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

Ans: Control Flow in JavaScript

Control flow in JavaScript refers to the order in which statements are executed in a program. Normally, code runs from top to bottom, but control flow statements allow the program to make decisions and execute different blocks of code based on conditions.

if-else Statements in JavaScript

The if-else statement is used to execute code based on a condition.

How it Works:

1. The condition inside if is checked.

2. If the condition is true, the if block runs.

3. If the condition is false, the else block runs.

Syntax:

```
if (condition) {

  // code runs if condition is true

} else {

  // code runs if condition is false

}
```

Example:

```
let age = 17;

if (age >= 18) {

  console.log("You are eligible to vote");

} else {

  console.log("You are not eligible to vote");

}
```

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

Ans: Switch Statements in JavaScript

A switch statement in JavaScript is a control flow structure used to execute one block of code out of many possible options, based on the value of an expression.

How a switch Statement Works

1. The switch expression is evaluated once.

2. The value is compared with each case.

3. If a matching case is found, its code block executes.

4. The break statement stops execution and exits the switch.

5. If no case matches, the default block runs.

Syntax:

```
switch (expression) {

  case value1:

    // code to execute

    break;

  case value2:

    // code to execute

    break;

  default:

    // code to execute if no case matches

}
```

Example:

```
let day = 3;


switch (day) {

  case 1:
```

```
    console.log("Monday");

    break;

  case 2:

    console.log("Tuesday");

    break;

  case 3:

    console.log("Wednesday");

    break;

  default:

    console.log("Invalid day");

}
```

Output: Wednesday

When to Use switch Instead of if-else

Use a switch statement when:

- You are comparing one variable against many fixed values.

- The conditions are based on equality checks (===).

- You want cleaner and more readable code than multiple if-else statements.

Use if-else when:

- Conditions involve ranges (e.g., age > 18).

- Conditions use logical operators (&&, ||).

- The logic is complex.