1. Write a program to accept percentage from the user and display the grade according to the following
criteria:

Marks	Grade
>90	A
>80 and <=90	B
>=60 and <=80	C
below 60	D

ANS)

```
def grade(marks):
    if marks>90:
        print("A")
    elif marks>80 and marks<=90:
        print("B")
    elif marks>=60 and marks<=80:
        print("C")
    else:
        print("D")

marks=int(input("enter your marks"))
grade(marks)
```

2. Write a program 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)

```
def tax(cost)
    if cost>100000:
        print("Tax:15%")
    elif cost>50000 and cost<=100000:
        print("Tax:10%")
    else:
        print("Tax:5%")
cost=int(input("enter the cost of bike"))
```

```
tax(cost)
```

3. Accept any city from the user and display monuments of that city.

City	Monument
Delhi	Red Fort
Agra	Taj Mahal
Jaipur	Jal Mahal

ANS)

```
def monument(city):
    if city=="Delhi":
        print("Red fort")
    elif city=="Agra":
        print("Taj mahal")
    elif city=="Jaipur":
```

```
        print("Jai mahal")

    else:

        print("search on google")

city=input("which city?")

city=city.capitalize()

monument(city)
```

4. Check how many times a given number can be divided by 3 before it is less than or equal to 10.

ANS)

```
def count_divisions(n):

    count = 0

    while n > 10:

        n = n / 3
```

```
        count += 1

    print(count)

n=int(input("enter number"))

count_divisions(n)
```

5. Why and When to Use while Loop in Python give a detailed description with example

ANS)A while loop in Python is used to repeatedly execute a block of code as long as a given condition is true. The condition is checked before each iteration of the loop. If the condition is true, the code block within the loop is executed, and then the condition is evaluated again. This process continues until the condition becomes false, at which point the loop terminates and the program continues to execute the code that follows the loop.

```
number = 1

while number <=10:
```

```
    print(number)

    number=number+ 1
```

6. Use nested while loop to print 3 different pattern.

1)printing pyramid:

```
rows = 5

i = 1

while i <= rows:

    j = 1

    while j <= (rows - i):

        print(end=" ")

        j=j+1

    k = 1

    while k <= i:
```

```
        print("*", end="")
        k =k+1
    print("")
    i =i+1
```

Output:

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

2)printing triangle pattern:

```
rows = 5
i = 1
while i <= rows:
    j = 1
    while j <= i:
```

```
        print("*", end="")
        j =j+1
    print("")
    i=i+1
```

Output:

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

3)printing number triangle pattern:

```
rows = 5
i = 1
k=1
while i <= rows:
    j = 1
```

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

Output:

```
1
2 3
4 5 6
7 8 9 10
11 12 13 14 15
```

7. Reverse a while loop to display numbers from 10 to 1.

ANS)

```
number = 10

while number > 0:

    print(number)

    number=number- 1
```

8. Reverse a while loop to display numbers from 10 to 1

ANS)

```
number = 10
```

```
while number > 0:

    print(number)

    number=number- 1
```