JS - Conditional Statements

1. Basic Conditional Statements

Conditional statements allow you to execute different blocks of code based on different conditions. The most common conditional statements are:

```javascript
// 1. if statement
let age = 18;
if (age >= 18) {
    console.log("You are an adult.");
}

// 2. else statement
let age = 16;
if (age >= 18) {
    console.log("You are an adult.");
} else {
    console.log("You are a minor.");
}

// 3. else if statement
let age = 20;
if (age >= 18) {
    console.log("You are an adult.");
} else if (age < 18 && age >= 13) {
    console.log("You are a teenager.");
} else {
    console.log("You are a child.");
}

// 4. nested if statements
let age = 25;
let hasDrivingLicense = true;
if (age >= 18) {
    if (hasDrivingLicense) {
        console.log("You can drive.");
    } else {
        console.log("You are old enough to drive, but you don't have a license.");
    }
} else {
    console.log("You are too young to drive.");
}
```

2. Switch Statement

The `switch` statement is used to perform different actions based on different conditions. It is often used when there are multiple possible values for a variable.

```
let day = 3;
switch (day) {
    case 1:
        console.log("Monday");
        break;
    case 2:
        console.log("Tuesday");
        break;
    case 3:
        console.log("Wednesday");
        break;
    case 4:
        console.log("Thursday");
        break;
    case 5:
        console.log("Friday");
        break;
    case 6:
        console.log("Saturday");
        break;
    case 7:
        console.log("Sunday");
        break;
    default:
        console.log("Invalid day");
}
```

3. Ternary Operator

The `ternary` operator is a shorthand way of writing an `if...else` statement. It consists of a condition followed by two expressions: one for `true` and one for `false`.

```
let age = 20;
let result = age >= 18 ? "You are an adult." : "You are a minor.";
console.log(result); // You are an adult.
```

4. Logical Operators in Conditional Statements

Logical operators are used to combine multiple conditions in an `if` statement:

4.1. AND Operator (&&)

The `AND` (&&) operator returns `true` if both conditions are true.

```
let age = 20;
let hasLicense = true;
if (age >= 18 && hasLicense) {
    console.log("You can drive.");
}
```

4.2. OR Operator (||)

The OR (||) operator returns true if at least one of the conditions is true.

```
let age = 16;
let hasPermission = true;
if (age >= 18 || hasPermission) {
    console.log("You are allowed to drive.");
}
```

4.3. NOT Operator (!)

The NOT (!) operator reverses the truth value of a condition.

```
let isRaining = false;
if (!isRaining) {
    console.log("You can go outside.");
}
```

5. Summary of Conditional Statements

```
| Statement         | Description                                                     |
|-------------------|-----------------------------------------------------------------|
| if                | Executes the block of code if the condition is true.            |
| else              | Executes the block of code if the condition is false.           |
| else if           | Checks multiple conditions in sequence.                         |
| switch            | Executes a block of code based on different cases for a variable.|
| ternary           | Shorthand for if-else, executes one of two expressions.         |
| logical AND (&&)  | Both conditions must be true for the block to execute.          |
| logical OR (||)   | Executes if at least one condition is true.                     |
| logical NOT (!)   | Reverses the condition: true becomes false, and vice versa.     |
```