Assignment – 2

Data science Masters

Ques -1 :- Write a program to accept percentage from the user and display the grade accordingly to the following criteria ?

Ans:-

```python
percentage = float(input("Enter the percentage of marks: "))
if percentage > 90 and percentage <=100:
    print("You recieved A grade")
elif percentage > 80 and percentage <= 90:
    print("You recieved B grade")
elif percentage >= 60 and percentage <=80:
    print("You recieved C grade")
elif percentage < 60:
    print("You recieved D grade")
# below code is if used enters percentage over 100
else:
    print("Plz Enter percentage correctly")
```

Code 👆 👆

Output 👇 👇

```
PS H:\pw assign 1 programms> & "C:/Program Files/Python310/python.exe" "h:/pw assign 1 programms/percentage.py"
Enter the percentage of marks: 90       ←
You recieved B grade
PS H:\pw assign 1 programms> & "C:/Program Files/Python310/python.exe" "h:/pw assign 1 programms/percentage.py"
Enter the percentage of marks: 92   ←
You recieved A grade
PS H:\pw assign 1 programms> & "C:/Program Files/Python310/python.exe" "h:/pw assign 1 programms/percentage.py"
Enter the percentage of marks: 74   ←
You recieved C grade
PS H:\pw assign 1 programms> & "C:/Program Files/Python310/python.exe" "h:/pw assign 1 programms/percentage.py"
Enter the percentage of marks: 45    ←
You recieved D grade
PS H:\pw assign 1 programms> & "C:/Program Files/Python310/python.exe" "h:/pw assign 1 programms/percentage.py"
Enter the percentage of marks: 101   ←
Plz Enter percentage correctly
```

Ques-2:- Write a programm to accept the cost price of a bike and display the road tax to be paid according to the following criteria?

Tax	Cost Price(in Rs)
15%	>100000
10%	>50000 and <= 100000
5%	< = 50000

Ans:-

```python
1   price = int(input("Enter the cost price of Bike: "))
2   if price > 100000:
3       final_price = price+(price*0.15)
4       print(f"You have to pay 15% as road tax and your final amount is {final_price} Rs.")
5   elif price > 50000 and price <= 100000:
6       final_price = price+(price*0.10)
7       print(f"You have to pay 10% as road tax and your final amount is {final_price} Rs.")
8   elif price <= 50000:
9       final_price = price+(price*0.05)
0       print(f"You have to pay 5% as road tax and your final amount is {final_price} Rs.")
```
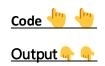
Code 👇 👇

Output 👆 👆

```
Enter the cost price of Bike: 110000  ←
You have to pay 15% as road tax and your final amount is 126500.0 Rs.
PS H:\pw assign 1 programms> & "C:/Program Files/Python310/python.exe"
ign 1 programms/roadtax.py"
Enter the cost price of Bike: 70000  ←
You have to pay 10% as road tax and your final amount is 77000.0 Rs.
PS H:\pw assign 1 programms> & "C:/Program Files/Python310/python.exe"
ign 1 programms/roadtax.py"
Enter the cost price of Bike: 46000  ←
You have to pay 5% as road tax and your final amount is 48300.0 Rs.
```

Ques-3:- Accept city name from the user and display monuments of that city ?

City	Monument
Delhi	Red Fort
Agra	Taj Mahal
Jaipur	Jal Mahal

Ans:-

```python
city_name = input("Enter the Name of city: ").lower()
if city_name == "delhi":
    print(f"The popular monumnet in {city_name} is Red Fort")
elif city_name == "agra":
    print(f"The popular monumnet in {city_name} is Taj Mahal")
elif city_name == "jaipur":
    print(f"The popular monumnet in {city_name} is Jal Mahal")
```

Code 👆👆

Output 👇👇

```
Enter the Name of city: jaipur
The popular monumnet in jaipur is Jal Mahal
PS H:\pw assign 1 programms> & "C:/Program Fil
Enter the Name of city: agra
The popular monumnet in agra is Taj Mahal
PS H:\pw assign 1 programms> & "C:/Program Fil
Enter the Name of city: delhi
The popular monumnet in delhi is Red Fort
```

Ques-4:- Check how many times a number can be divided by 3 before it is less than or equal to 10 ?

Ans:-

```python
number = int(input("Enter the number"))
count = 0
while number > 10:
    number-=3
    count+=1
    if number <= 10:
        print(f"Number will be divided by {count-1} times before it is less than or equal to 10")
```

Code 👆👆

Output 👇👇

```
Enter the number: 40 ⟵
Number will be divided by 9 times before it is less than or equal to 10
```

Ques-5:- Why and when to use while loop in python give a detailed description?

Ans:- Python while loop is used to run a block code until a certain condition is met. Here, A while loop evaluates the condition. If the condition evaluates to True , the code inside the while loop is executed until the condition will be True.

In general a while loop is used if you want an action to repeat itself until a certain condition is met.

Ques-6:- draw 3 different star patterns using nested while loop?

Ans:-

```
1    n = int(input("Enter a number"))
2    i = 1
3    while i<=n:
4        j=1
5        while j<=i:
6            print("*",end="")
7            j+=1
8        print()
9        i+=1
```

Code1 👆 👆 👆

Output 👇 👇 👇

```
*
**
***
****
*****
```

```
i=1
while i <=5:
    j=1
    while j<=i:
        print(j,end="")
        j=j+1
    print()
    i=i+1
```

Code 2 👆 👆

```
1
12
123
1234
12345
```

```
i=1
while i <=5:
    j=1
    while j<=i:
        print(1,end="")
        j=j+1
    print()
    i=i+1
```

Code3 👆 👆

Output3 👇 👇

```
1
11
111
1111
11111
```

Ques -7:- Reverse a while loop to display a number form 10 to 1?

Ans:-

```python
number = 10
while number >0:
    print(number)
    number -= 1
```

Code 👆 👆

Output 👇 👇

```
10
9
8
7
6
5
4
3
2
1
```