

4. Control Flow (If-Else, Switch)

Q1. What is control flow in JavaScript? Explain how if-else statements work with an example.

Control flow in JavaScript means the order in which statements or code blocks are executed. Normally, JavaScript runs code line by line from top to bottom. But with control flow statements like **if-else**, we can make decisions and run different code based on conditions.

The **if-else statement** checks a condition.

- If the condition is **true**, the “if” block runs.
- If the condition is **false**, the “else” block runs instead.

Example:

```
let marks = 75;  
if (marks >= 50) {  
    console.log("You passed!");  
} else {  
    console.log("You failed.");  
}
```

Q2. Describe how switch statements work in JavaScript. When should you use a switch statement instead of if-else?

A **switch statement** is used when we have many options to choose from. Instead of writing multiple if-else statements, we can use a switch statement for cleaner and easier code.

The value is compared with different **cases**, and when a match is found, that code block is executed. We also use **break** to stop further checking.

Switch is mainly used when there are **many choices** like days, menus, grades, etc.

Example:

```
let grade = 'B';

switch (grade) {
    case 'A':
        console.log("Excellent!");
        break;
    case 'B':
        console.log("Good job!");
        break;
    case 'C':
        console.log("Needs improvement.");
        break;
    default:
        console.log("Invalid grade.");
}
```