Loop 👄 Loop statements are used for repeating a part of program during finite or infinite times. It is also known as iterative or repetitive statement. It could be classified into two categories-

a) Entry Controlled Loop
b) Exit Controlled Loop

a) Entry Controlled Loop 👄 This type of loop first checks the condition & if condition is satisfied then execute the body of the loop. 💳for loop👬 & 💳while loop👬 belongs to this category.
b) Exit Controlled Loop 👄 This type of loop execute at least one time either condition is satisfied or not. 💳do while loop👬 belongs to this category.

for loop : It is an entry controlled loop & the general form of this loop will be-

```
    for(initialization ; test condition ; increment/decrement)
    {
        body of the loop
    }
```

Que- WAP for printing 1 to 10.
Que- WAP for printing the table of given number.
Que- WAP for printing the list of even values b/w 1 to 50.
Que- WAP for printing 10 to 1.
Que- WAP for printing the following series-

1
0
1
0
.
n times

Que- WAP for printing the sum of even numbers between 1 to 50.
Que- WAP for printing the factorial of given number.
Que- WAP for calculating x to the power n.
Que- WAP for printing the sum of even numbers b/w 1 to 100.
Que- WAP for printing the following series-

Number	Square
1	1
2	4
3	9
.	

.
.
n n square

Que- WAP program for printing the values which are divisible by 3 and 5 b/w 1 to 50.

while loop : It is also an entry controlled loop & the general form of this loop will be-

```
while(condition)
{
    body of the loop
}
```

or

```
initilization
while(condition)
{
    body of the loop
    increment/decrement
}
```

while loop : It is also an entry controlled loop & the general form of this loop will be-

```
while(condition)
{
    body of the loop
}
```

or

```
initilization
while(condition)
{
    body of the loop
    increment/decrement
}
```

Que WAP for printing 1 to 10.

```
class demo
{
    public static void main(String args[])
    {
        int i;
        i=1;
        while(i<=10)
        {
            System.out.println(i);
            i++;
        }
    }
}
```

Que- WAP for reversing the digits of a given number.
123
321
Que- Check whether the given number is palindrome or not?
121
Que- WAP for printing the sum & average of digits of a given number.
Que- WAP for printing the largest digits of a given number.
Que- WAP for checking that the given number is armstrong or not?
153=1^3+5^3+3^3

break statement- it is used for terminating the flow of loop, it is always used along with the decision making statements.

```
class demo
{
    public static void main(String args[])
    {
        int i;
        for(i=1;i<=10;i++)
        {
            System.out.println(i);
```

```
            if(i==5)
                break;
        }
    }
}
```

Example- Check given number is prime or not?

```
import java.util.*;
class demo
{
    public static void main(String args[])
    {
        Scanner sc=new Scanner(System.in);
        int num,i;
        boolean isprime=false;
        System.out.print("Enter Number :");
        num=sc.nextInt();
        for(i=2;i<=num-1;i++)
        {
            if(num%i!=0)
                isprime=true;
            else
            {
                isprime=false;
                break;
            }
        }
```

```
        if(isprime==true)
            System.out.println("Given Number is
Prime");
        else
            System.out.println("Given Number is
Not Prime");

    }
}
```

Que- Read three values & print the lcm of these values.

continue - It is used for ignoring the sequence of loop.

```
class demo
{
    public static void main(String args[])
    {
        int i;
        for(i=1;i<=10;i++)
        {
            if(i>=5 && i<=8)
                continue;
            System.out.println(i);
        }
    }
}
```

do while loop : it is an exit controlled loop, means it will execute at least one time either condition is satisfied or not. The general form will be-

```
do{
    body of the loop
}while(condition);
import java.util.*;
class demo
{
    public static void main(String args[])
    {
        Scanner sc=new Scanner(System.in);
        int a,b,ch;
        do{
            System.out.print("\nEnter First Number :");
            a=sc.nextInt();
            System.out.print("Enter Second Number :");
            b=sc.nextInt();
            System.out.print("Sum :"+(a+b));
            System.out.print("\nPress 1 For Continue Your Program  :");
            ch=sc.nextInt();
        }while(ch==1);
```

```
        System.out.println("Bye-Bye");
    }
}
```

Nesting of loop statement- if loop statement contains one or more than one another loop statement into its body then this term is known as nesting of loop statement.

Que-3: Write programs for printing the following structures-

```
1
12
123
1234
12345
class demo
{
    public static void main(String args[])
    {
        int i,j;
        for(i=1;i<=5;i++)
        {
            for(j=1;j<=i;j++)
            {
```

```
                System.out.print(j);
            }
            System.out.println();
        }
    }
}
```

```
1
01
010
1010
10101
```

```
A
AB
ABC
ABCD
ABCDE
```

```
1
23
456
78910
```

```
   1
  12
```

```
   123
  1234
12345

12345
1234
123
12
1
*****
****
***
**
*
    1
   123
  12345
 1234567
123456789
    1
   121
  12321
 1234321
123454321
```

```
12345
 1234
  123
   12
    1
```

Que-1: WAP for printing the table of 2 to 10.
Que-2: WAP for printing the list of prime nos between 1 to 100.
Que-3: WAP for printing the list of Palindrome numbers between 1 to 1000.
Sol-1: WAP for printing the table of 2 to 10.

```
class demo
{
    public static void main(String args[])
    {
        int i,j;
        for(i=2;i<=10;i++)
        {
            for(j=1;j<=10;j++)
            {
                System.out.print(i*j+"\t");
            }
            System.out.println();
        }
    }
```

}