🧪 Question 1: Voting Booth Check

📝 Scenario:

You are building a simple program for a government voting booth system. When a user inputs their age, the system should check whether they are legally allowed to vote (minimum age: 18 years).

✅ Solution:

```
let age = 20;

if (age >= 18) {
  console.log("Eligible to vote");
} else {
  console.log("Not eligible to vote");
}
```

🧪 Question 2: Electricity Meter Reading

📝 Scenario:

An electricity billing system needs to determine whether the number of units consumed in a month is even or odd. This helps in assigning different billing methods.

✅ Solution:

```
let num = 7;

if (num % 2 === 0) {
```

```
  console.log("Even");
} else {
  console.log("Odd");
}
```

🧪 Question 3: Student Report Card

📝 Scenario:

You are building a feature in a student portal that assigns grades based on marks obtained by a student in an exam. The grading scale is:

- A → 90 and above
- B → 70 to 89
- C → 50 to 69
- F → Below 50

✅ Solution:

```
let marks = 85;

if (marks >= 90) {
  console.log("Grade A");
} else if (marks >= 70) {
  console.log("Grade B");
} else if (marks >= 50) {
  console.log("Grade C");
} else {
  console.log("Grade F");
}
```

🧪 Question 4: ATM Deposit Feedback

📝 Scenario:

An ATM machine asks users to enter an amount to deposit. It should then check whether the amount entered is a **positive**, **negative**, or **zero** value and respond accordingly.

✅ Solution:

```
let number = -5;

if (number > 0) {
  console.log("Positive");
} else if (number < 0) {
  console.log("Negative");
} else {
  console.log("Zero");
}
```

🧪 Question 5: Admin Panel Access

📝 Scenario:

You're developing a basic admin panel login system. Access is granted only if the username is `"admin"` and the password is `"1234"`. Any other credentials should be rejected.

✅ Solution:

```
let username = "admin";
let password = "1234";

if (username === "admin" && password === "1234") {
  console.log("Login successful");
} else {
  console.log("Invalid credentials");
}
```

🧪 Question 6: Calendar App – Leap Year Checker

📝 Scenario:

You're creating a feature in a calendar app where users can check whether a particular year is a **leap year** or not to plan events and holidays accordingly.

✅ Solution:

```
let year = 2024;

if ((year % 4 === 0 && year % 100 !== 0) || (year % 400 === 0)) {
  console.log("Leap year");
} else {
  console.log("Not a leap year");
}
```

🧪 Question 7: Age Gate for Movie Website

📝 Scenario:

You’re developing an age verification system for a movie streaming website. If the user's age is 18 or above, show “Adult”; otherwise, show “Minor” using a ternary operator.

✅ Solution:

```
let age = 16;

let result = age >= 18 ? "Adult" : "Minor";
console.log(result);
```

🧪 Question 8: Game Scoreboard – Highest Score Finder

📝 Scenario:

You’re building a multiplayer game scoreboard. At the end of a round, the game should display which of the three players scored the highest.

✅ Solution:

```
let a = 5, b = 8, c = 3;

if (a >= b && a >= c) {
  console.log("Max:", a);
} else if (b >= a && b >= c) {
  console.log("Max:", b);
```

```
} else {
  console.log("Max:", c);
}
```

🧪 Question 9: Office Management System – Day Scheduler

📝 Scenario:

In your office scheduling system, employees enter a number from 1 to 7, and the system should return the name of the day. Use a switch statement for better readability.

✅ Solution:

```
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");
}
```

🧪 Question 10: Smart Traffic Control System

📝 Scenario:

You're designing a smart traffic signal system. Based on the signal color entered (red, yellow, or green), the system should display the correct action for drivers.

✅ Solution:

```
let signal = "yellow";

if (signal === "red") {
  console.log("Stop");
} else if (signal === "yellow") {
  console.log("Wait");
} else if (signal === "green") {
  console.log("Go");
} else {
  console.log("Invalid color");
}
```

🧪 Q11: Payment System – Valid Amount Check

📝 Scenario:

In a digital payment app, users can recharge only in multiples of ₹5. Write a program to validate if the entered amount is a valid multiple.

✅ Solution:

```
let number = 25;
```

```
if (number % 5 === 0) {
  console.log("Multiple of 5");
} else {
  console.log("Not a multiple of 5");
}
```

🧪 Q12: Signup Form – Password Strength Indicator

📝 Scenario:

While creating a new account, users must enter a password. If the password is longer than 8 characters, label it “Strong password”, otherwise “Weak password”.

✅ Solution:

```
let password = "js@12345";

if (password.length > 8) {
  console.log("Strong password");
} else {
  console.log("Weak password");
}
```

🧪 Q13: Classroom Game – FizzBuzz Activity

📝 Scenario:

During a classroom math game, if a number is divisible by 3, say "Fizz"; if divisible by 5, say "Buzz"; if divisible by both, say "FizzBuzz". Otherwise, say the number.

✅ Solution:

```
let num = 15;

if (num % 3 === 0 && num % 5 === 0) {
  console.log("FizzBuzz");
} else if (num % 3 === 0) {
  console.log("Fizz");
} else if (num % 5 === 0) {
  console.log("Buzz");
} else {
  console.log(num);
}
```

🧪 Q14: Weather App – Temperature Labeling

📝 Scenario:

You're building a weather app that shows a label based on the current temperature to help users dress accordingly.

✅ Solution:

```
let temp = 35;

if (temp > 40) {
  console.log("Too Hot");
} else if (temp >= 30) {
```

```
  console.log("Hot");
} else if (temp >= 20) {
  console.log("Warm");
} else {
  console.log("Cold");
}
```

🧪 Q15: Text Editor – Case Detection

📝 Scenario:

In a text editing app, highlight if the character entered by the user is in uppercase or lowercase for accessibility features.

✅ Solution:

```
let char = 'A';

if (char === char.toUpperCase()) {
  console.log("Uppercase");
} else {
  console.log("Lowercase");
}
```

🧪 Q16: Form Validation – Age Range Check

📝 Scenario:

You are developing a form that allows input only if the number (like age or score) lies between 10 and 50 (inclusive). Otherwise, reject.

✅ Solution:

```
let num = 25;

if (num >= 10 && num <= 50) {
  console.log("Number is between 10 and 50");
} else {
  console.log("Number is outside the range");
}
```

🧪 Q17: E-Commerce Checkout – Discount Rule

📝 Scenario:

While checking out from an online store, customers get a 10% discount if the cart total exceeds ₹1000. Display the final payable amount.

✅ Solution:

```
let totalAmount = 1200;

if (totalAmount > 1000) {
  let discount = totalAmount * 0.10;
  let finalAmount = totalAmount - discount;
  console.log("Discounted Total:", finalAmount);
} else {
  console.log("No discount. Pay:", totalAmount);
}
```

🧪 Q18: Hospital System – Age Group Classification

📝 Scenario:

In a hospital registration form, categorize patients based on age groups: Child, Teenager, Adult, Senior.

✅ Solution:

```
let age = 45;

if (age <= 12) {
  console.log("Child");
} else if (age <= 19) {
  console.log("Teenager");
} else if (age <= 59) {
  console.log("Adult");
} else {
  console.log("Senior");
}
```

🧪 Q19: Smart Assistant – Time-Based Greeting

📝 Scenario:

You're building a smart voice assistant that greets the user depending on the current time of the day.

✅ Solution:

```
let hour = 21; // value from 0 to 23

if (hour >= 5 && hour <= 11) {
```

```
  console.log("Good Morning");
} else if (hour >= 12 && hour <= 17) {
  console.log("Good Afternoon");
} else if (hour >= 18 && hour <= 21) {
  console.log("Good Evening");
} else {
  console.log("Good Night");
}
```

🧪 Q20: Multi-Platform Login – Email or Phone

📝 Scenario:

In a login system, users should be allowed to sign in using either their **email** or **phone number**. If neither is provided, reject the login.

✅ Solution:

```
let email = "";
let phone = "9876543210";

if (email !== "" || phone !== "") {
  console.log("Login accepted");
} else {
  console.log("Enter credentials");
}
```

🧪 Q21: Check if a Number is Prime

Problem: Print whether a number is prime or not.

```
let num = 7;
let isPrime = true;

if (num < 2) {
  isPrime = false;
} else {
  for (let i = 2; i <= Math.sqrt(num); i++) {
    if (num % i === 0) {
      isPrime = false;
      break;
    }
  }
}

console.log(isPrime ? "Prime Number" : "Not a Prime Number");
```

🧪 Q22: Check Eligibility for Driving License

Problem:

- Age < 18 → Not eligible
- Age 18–59 → Eligible
- Age ≥ 60 → Eligible with medical test

```
let age = 65;

if (age < 18) {
  console.log("Not eligible for driving license");
} else if (age <= 59) {
```

```
  console.log("Eligible for driving license");
} else {
  console.log("Eligible with a medical test");
}
```

🧪 Q23: Check if Character is a Vowel

Problem: Check if a character is a vowel (a, e, i, o, u).

```
let char = 'e';

if ('aeiouAEIOU'.includes(char)) {
  console.log("Vowel");
} else {
  console.log("Consonant");
}
```

🧪 Q24: Validate PIN Code (4 or 6 digits only)

Problem: Check if a PIN is either 4 or 6 digits.

```
let pin = "1234";

if ((pin.length === 4 || pin.length === 6) && !isNaN(pin)) {
  console.log("Valid PIN");
} else {
  console.log("Invalid PIN");
}
```

🧪 Q25: Print Smaller of Two Numbers

Problem: Print the smaller number.

```
let a = 9, b = 3;

if (a < b) {
  console.log("Smaller number is:", a);
} else {
  console.log("Smaller number is:", b);
}
```

🧪 Q26: Check Type of Triangle

Problem: Based on 3 sides, print:

- All sides equal → "Equilateral"
- Two sides equal → "Isosceles"
- All sides different → "Scalene"

```
let a = 5, b = 5, c = 5;

if (a === b && b === c) {
  console.log("Equilateral Triangle");
} else if (a === b || b === c || a === c) {
  console.log("Isosceles Triangle");
} else {
  console.log("Scalene Triangle");
}
```

🧪 Q27: Movie Ticket Pricing Based on Age

Problem:

- Age < 5 → Free
- 5–17 → ₹100
- 18–60 → ₹150
- 60 → ₹120

```
let age = 62;
let price;

if (age < 5) {
  price = 0;
} else if (age <= 17) {
  price = 100;
} else if (age <= 60) {
  price = 150;
} else {
  price = 120;
}

console.log("Ticket Price: ₹" + price);
```

🧪 Q28: Check if Year is Century Year

Problem: A century year is divisible by 100. Print Yes/No.

```
let year = 1900;

if (year % 100 === 0) {
  console.log("Yes, it's a century year");
} else {
  console.log("No, it's not a century year");
}
```

🧪 Q29: Assign Office Shift Based on Time

Problem:

- 6–13 hrs → Morning Shift
- 14–21 hrs → Evening Shift
- Else → Night Shift

```
let time = 22;

if (time >= 6 && time <= 13) {
  console.log("Morning Shift");
} else if (time >= 14 && time <= 21) {
  console.log("Evening Shift");
} else {
  console.log("Night Shift");
}
```

🧪 Q30: Check if User is Admin or Guest

Problem:

- If `role = "admin"` → print Admin Access
- Else if `role = "guest"` → print Guest Access
- Else → print No Access

```
let role = "admin";

if (role === "admin") {
  console.log("Admin Access");
} else if (role === "guest") {
  console.log("Guest Access");
} else {
  console.log("No Access");
}
```