

Module 29 Assignment

Q.1- What are conditional statements? Explain conditional statements with syntax and example.

Ans- Conditional statements are used in programming to make decisions based on certain conditions. They allow the execution of different blocks of code depending on whether a specified condition evaluates to True or False.

There are following type of statement-

if statement

if-else statement

Nested if statement

if else if ladder

1-if statement- if statement executes a block of code if a specified condition is true.

Syntax-if (condition) {

```
    // code to be executed if the condition is true
}
```

Example- let age = 20;

```
    if (age >= 18) {
        console.log("You are an adult.");
    }
```

2- if else statement- This statement executes one block of code if the condition is true, and another block of code if the condition is false.

Syntax- if (condition) {

```
    // code to be executed if the condition is true
} else {
    // code to be executed if the condition is false
}
```

Example- let age = 16;

```
    if (age >= 18) {
        console.log("You are an adult.");
    } else {
        console.log("You are a minor.");
    }
```

3- Nested if statement- this is statement where if-else statements within another if-else statement.

Syntax- if (condition1) {

```
    // Executes if condition1 is true
    if (condition2) {
        // Executes if condition1 and condition2 are true }
    else { // Executes if condition1 is true, but condition2 is false }
}
```

```
    else
    { // Executes if condition1 is false }
```

Example- let age = 25;

```
let hasDrivingLicense = true;
```

```
if (age >= 18) {
```

```
    // Outer if statement
```

```
    console.log("You are an adult.");
```

```
    if (hasDrivingLicense) {
```

```
        // Inner if statement
```

```
        console.log("You can legally drive.");
```

```
    } else {
```

```
        console.log("You cannot drive without a license.");
```

```
    }
```

```
}
```

```
else {
```

```
    console.log("You are a minor and cannot drive.");
```

```
}
```

4- if else if ladder- This statement is used to execute one block of code among multiple conditions

Syntax-

```
if (condition1) {
```

```
    // block of code to be executed if condition1 is true
```

```
} else if (condition2) {
```

```
    // block of code to be executed if condition1 is false and condition2 is true
```

```
} else if (condition3) {
```

```
    // block of code to be executed if condition1 and condition2 are false and condition3 is true
```

```
} else {
```

```
    // block of code to be executed if all the above conditions are false
```

```
}
```

Example-

```
let score = 85;
```

```
let grade;
```

```
if (score >= 90) {
```

```
    grade = 'A';
```

```
} else if (score >= 80) {
```

```
    grade = 'B';
```

```
} else if (score >= 70) {
```

```
    grade = 'C';
```

```
} else if (score >= 60) {
```

```
    grade = 'D';
```

```
} else {  
    grade = 'F';  
}
```

```
console.log("Grade:", grade); // Output: Grade: B
```

Q.3- What are loops, and what do we need them? Explain different types of loops with their syntax and examples?

Ans- Loops- Loops are used to execute a block of code repeatedly until a specified condition is met. They are essential for tasks that require repetitive actions, such as iterating over arrays, processing data, or automating repetitive tasks.

>For Loop
>While Loop
>Do while Loop

1- For Loop- For loop is used when we know in advance how many times you want to execute a statement or a block of statements.

Syntax-

```
for (initialization; condition; increment) {  
    // code block to be executed  
}
```

Example-

```
for (let i = 0; i < 5; i++) {  
    console.log("The number is " + i);  
}
```

2- While Loop- While loop is used when you want to execute a block of code as long as a specified condition is true.

Syntax-

```
while (condition) {  
    // code block to be executed  
}
```

Example-

```
let i = 0;  
while (i < 5) {  
    console.log("The number is " + i);
```

```
    i++;  
}
```

3- Do While Loop- Do while loop is similar to the while loop, but it guarantees that the code block will be executed at least once before the condition is tested.

Syntax-

```
do {  
    // code block to be executed  
} while (condition);
```

Example-

```
let i = 0;  
do {  
    console.log("The number is " + i);  
    i++;  
} while (i < 5);
```