# Assignment – Code Monsters

## Question – 1) ii) All types of loops in JavaScript.

Loops in any programming language and in JavaScript provide a facility to do something/print anything repeatedly with same or different values.

For better understanding let deep dive into the topics.

> Note: i) We will be using same example for **for, while and do while loop** for better understanding the differences.
>
> ii) Analysis for **for, while and do while loop** will also be same as process like initialization (variable), condition and incrementation used in all the three cases.
>
> iii) Output for **for, while and do while loop will be same**

Types of Loop in JavaScript

- for loop
- while loop
- do while loop
- for in loop
- for of loop

## i) for loop

Statement of **for** loop will execute only if all the three expression or condition successfully satisfy.

Let's study, Statement of **for** loop are as follows:

```
for (initialization; condition; incrementation){
    Statement;
}
```

Example of **for** loop to print a series of number (1 to 10).

```
for (let i = 1; i <= 10; i++) {
    console.log(i);
  }
```

Output:

```
1
2
3
4
5
6
7
8
9
10
```

Analysis,

- Initialization: $(i = 1)$ means the counting and the loop will start from **1**.
- Condition: $(i<=10)$ means the loop will continue till less than equal to **10**.
- Incrementation: $(i++)$ means every time loop will execute it will increase by **1**. Similar to $(i=i+1)$.

Pseudo code of **for** loop:

i) Firstly, it will assign the value of **i** which will be according to requirement of user.

ii) Next, it will check if **i** is less than equal to **10** or not, if it satisfy it will go further, if not, loop will terminate.

iii) Then, if condition satisfy **i** will increase by **1**.
And this continue till the condition satisfies.

## ii)  while loop

Statement of **while loop** execute as long as the given condition satisfy.

Statement of **while** loop are as follows:

```
while(condition){
   Statement;
}
```

Example of **while** loop to print a series of number (1 to 10).

```
let i = 1;

while (i <= 10) {
  console.log(i);
  i++;
}
```

Analysis will be same for **while** loop, please refer for loop analysis.

Pseudo code of **while** loop: (few difference from for loop)

i)      Firstly, it will assign the value of **i** which will be according to requirement of user.
ii)     Next, it will check if **i** is less than equal to **10** or not, if it satisfy it will go further, if not, loop will terminate.
iii)    Next, it will print/execute the value under print statement.
iv)     Then, the value of **i** will increase by **1**.
        And this continue till the condition satisfies.

## iii)   do while loop

Statement of **do while** loop execute once even the given condition is false.

Statement of **do while** loop are as follows:

```
do{
    Statement;
    incrementation;
}
while(condition);
```

Example of **do while** loop to print a series of number (1 to 10).

```
let i = 1;
```

```
do {
  console.log(i);
  i++;
} while (i <= 10);
```

Analysis will be same for **do while** loop, please refer for loop analysis.

Pseudo code of **for** loop: (few difference from while loop)

1) Firstly, it will assign the value of **i** which will be according to requirement of user.
2) Next, it will print/execute the value under print statement.
3) Next, the value of **i** will increase by **1**.
4) Then, it will check if **i** is less than equal to **10** or not, if it satisfy it will go further, if not, loop will terminate.
        And this continue till the condition satisfies.

Differences between while and do while loop

- **while** loop first check the condition then print the value of **i** and increase the value of **i** by **1**, While, **do while** loop first print the value of **i** then increase the value of **i** by **1** and at last it check the condition.

- In **while** loop if condition fails to satisfy, the loop terminate directly but in **do while** loop if condition fails to satisfy it will print the value at least once.

## iv)   for in loop

Statement of **for in** loop are as follows:

```
for(variable in Object){
    Statement;
}
```

Example of **for in** loop let say to print marks of a student.

```
let marks = [93, 85, 91, 62, 49];

for (let i in marks) {
```

```
    console.log(marks[i]);
}
```

Analysis,

Here, **i** is the key iterable value and **marks** is the array which being iterated.

## v) for of loop

Statement of **for of** loop are as follows:

```
for(variable of Object){
    Statement;
}
```

Example of **for of** loop let say to print marks of a student.

```
let friends = ["Manshi", "Sagar", "Fardeen"];

for (let i of friends) {
  console.log(i);
}
```

Analysis, same as **for in** loop, please refer **for in** loop.

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## Question – 2) iii) Python program to check the password strength.

Program:

```python
def strongPassword(password):

    passlen = len(password)

    # checking for lowercase character

    hasLower = False
    hasUpper = False
    hasDigit = False
    specialChar = False
```

```python
    normalChars =
"abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ1234567890"

    # iterating password length in for loop

    for i in range(passlen):
        if password[i].islower():
            hasLower = True
        if password[i].isupper():
            hasUpper = True
        if password[i].isdigit():
            hasDigit = True
        if password[i] not in normalChars:
            specialChar = True

    # condition for types of level in password Strong, moderate or weak
    print("Strength of password :", end = "")
    if (hasLower and hasUpper and
        hasDigit and specialChar and passlen >= 8):
        print("Strong")

    elif ((hasLower or hasUpper) and
          specialChar and passlen >= 6):
        print("Moderate")
    else:
        print("Weak")

# main method

# taking password as an input from the user

if __name__=="__main__":

    password = input("Enter your password :")

    strongPassword(password)
```

Output:

```
Enter your password : MyStrong2022@password
Strength of password :Strong
```

```
 Enter your password : moderate@pass
```

```
 Strength of password :Moderate
```

```
Enter your password : 123@in
 Strength of password :Weak
```

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