Lecture 9

For loop in python

In Python, a for loop is used to iterate over a sequence (such as a list, tuple, string, dictionary, or range) and execute a block of code for each item in the sequence

In [1]:
```
numbers = [1,2,3,4,5]
for i in numbers:
    print(i)
```

```
1
2
3
4
5
```

In [2]:
```
n = "students"
for i in n:
    print(i)
```

```
s
t
u
d
e
n
t
s
```

In [3]:
```
for i in range(11):
    print(i)
```

```
0
1
2
3
4
5
6
7
8
9
10
```

In [4]:
```
for i in range(26):
    print(i)
```

```
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
```

In [7]:
```
for x in range(5,26):
    print(x)
```

```
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
```

In [8]:
```
for x in range(15,36):
    print(x)
```

```
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
```

for loop and if condition

In [9]:
```
for i in range(0,26):
    if i%2==0:
        print("the number is even",i)
```

```
the number is even 0
the number is even 2
the number is even 4
the number is even 6
the number is even 8
the number is even 10
the number is even 12
the number is even 14
the number is even 16
the number is even 18
the number is even 20
the number is even 22
the number is even 24
```

In [10]:
```
for i in range(0,26):
    if i%2==0:
        print("the number is even",i)
    else:
        print("the number is odd",i)
```

```
the number is even 0
the number is odd 1
the number is even 2
the number is odd 3
the number is even 4
the number is odd 5
the number is even 6
the number is odd 7
the number is even 8
the number is odd 9
the number is even 10
the number is odd 11
the number is even 12
the number is odd 13
the number is even 14
the number is odd 15
the number is even 16
the number is odd 17
the number is even 18
the number is odd 19
the number is even 20
the number is odd 21
the number is even 22
the number is odd 23
the number is even 24
the number is odd 25
```

Implement a Python program to generate the multiplication table of a given number using a for loop.

In [16]:
```
number = int(input("enter a number to generate its multiplication table"))
print("The multiplication table of", number)

for i in range(1,11):
    print(f"{number} x {i} = {number*i}")
```

```
enter a number to generate its multiplication table14194596596
The multiplication table of 14194596596
14194596596 x 1 = 14194596596
14194596596 x 2 = 28389193192
14194596596 x 3 = 42583789788
14194596596 x 4 = 56778386384
14194596596 x 5 = 70972982980
14194596596 x 6 = 85167579576
14194596596 x 7 = 99362176172
14194596596 x 8 = 113556772768
14194596596 x 9 = 127751369364
14194596596 x 10 = 141945965960
```

Practice Question

In [ ]:
```
You are tasked with creating a program to assist
shoppers in calculating their total bill at a grocery store.
The store offers discounts based on the total purchase amount.
Your task is to implement a Python program that takes the price
of each item purchased and calculates the total bill,
including any applicable discounts.

The store offers the following discount rates
based on the total purchase amount:

If the total purchase amount is $100 or more,
the customer receives a 10% discount.

If the total purchase amount is between $50 and $99.99,
the customer receives a 5% discount.

If the total purchase amount is less than $50,
no discount is applied.

Write a Python program to prompt the user
to enter the prices of the items they purchased.
Use a for loop to iterate through the prices
entered and calculate the subtotal.
Apply the appropriate discount based
on the total purchase amount using if-else statements.
Finally, print out the subtotal, discount amount
(if any), and the total bill after applying the discount.
```

In [19]:
```
num_items = int(input("enter the number of items purchased"))
total_price =0

for i in range(num_items):
    price = float(input("enter the price of the item"))
    total_price = total_price + price
    i =i+1

if total_price >=100:
    discount = 0.1*total_price
elif 50<= total_price <100:
    discount =0.5*total_price
else:
    discount = 0

total_bill = total_price - discount
print("subtotal",total_bill)
```

```
enter the number of items purchased5
enter the price of the item100
enter the price of the item200
enter the price of the item300
enter the price of the item400
enter the price of the item500
subtotal 1350.0
```

break statment

We can use the break statement with the for loop to terminate the loop when a certain condition is met.

In [20]:
```
for i in range(5):
    if i == 3:
        break
    print(i)
```

```
0
1
2
```

Continue statement

The continue statement is used to skip the current iteration of the loop and the control flow of the program goes to the next iteration.

In [21]:
```
for i in range(5):
    if i == 3:
        continue
    print(i)
print("i am learning python")
```

```
0
1
2
4
i am learning python
```

In [ ]:

In [ ]: