

# Loops

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## Types of loops:

- ☎ For loop
- ☎ For in
- ☎ For of
- ☎ While
- ☎ Do-while

## For loop:

---> syntax of the for loop:

```
For(initialization ;condition ;update-expression){  
-----block of code  
}
```

Ex:

```
<script>  
  for(let i=0;i<=5;i++){  
    console.log(i);  
    document.write(i+"<br>");  
  }  
</script>
```

Output:

0  
1  
2  
3  
4  
5

Ex:2:

```
<script>
  for(let i=2;i<=9;i=i+2){
    console.log(i+3);
    document.write(i+3,"</br>");
  }
</script>
```

Output:

5  
7  
9  
11

//initialization:2+3=5

Then 2 increment with 4 and 4<=9 and then it prints 4+3=7

Then 4 increment with 6 and 6<=9 and then it prints 6+3=9

Then 6 increment with 8 and  $8 \leq 9$  and then it prints  $8+3=11$   
Then 8 increment with 10 but  $10 \nleq 9$  then loop breaks or stops.

Print the 9th table using for loop:

```
<body>
  <script>
    for(let i=9;i<=90;i=i+9){
      document.write(i,"<br>");
    }
  </script>
```

Output:

9  
18  
27  
36  
45  
54  
63  
72  
81  
90

For in:

Example:

```
<script>
  const a="karna"
  for(let i in a){
    document.write(a[i])
  }
</script>
```

Output:

Karna

For of:

```
<script>
  const a=["malli","yash","nani","gopi"]
  for(let i of a){
    document.write(i+"<br>")
  }
</script>
```

Output:

Malli

Yash

Nani

Gopi

While:

Syntax:

```
While(condition){  
---block of code  
}
```

Example:

```
<script>  
    let i=1,n=5;  
    while(i<=n){  
        document.write(i+"<br>")  
        i++  
    }  
</script>
```

Output:

1  
2  
3  
4  
5

Ex:2

```
<script>
  let i=2,n=8;
  while(i<=n){
    document.write(i+1+"</br>")
    i=i+2
  }
</script>
```

Output:

3  
5  
7  
9

Do-while:

Example:

```
<script>
  let i=1,n=8;
  do{
    document.write(i+1+"</br>")
    i=i+2
  }
  while(i<=n){
  }
</script>
```

Output:

2

4  
6  
8

Example2:

```
<script>
  for(let i=1;i<=8;i=i+2){
    if(i>5){
      break;
    }
    document.write(i+1+"</br>")
  }
</script>
```

Output:

2  
4  
6

Example3:

```
<script>
  for(let i=2;i<=8;i=i+1){
    if(i>5){
      continue;
    }
    document.write(i+2+"</br>")
  }
</script>
```

Output:

4  
5  
6  
7

## Comments:

- ☎ Step1: initialization  $i=2$  and it checks condition  $2>5$  and it is false and then increment  $2+2=4$
- ☎ Step2: next  $i$  becomes 3 with incrementation of 1 and it checks and increment  $3+2=5$
- ☎ Step3: next  $i$  becomes 4 with incrementation of 1 and it checks and increment  $4+2=6$
- ☎ Step4: next  $i$  becomes 5 with incrementation of 1 and it checks and increment  $5+2=7$
- ☎ Step5: then  $i$  becomes 6 with incrementation of 1 and it checks condition but it false then the code breaks .

## Nested loops:

- ☎ The inner loop will execute.

## Pyramids:

```
<script>
for (let i = 1; i <= 4; i++) {
  for (let j = 1; j <= 4 - i; j++) {
    document.write("&nbsp;");
  }
  for (let k = 1; k <= i; k++) {
    document.write("*");
  }
  document.write("<br>");
}
document.write("<br>");
```



```
document.write("<br>");
```

Output:

```
*  
**  
***  
****
```

Right pyramid:

```
<script>  
  for(let i=1;i<=5;i++){  
    for(let j=1;j<=i;j++){  
      document.write("*");  
    }  
    document.write("<br>")  
  }  
</script>
```

Output:

```
*  
**  
***  
****  
*****
```