**JavaScript_Day – 5_Hands_On -- Harshitha Kamatam**

## Problem 1

Problem Statement:

**Assessment Goal:** Ensure learners understand responsiveness and screen adaptability.

**Hands-on Tasks:**

1. Add viewport meta tag to the HTML page
2. Use media queries to:
    - Change background color on mobile screen
    - Adjust font size for smaller screens
3. Convert navigation into vertical layout on mobile
4. Test the page using browser responsive mode

**Expected Outcome:**
A webpage that looks different and readable on mobile and desktop screens.

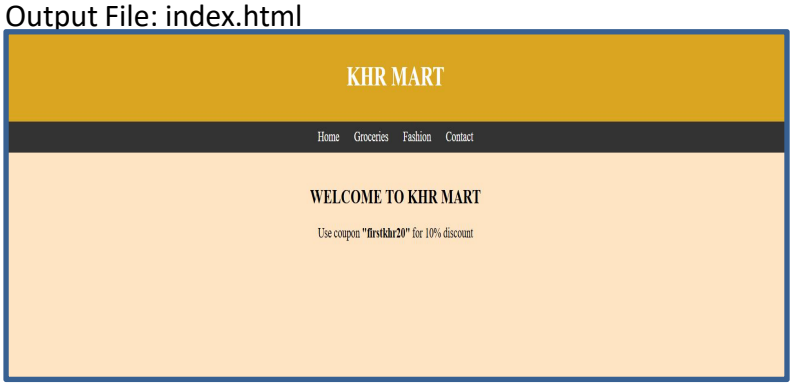
Source Code:

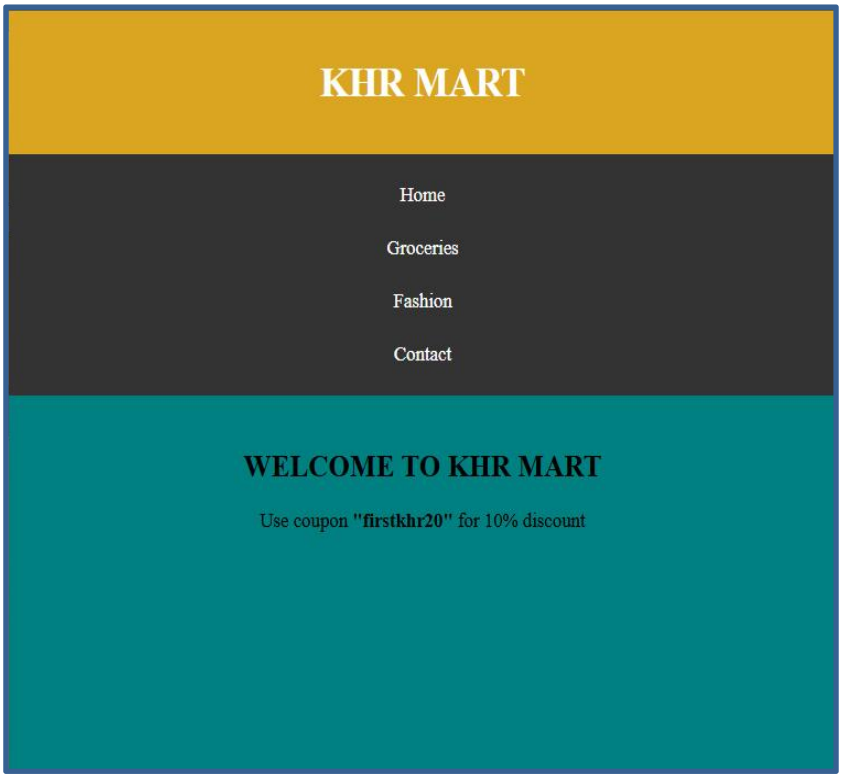
File Name: Index.html

```
<!--JS_Day4_Hands_on_problems_Statements1_Harshitha Kamatam-->
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>KHR MART</title>
    <style>
        body {
            margin: 0;
            font-family: 'Times New Roman', Times, serif;
            background-color: bisque;
            font-size: 18px;
        }
        header {
            background-color: goldenrod;
            padding: 15px;
            text-align: center;
            color: white;
        }
        nav {
            background-color: #333;
            display: flex;
            justify-content: center;
            padding: 10px;
        }
        nav a {
            color: white;
            text-decoration: none;
            margin: 0 15px;
        }
        section {
            padding: 20px;
            text-align: center;
        }
        @media (max-width: 700px) {
            body {
                background-color: teal;
                font-size: 14px;
            }
            nav {
                flex-direction: column;
                align-items: center;
            }
            nav a {
                margin: 10px 0;
            }
        }
    </style>
</head>
<body>
<header>
    <h1>KHR MART</h1>
</header>
<nav>
    <a href="#">Home</a>
    <a href="#">Groceries</a>
    <a href="#">Fashion</a>
    <a href="#">Contact</a>
</nav>
<section>
    <h2>WELCOME TO KHR MART</h2>
    <p>
        Use coupon <strong>"firstkhr20"</strong> for 10% discount
    </p>
</section>
</body>
</html>
```

Output:

Output File: index.html




Explanation:

This code creates a simple webpage for **Mart** with a navigation bar and some basic styling using CSS. It also uses a **media query** to change the layout and background color when the screen size is small (like on a mobile). On a desktop, the menu appears in a horizontal line with a light background, but on mobile, the menu becomes vertical and the background color changes, making the page responsive and mobile-friendly.

## Problem 2

Problem Statement:

**Student Grade Evaluator (Level-1)**

**Scenario**
**A school wants a simple JavaScript program to evaluate a student's performance based on marks obtained in a subject.**

### Requirements

- **Accept the student's marks as a variable**
- **Use if–else statements to assign grades:**
  - **Marks ≥ 75 → Grade A**
  - **Marks ≥ 60 → Grade B**
  - **Marks ≥ 40 → Grade C**
  - **Marks < 40 → Fail**

**Display the grade on the web page or console**

### Technical Constraints

- **Use JavaScript variables (let or const)**
- **Use numeric data types**
- **Use comparison and logical operators**
- **No functions or arrays allowed**
- **Output using console.log() or document.write()**

### Learning Outcome

**You should be able to:**

- **Declare and use variables**
- **Apply comparison operators**
- **Implement conditional logic using if–else**
- **Understand decision-making in JavaScript**

Source Code:

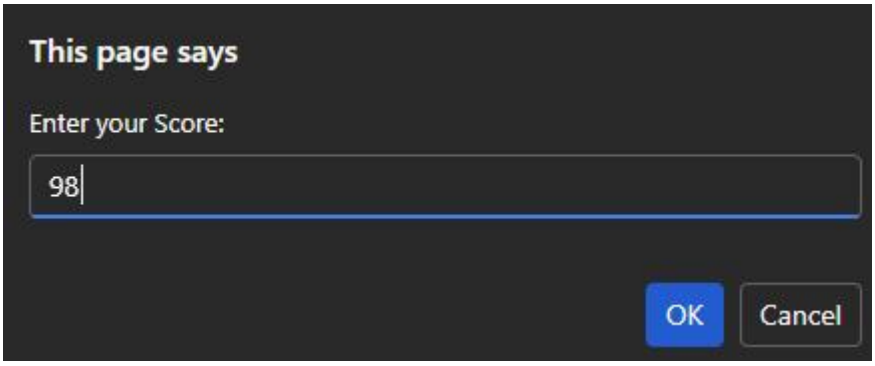
File Name: index.html

p2 > index.html > ...

```
<!--JS_Day4_Hands_on_problems_Statements2_Harshitha Kamatam-->
<!DOCTYPE html>
<html>
<head>
    <meta charset="UTF-8">
    <title>result</title>
</head>
<body>
    <script>
        let marks = prompt("Enter your marks:");
marks = Number(marks);

if (isNaN(marks)) {
    document.write("Please enter a valid number");
}
else if (marks >= 75) {
    document.write("Grade A");
}
else if (marks >= 60) {
    document.write("Grade B");
}
else if (marks >= 40) {
    document.write("Grade C");
}
else if (marks <40) {
    document.write("Fail");
}
</script>
</body>
</html>
```

Output:

Output File: index.html





Explanation:

This code creates a simple **Student Grade Evaluator** page using JavaScript. It asks the user to enter their score through a prompt, checks the marks using if-else conditions, and then shows the grade (A, B, C, or Fail) in an alert box.

**Problem 3**

Problem Statement:

**Simple Discount Calculator (Level-1)**

**Scenario**

An online store wants to apply a discount based on the total purchase amount.

## ⚡ Requirements

- Store purchase amount in a variable
- Apply discount rules:
  - Amount ≥ 5000 → 20% discount
  - Amount ≥ 3000 → 10% discount
  - Amount < 3000 → No discount
- Calculate and display:
  - Discount amount
  - Final payable amount

## ⚔️ Technical Constraints

- Use arithmetic operators
- Use if–else statements
- Use only primitive data types

No user input (hardcoded values allowed)

## Learning Outcome

You will be able to:

- Perform calculations using operators
- Work with expressions
- Apply conditional statements
- Build real-world logic using JavaScript basics

Source Code:

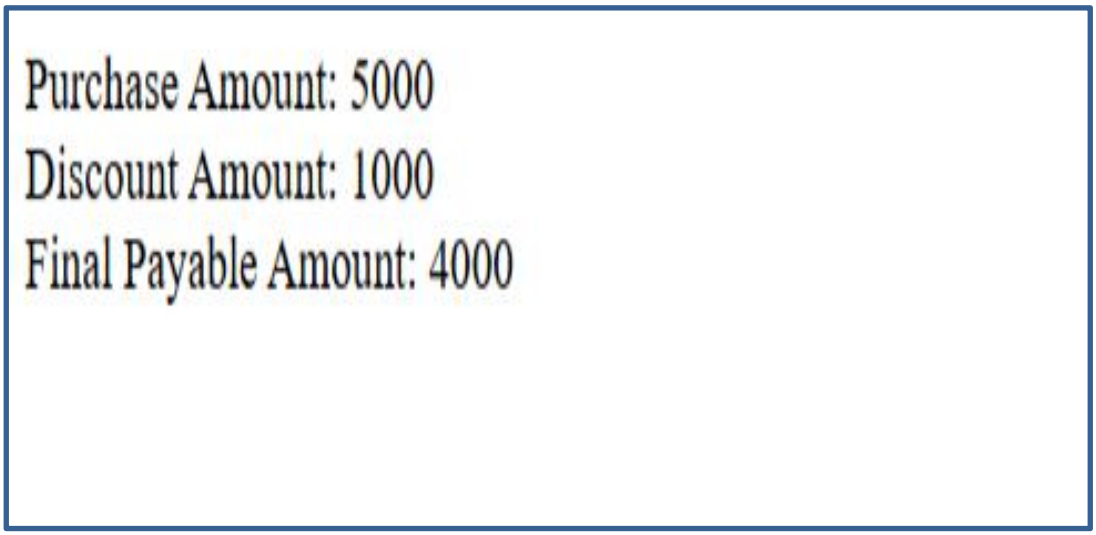
File Name: index.html

p3 > index.html > ...

```
<!--JS_Day4_Handson_Problem_Statement3_Harshitha Kamatam-->
<!DOCTYPE html>
<html>
<head>
    <title>Discount Calculator</title>
</head>
<body>
<script>
    let amount = 5000;
    let discount = 0;
    let finalAmount = 0;
    if (amount >= 5000) {
        discount = amount * 0.20;
    }
    else if (amount >= 3000) {
        discount = amount * 0.10;
    }
    else {
        discount = 0;
    }
    finalAmount = amount - discount;
    document.write("Purchase Amount: " + amount + "<br>");
    document.write("Discount Amount: " + discount + "<br>");
    document.write("Final Payable Amount: " + finalAmount);
</script>
</body>
</html>
```

Output:

Output File: index.html




Explanation:

This code creates a **Simple Discount Calculator** using JavaScript. It checks the purchase amount (₹5000) and applies a 20% discount if it's ₹5000 or more, then calculates the final price. It shows the purchase amount, the discount (₹100), and the final price (₹4000) using alert messages.

**Problem 4**

Problem Statement:

**Traffic Signal Simulator (Level-2)**

**Scenario**
A traffic control system needs a JavaScript program that displays instructions based on traffic signal color.

### Requirements

- Store signal color in a variable ("red", "yellow", "green")
- Use a **switch statement** to display:
- Red → Stop
- Yellow → Get Ready
- Green → Go

Handle invalid signal input gracefully

### Technical Constraints

- Must use switch–case
- Use string data types
- Use console.log() for output
- No if–else allowed

### Learning Outcome

Learners should be able to:

- Use switch statements effectively
- Compare string values
- Handle multiple conditions cleanly
- Understand control flow alternatives

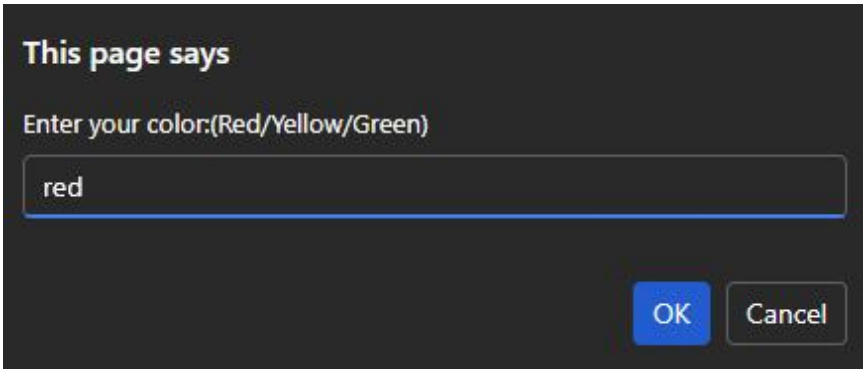
Source Code:

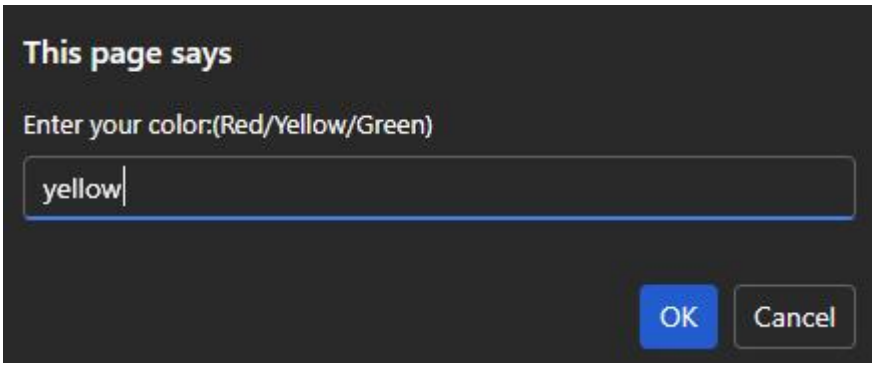
File Name: index.html

```
P4 > index.html > html > head > title
<!-- JS_Day4_Hands_on_Problem_Statement4_Harshitha Kamatam -->
<!DOCTYPE html>
<html>
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Traffic Signal Simulator</title>

</head>

<body>

    <h1>Traffic Signal Simulator</h1>

    <script>
        let color = prompt("Enter your color: (Red/Yellow/Green)");

        switch (color) {
            case "red":
                console.log("Stop");
                break;

            case "yellow":
                console.log("Get Ready");
                break;

            case "green":
                console.log("Go");
                break;

            default:
                console.log("Invalid Color");
        }
    </script>

</body>
</html>
```

Output:

Output File: index.html







Explanation:

This code creates a simple **Traffic Signal Simulator** using JavaScript. It asks the user to enter a color (red, yellow, or green) and uses a switch statement to display the corresponding action like Stop, Get Ready, or Go in the console.

**Problem 5**

Problem Statement:

**Number Analysis Tool (Level-2)**

**Scenario**
A utility program is required to analyze numbers and provide insights such as positivity, parity, and range.

### Requirements

- Store a number in a variable
- Use **conditional (ternary) operator** to check:
- Positive or Negative
- Use **if–else** to check:
- Even or Odd
- Use a **loop** to print all numbers from 1 to the given number

### Technical Constraints

- Store a number in a variable
- Use conditional (ternary) operator to check:
- Positive or Negative
- Use if–else to check:
- Even or Odd
- Use a loop to print all numbers from 1 to the given number

## Learning Outcome

You will be able to:

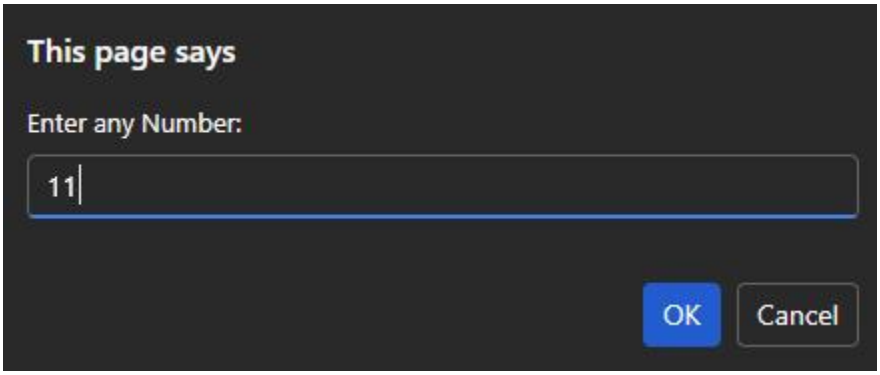
- Combine multiple control flow techniques
- Use loops for iteration
- Apply conditional operators
- Build multi-step logical programs

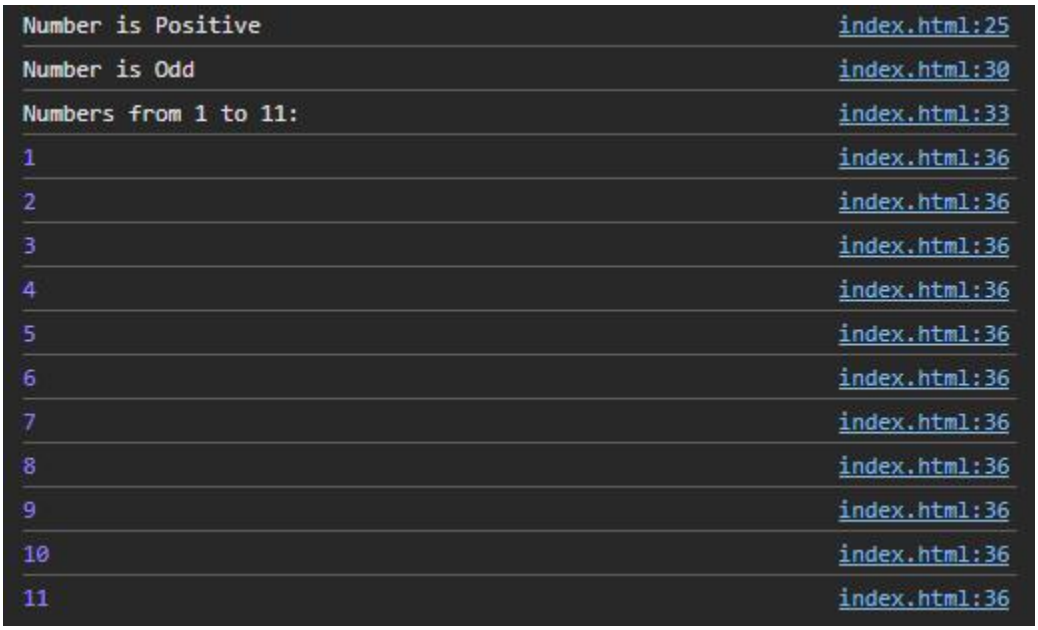
Source Code:

File Name: index.html

```
ps5 > index.html > ...
<!--JS_Day4_Hands_on_Problem_Statement5_Harshitha Kamatam-->
<!DOCTYPE html>
<html>
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Number Analysis Tool</title>
</head>
<body>
    <h1>Number Analysis Tool</h1>
    <script>
        let num=Number(prompt("Enter a Number: "))
    let result = (num >= 0) ? "Positive Number" : "Negative Number";
console.log(result);

if (num % 2 === 0) {
    console.log("Even Number");
} else {
    console.log("Odd Number");
}
console.log("Numbers from 1 to " + num + ":");

for (let i = 1; i <= num; i++) {
    console.log(i);
}
    </script>
</body>
</html>
```

Output:




Explanation:

This code creates a **Number Analysis Tool** using JavaScript. It asks the user to enter a number, then checks whether it is positive or negative and whether it is even or odd. After that, it prints all numbers from 1 up to the entered number in the console.