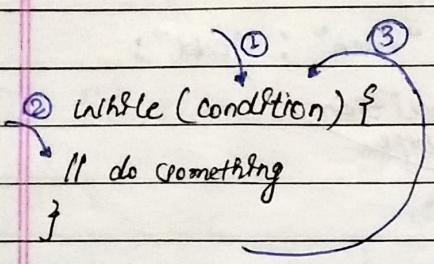
Dec 24, 2022

Loops

repeat → loop

1. While loop
2. For loop
3. Do While loop.



→ first condition check
→ print
→ then again condition will check
then execute

Q Print num 100 times

```
int n = 0;
While (n<100) {
  System.out.println("Hello world" + n);
  n++; }
```

Q Print num from 1 to n

```
Scanner sc = new Scanner(System.in);
  int n = sc.nextInt;
  int counter = 1;
While (counter <= n) {
  System.out.println(counter + " ");
  counter++;
}
```

Q Print num from 1 to 10.

```
int counter = 1;
While (counter <= 10) {
  System.out.println(counter);
  counter++;
}
```

for loop

```
for(initialisation; condition; updation) {
    // do something
}
```

Q Print HW 10 times

```
for(int i=1; i<=10; i++) {
    System.out.println("Hello World");
}
```

① Initli. ② check → is i less than 10 ③ Print HW ④ Now increased by 1 and then again step 2 and 3 will repeat.

DRY RUN

Q Print square Pattern [4x4]

```
for(int i=1; i<=4; i++) {
    System.out.println("****");
}
```

Q Print sum of first n natural numbers.

```
int n = sc.nextInt();
int sum = 0;
int i = 1;
while(i<=n) {
    sum = sum+i;
    i++;
}
```

DRY RUN

n = 5
sum = 0
i = 1
loop → i<=n
Sum = 0+1 = 1
Sum = 1+2 = 3
Sum = 3+3 = 6
⋮

* KEYWORD IN LOOP → Break, Continue → {To exit loop}

```
for(int i=1; i<=5; i++) {
    if(i==3) {
        break;
    }
    System.out.println(i);
}
```

If we need something specific using loop then we use "break" keyword.

do while loop

First work will execute then the condition will check.

```
do {
// do something
} while (condition);
```

```
int counter = 1;                          ①
do {
    System.out.println("Hello World");     ②
    counter++;                             ③
} while (counter <= 10);                   ④
```

Q PRINT REVERSE OF A NUMBER

n = 10899 ⟶ 99801

If we divide any number with 10 then the remained will always be the last digit of particular number.

132/10 ⟶ 10)132(13
130
x 2

① last digit = n%10;

② Remove last digit = n/10;

```
int n = 10899;

while(n > 0) {
    int lastDigit = n%10;                  → We will get lastDigit
    System.out.println(lastDigit + " ");   → Print lastDigit
    n = n/10;                              → Remove last Digit
}
System.out.println();
```

loop's

→ Continue Statement [To skip iteration]

```
for(int i=1; i<=5; i++){
  if(i==3){
    continue;
  }
  System.out.println(i);
```

Output
1
2
3 — will skip
4
5

Q Display all numbers entered by user except multiples of 10.

```
Scanner sc = new Scanner(System.in);
do{
  cout("enter your number: ");
  int n = sc.nextInt();
  if(n%10==0){
    continue;
  }
  System.out.println("number was: "+n);
} while(true);
```

This code is logically incorrect but we are learning how to use continue keyword.

Q Keep entering numbers till user enters a multiple of 10.

```
Scanner sc = new Scanner(System.in);
do{
  int n = sc.nextInt();
  if(n%10==0){
    break;
  }
  System.out.println(n);
} while(true);
```

This will check is the given number is multiple of 10 or not.
Yes - break / No - Continue