While Loop

Q. Print "Hello" 5 times

```
System.out.print("Hello");
System.out.print("Hello");
System.out.print("Hello");
System.out.print("Hello");
System.out.print("Hello");
```

Loop : to perform a repetitive task

① While   ② For

```
int cnt = 1
while ( cnt ≤ 5 ) {
    System.out.print("Hello");
    cnt ++
}
```

cnt = 1̶ ✓ 2 ✓ 3 ✓ 4 ✓ 5 ✓ 6 ✗

Output

Hello Hello Hello Hello
Hello

initialization

while (condition) <

    // repetitive task
    updation

>

---

int   i = 1 ;

`i = i + 1`   or   `i ++`   or   `i += 1`

$i = 1 + 1$
$\quad = 2$

or

`++i`

int cnt = 1

while (cnt ≤ 5) <

    System.out.print("Hello");

>

cnt = 1 1   Hello

Iterations: No of times we enter a loop

```
int i=1

while (i<=10) {
    i=i*i
    System.out. print (i +" ")
    i++
}
```

O/P

1 4 25

```
          i*i      i++
i=1  →   1   →   2

i=2  →   4   →   5

i=5  →   25  →   26

i=26     ✗
```

Quiz 3

```
int i=0
while (i<=10) {
    System.out. print (i +" ")
    i=i*i
}
```

O/P

0 0 0..

```
          i*i
i=0  →    0
```

Infinite Loop
↓
TLE

	N	Last dig = N % 10	N = N/10
①	437	7	43
②	43	3	4
③	4	4	[0] stop

O/P

7 3 4

Add digit 'd' to back of a no. 'r'

$$r = 13 \qquad d = 4 \qquad \boxed{134}$$

$$\boxed{r \times 10 + d}$$

$$130 + 4 = 134$$

$$r = \pm \not{7} 2$$

$$r \times 10 + d$$

$$\begin{array}{r} xyz0 \\ + \quad d \\ \hline xyzd \end{array}$$

$$n = 6571$$

$$1756$$

2 → 16

→ N/2

① 2 → 4 → 6 → 8 16

→ ?

② 1 $\xrightarrow{\times 2}$ 2 $\xrightarrow{\times 2}$ 4 $\xrightarrow{\times 2}$ 8 $\xrightarrow{\times 2}$ 16

(1024)

```
int num = 1, n = 90

while (num <= 90) <
    if (num == 60)
        print
    num++
>
```

O/P
60

num = 1 → 2 → 3 . . . . . → 60 → 70 . . .

. → 90

```
int    num = 1
while (num ==60) <
        print (num)
          num++
|
 ᵧ
```