application to get the details of 5 users (Customer Id, Customer Name, Last 3 Months of Units Consumed). Predict the no. of units that will be consumed in the next month as same, unpredict.

(Hint: average of three months is less than or equal to last month of unit consumed then same else unpredict)

Bill id	Customer id	Name	3 months ofUnits	Predict for nextMonth
---------	-------------	------	------------------	-----------------------

```
n = 1
while n <= 5:
    print("Customer ", n)
    customerID = int(input("Enter Customer ID "))
    customerName = input("Enter Customer Name ")
    lastMonth = int(input("Enter last Month units consumed "))
    secondLastMonth = int(input("Enter Second Last Month units consumed "))
    thirdLastMonth = int(input("Enter Third Last Month units consumed "))
    average = (lastMonth + secondLastMonth + thirdLastMonth) / 3

    print("-----")

    print("Bill Id : BCus_00", n)
    print("Customer ID : ", customerID)
    print("Customer Name : ", customerName)
    print("Last Month units consumed : ", lastMonth)
    print("Average of Last Three Months : ", '%.2f' % average)

    if average <= lastMonth:
        print("Prediction for next Month : ", '%.2f' % average)
    else:
        print("Prediction for next Month : Unpredicted")
    n += 1
    print("-----")
```

**Output:**

```

Customer 1
Enter Customer ID 301
Enter Customer Name Oreki
Enter last Month units consumed 85
Enter Second Last Month units consumed 45
Enter Third Last Month units consumed 65
-----
Bill Id : BCus_00 1
Customer ID : 301
Customer Name : Oreki
Last Month units consumed : 85
Average of Last Three Months : 65.00
Prediction for next Month : 65.00
-----
Customer 2
Enter Customer ID 302
Enter Customer Name Taki
Enter last Month units consumed 54
Enter Second Last Month units consumed 15
Enter Third Last Month units consumed 23
-----
Bill Id : BCus_00 2
Customer ID : 302
Customer Name : Taki
Last Month units consumed : 54
Average of Last Three Months : 30.67
Prediction for next Month : 30.67

```

```

Customer 3
Enter Customer ID 303
Enter Customer Name Ayanokoji
Enter last Month units consumed 12
Enter Second Last Month units consumed 85
Enter Third Last Month units consumed 75
-----
Bill Id : BCus_00 3
Customer ID : 303
Customer Name : Ayanokoji
Last Month units consumed : 12
Average of Last Three Months : 57.33
Prediction for next Month : Unpredicted
-----
Customer 4
Enter Customer ID 304
Enter Customer Name Ryuk
Enter last Month units consumed 56
Enter Second Last Month units consumed 41
Enter Third Last Month units consumed 56
-----
Bill Id : BCus_00 4
Customer ID : 304
Customer Name : Ryuk
Last Month units consumed : 56
Average of Last Three Months : 51.00
Prediction for next Month : 51.00
-----

```

```

Customer 5
Enter Customer ID 305
Enter Customer Name Kyo
Enter last Month units consumed 41
Enter Second Last Month units consumed 95
Enter Third Last Month units consumed 75
-----
Bill Id : BCus_00 5
Customer ID : 305
Customer Name : Kyo
Last Month units consumed : 41
Average of Last Three Months : 70.33
Prediction for next Month : Unpredicted
-----

Process finished with exit code 0

```

4. You are given two string S1 and S2. Write a Python program to predict whether the strings falls under anagram

---

```
S1 = input("Enter String 1 ")
S2 = input("Enter String 2 ")

if sorted(S1) == sorted(S2):
    print("S1 and S2 are anagrams.")
else:
    print("S1 and S2 are not anagrams.")
|
```

### Output:

```
Enter String 1 silent
Enter String 2 listen
S1 and S2 are anagrams.

Process finished with exit code 0
|
```

```
Enter String 1 magic
Enter String 2 mag
S1 and S2 are not anagrams.

Process finished with exit code 0
```



5. Develop a Python Application to get the details of 5 users (Customer Id, Customer Name, Last 3 Months of Units Consumed). Predict as domestic / commercialized usage of bill based on the units consumed

(Hint: average of three months is less than or equal to last month of unit consumed then domestic else commercial)

Bill id	Customer id	Name	3monthsofUnits	Usage
---------	-------------	------	----------------	-------

```
n = 1
while n <= 5:
    print("Customer ", n)
    customerID = int(input("Enter Customer ID "))
    customerName = input("Enter Customer Name ")
    lastMonth = int(input("Enter last Month units consumed "))
    secondLastMonth = int(input("Enter Second Last Month units consumed "))
    thirdLastMonth = int(input("Enter Third Last Month units consumed "))
    average = (lastMonth + secondLastMonth + thirdLastMonth) / 3

    print("-----")

    print("Bill Id : BCus_00", n)
    print("Customer ID : ", customerID)
    print("Customer Name : ", customerName)
    print("Last Month units consumed : ", lastMonth)
    print("Average of Last 3 Months Of Units : ", '%.2f' % average)
    if average <= lastMonth:
        print("Usage : Domestic")
    else:
        print("Usage : Commercialized")
    n += 1
    print("-----")
```

**Output:**

```
Customer 1
Enter Customer ID 401
Enter Customer Name Arima Kousei
Enter Last Month units consumed 56
Enter Second Last Month units consumed 85
Enter Third Last Month units consumed 14
-----
Bill Id : BCus_00 1
Customer ID : 401
Customer Name : Arima Kousei
Last Month units consumed : 56
Average of Last 3 Months Of Units : 51.67
Usage : Domestic
-----
Customer 2
Enter Customer ID 402
Enter Customer Name Kaori
Enter Last Month units consumed 14
Enter Second Last Month units consumed 26
Enter Third Last Month units consumed 78
-----
Bill Id : BCus_00 2
Customer ID : 402
Customer Name : Kaori
Last Month units consumed : 14
Average of Last 3 Months Of Units : 39.33
Usage : Commercialized
```

```
Customer 3
Enter Customer ID 403
Enter Customer Name Ryouta
Enter Last Month units consumed 56
Enter Second Last Month units consumed 74
Enter Third Last Month units consumed 85
-----
Bill Id : BCus_00 3
Customer ID : 403
Customer Name : Ryouta
Last Month units consumed : 56
Average of Last 3 Months Of Units : 71.67
Usage : Commercialized
-----
Customer 4
Enter Customer ID 404
Enter Customer Name Tsubaki
Enter Last Month units consumed 174
Enter Second Last Month units consumed 41
Enter Third Last Month units consumed 23
-----
Bill Id : BCus_00 4
Customer ID : 404
Customer Name : Tsubaki
Last Month units consumed : 174
Average of Last 3 Months Of Units : 79.33
Usage : Domestic
```

```
Customer 5
Enter Customer ID 405
Enter Customer Name Hiroko
Enter Last Month units consumed 45
Enter Second Last Month units consumed 12
Enter Third Last Month units consumed 14
-----
Bill Id : BCus_00 5
Customer ID : 405
Customer Name : Hiroko
Last Month units consumed : 45
Average of Last 3 Months Of Units : 23.67
Usage : Domestic
-----
Process finished with exit code 0
|
```