Print n/3 $\longrightarrow$ from n to 0 by /3

int n = 29

```java
public static void main(String[] args) {
    Scanner scn = new Scanner(System.in);
    int n = scn.nextInt();

    for (int i = n; i > 0; i = i / 3) {
        System.out.print(i + " ");
    }
}
```

$i = 29, \ (29 > 0) \ \checkmark$

$i = 9, \ (9 > 0) \ \checkmark$

$i = 3, \ (3 > 0) \ \checkmark$

$i = 1, \ (1 > 0) \ \checkmark$

$i = 0, \ (0 > 0) \ \times$

o/p

| 29 9 3 1 |

Print powers of 2 less than n

int n = 150

o/p :-   1   2   4   8   16   32   64   128

↳ from 1 to n by *2

$n = 50$

```java
public static void main(String[] args) {
    Scanner scn = new Scanner(System.in);
    int n = scn.nextInt();

    for (int i = 1; i < n; i *= 2) {
        System.out.print(i + " ");
    }
}
```

$i = 1, (1 < 50) ✓$

$i = 2, (2 < 50) ✓$

$i = 4, (4 < 50) ✓$

$i = 8, (8 < 50) ✓$

$i = 16, (16 < 50) ✓$

$i = 32, (32 < 50) ✓$

$i = 64, (64 < 50) ✗$

o/p | 1   2   4   8   16   32

Multiples of 3, 5 and Both 3 and 5

$n = 20$

both ↓

o/p :- 3, 5, 6, 9, 10, 12, 15, 18, 20

↳ from 1 to n by +1

```java
public static void main(String[] args) {
    Scanner scn = new Scanner(System.in);
    int n = scn.nextInt();

    for (int i = 1; i <= n; i++) {
        if (i % 3 == 0 && i % 5 == 0) {
            System.out.print(i + " ");
        } else if ( i % 3 == 0 ) {
            System.out.print(i + " ");
        } else if ( i % 5 == 0 ) {
            System.out.print(i + " ");
        }
    }
}
```

$\Rightarrow$ # While loop

```
initialization
while ( condition ) {
    // Statement

    upgradation
}
```

Ex :-

```
for ( int i=0 ;  i <= 10 ;  i++){
        // Statement
 }
```

$\rightleftharpoons$

```
int i=0
while ( i <= 10 ) {
        // Statement
        i++
 }
```

Print 0 to n

$\hookrightarrow$ from __0__ to __n__ by +1

$n = 5;$

```java
public static void main(String[] args) {
    Scanner scn = new Scanner(System.in);
    int n = scn.nextInt();

    int i = 0;
    while (i <= n) {
        System.out.println(i);
        i++;
    }
}
```

$i = 0, \quad (0 <= 5) \checkmark$

$i = 1, \quad (1 <= 5) \checkmark$

$i = 2, \quad (2 <= 5) \checkmark$

$i = 3, \quad (3 <= 5) \checkmark$

$i = 4, \quad (4 <= 5) \checkmark$

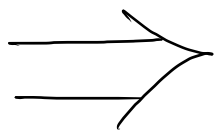$i = 5, \quad (5 <= 5) \checkmark$

$i = 6, \quad (6 <= 5) \times$

```
0
1
2
3
4
5
```

Printing 5 to N(While Loop)

↳ from 5 to N by +1

```java
public static void main(String[] args) {
    Scanner scn = new Scanner(System.in);
    int n = scn.nextInt();

    int i = 5;
    while (i <= n) {
        System.out.println(i);
        i++;
    }
}
```

$\Longrightarrow$ <u>do while loop</u> (it will always run atleast one time)

initialization

do {

    // statement

    upgradation

} while (condition);

ex :-

```
int i = 10;
do {
    Syso(i);
    i++;
} while ( i <= 6 );
```

o/p

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