

## **JavaScript\_Day – 4\_Hands\_On -- Kaveri Harish Babu**

### **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:
  - o Change background color on mobile screen
  - o 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

```
1 <!--JS_Day4_Hands_on_Problem_Statement1_HarishBabuKaveri-->
2 <!DOCTYPE html>
3 <html lang="en">
4   <head>
5     <meta charset="UTF-8">
6     <meta name="viewport" content="width=device-width, initial-scale=1.0">
7     <title>Home Page</title>
8
9     <style>
10    body {
11      background-color:bisque;
12      font-family:'Times New Roman', Times, serif;
13      font-size: 18px;
14      margin: 0;
15    }
16
17    h1 {
18      text-align: center;
19    }
20
21    .A {
22      background-color:goldenrod;
23      padding: 10px;
24    }
25
26    .A .B {
27      list-style: none;
28      display: flex;
29      justify-content: center;
30      padding: 0;
31      margin: 0;
32    }
33
34    .A .B .C {
35      margin: 0 15px;
36    }
37
38    .A .B .C a {
39      color: white;
40      text-decoration: none;
41    }
42
43    section {
```

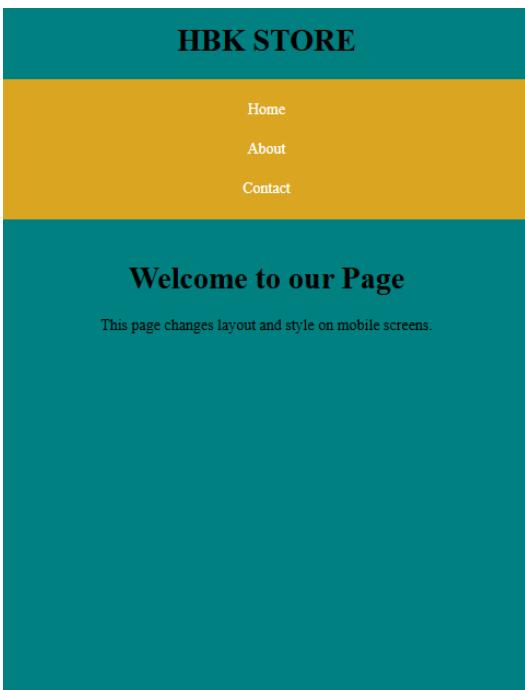
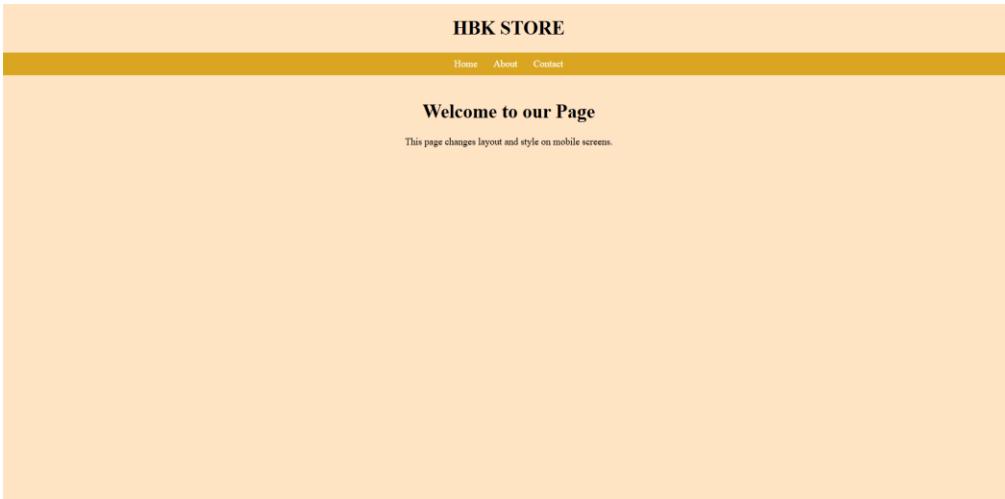
```
40         text-decoration: none;
41     }
42
43     section {
44         padding: 20px;
45         text-align: center;
46     }
47
48     @media (max-width: 576px) {
49         body {
50             background-color:teal;
51             font-size: 14px;
52         }
53
54         .A .B {
55             flex-direction: column;
56             align-items: center;
57         }
58
59         .A .B .C {
60             margin: 10px 0;
61         }
62     }
63 
```

</style>

```
64 </head>
65 <body>
66     <h1> HBK STORE</h1>
67     <nav class="A">
68         <ul class="B">
69             <li class="C"><a href="#home">Home</a></li>
70             <li class="C"><a href="#about">About</a></li>
71             <li class="C"><a href="#contact">Contact</a></li>
72         </ul>
73     </nav>
74
75     <section>
76         <h1>Welcome to our Page</h1>
77         <p>This page changes layout and style on mobile screens.</p>
78     </section>
79 </body>
80 </html>
```

Output:

Output File: index.html



Explanation:

This code creates a simple webpage for **Store** 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  $\geq 75 \rightarrow$  Grade A
  - Marks  $\geq 60 \rightarrow$  Grade B
  - Marks  $\geq 40 \rightarrow$  Grade C
  - Marks  $< 40 \rightarrow$  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

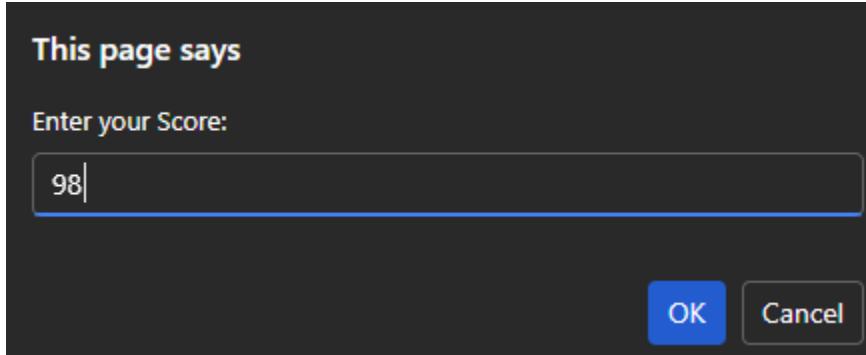
Source Code:

File Name: index.html

```
1  <!--JS_Day4_Hands_on_Problem_Statement2_HarishBabuKaveri-->
2  <!DOCTYPE html>
3  <html>
4  <head>
5      <meta charset="UTF-8">
6      <meta name="viewport" content="width=device-width, initial-scale=1.0">
7      <title>Student Grade Evaluator</title>
8
9      <style>
10         h1{
11             text-align: center;
12         }
13
14         body{
15             background-color:pink;
16         }
17     </style>
18 </head>
19 <body>
20     <h1>Student Grade Evaluator</h1>
21     <script>
22         let score = prompt("Enter your Score:");
23         score = Number(score);
24         if (score >= 75) {
25             console.log("Grade A");
26             alert("Grade A");
27         }
28
29         else if (score >= 60) {
30             console.log("Grade B");
31             alert("Grade B");
32         }
33
34         else if (score >= 40) {
35             console.log("Grade C");
36             alert("Grade C");
37         }
38
39         else {
40             console.log("Fail");
41             alert("Fail");
42         }
43     </script>
44 </body>
45 </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  $\geq 5000 \rightarrow 20\% \text{ discount}$
  - Amount  $\geq 3000 \rightarrow 10\% \text{ discount}$
  - Amount  $< 3000 \rightarrow \text{No discount}$
- 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

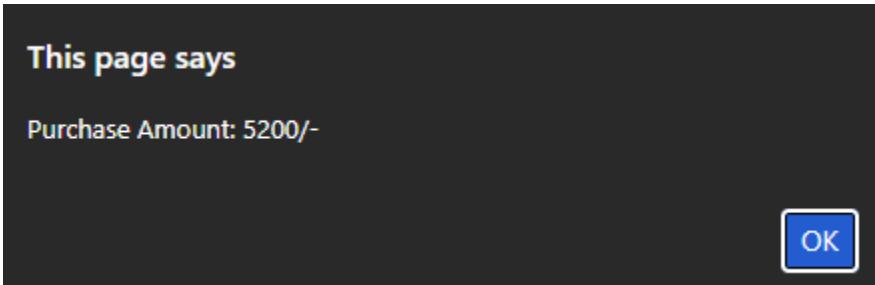
Source Code:

File Name: index.html

```
1  <!--JS_Day4_Hands_on_Problem_Statement3_HarishBabuKaveri-->
2  <!DOCTYPE html>
3  <html>
4  <head>
5      <meta charset="UTF-8">
6      <meta name="viewport" content="width=device-width, initial-scale=1.0">
7      <title>Simple Discount Calculator</title>
8
9  <style>
10     h1{
11         text-align: center;
12     }
13
14     body{
15         background-color: lightcyan;
16     }
17 </style>
18 </head>
19 <body>
20     <h1>Simple Discount Calculator</h1>
21     <script>
22         let Purchase_Amount = 5200;
23         let Discount_Price = 0;
24         let Final_Price = 0;
25
26         if(Purchase_Amount >= 5000){
27             Discount_Price = Purchase_Amount * 0.2;
28         }
29
30         else if(Purchase_Amount >= 3000){
31             Discount_Price = Purchase_Amount * 0.1;
32         }
33
34         else{
35             Discount_Price = 0
36         }
37
38         Final_Price = Purchase_Amount - Discount_Price;
39         console.log("Purchase Amount: " +Purchase_Amount+ "/");
40         console.log("Discount Price: " +Discount_Price+ "/");
41         console.log("Final Price: " +Final_Price+ "/");
42         alert("Purchase Amount: " +Purchase_Amount+ "/");
43         alert("Discount Price: " +Discount_Price+ "/");
44         alert("Final Price: " +Final_Price+ "/");
45     </script>
46 </body>
47 </html>
```

Output:

Output File: index.html



Explanation:

This code creates a **Simple Discount Calculator** using JavaScript. It checks the purchase amount (₹5200) and applies a 20% discount if it's ₹5000 or more, then calculates the final price. It shows the purchase amount, the discount (₹1040), and the final price (₹4160) 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

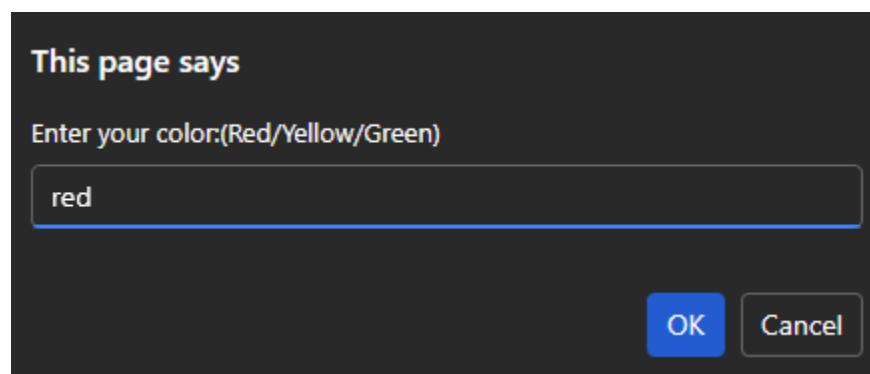
## Source Code:

File Name: index.html

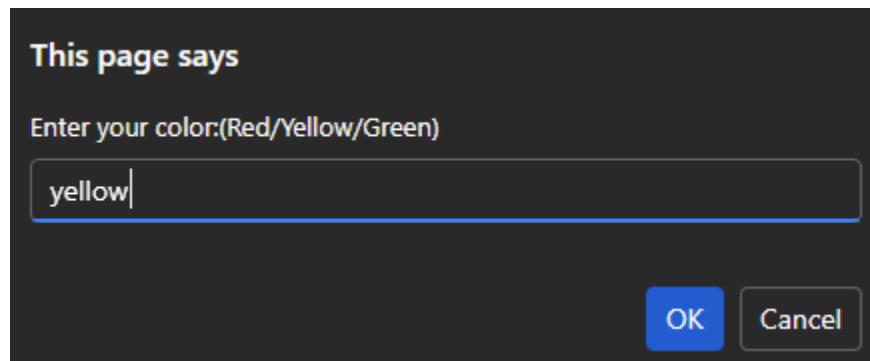
```
1  <!--JS_Day4_Hands_on_Problem_Statement4_HarishBabuKaveri-->
2  <!DOCTYPE html>
3  <html>
4  <head>
5      <meta charset="UTF-8">
6      <meta name="viewport" content="width=device-width, initial-scale=1.0">
7      <title>Traffic Signal Simulator</title>
8
9      <style>
10         h1{
11             text-align: center;
12         }
13
14         body{
15             background-color: beige;
16         }
17     </style>
18 </head>
19 <body>
20     <h1>Traffic Signal Simulator</h1>
21     <script>
22         let color=prompt("Enter your color: (Red/Yellow/Green)");
23         switch (color) {
24             case "red":
25                 console.log("Stop");
26                 break;
27
28             case "yellow":
29                 console.log("Get Ready");
30                 break;
31
32             case "green":
33                 console.log("Go");
34                 break;
35
36             default:
37                 console.log("Invalid Color");
38         }
39     </script>
40 </body>
41 </html>
```

## Output:

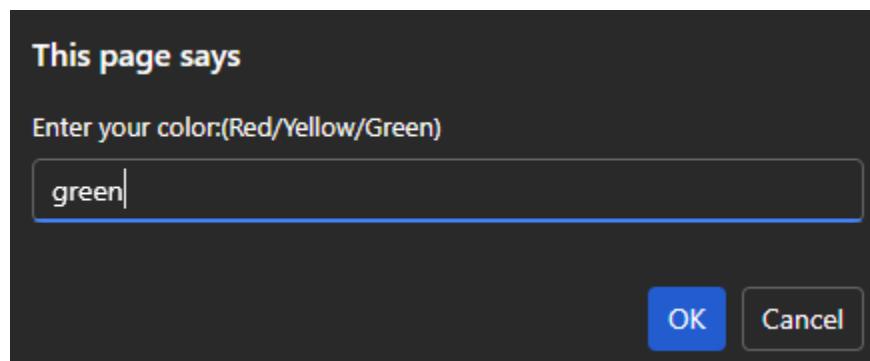
Output File: index.html



Stop [index.html:25](#)



Get Ready [index.html:29](#)



Go [index.html:33](#)

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:

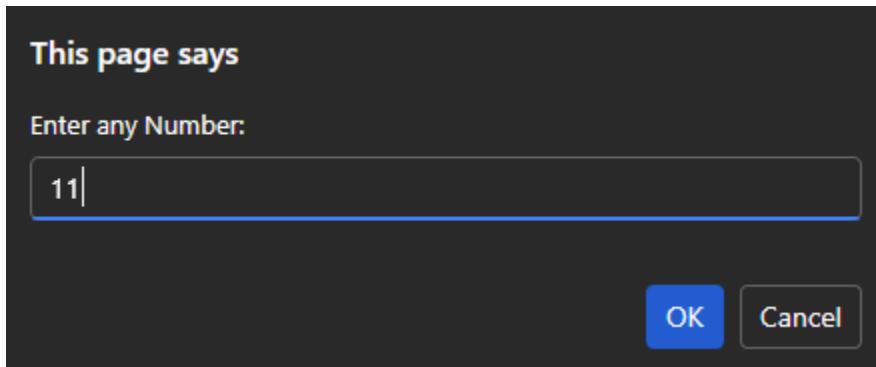
- Combine multiple control flow techniques
- Use loops for iteration
- Apply conditional operators
- Build multi-step logical programs

Source Code:

File Name: index.html

```
1  <!--JS_Day4_Hands_on_Problem_Statement5_HarishBabuKaveri-->
2  <!DOCTYPE html>
3  <html>
4  <head>
5      <meta charset="UTF-8">
6      <meta name="viewport" content="width=device-width, initial-scale=1.0">
7      <title>Number Analysis Tool</title>
8
9      <style>
10         h1{
11             text-align: center;
12         }
13
14         body{
15             background-color: beige;
16         }
17     </style>
18 </head>
19 <body>
20     <h1>Number Analysis Tool</h1>
21     <script>
22         let number = prompt("Enter any Number:");
23
24         let result = (number >= 0) ? "Positive" : "Negative";
25         console.log("Number is:", result);
26
27         if (number % 2 === 0) {
28             console.log("Number is Even");
29         } else {
30             console.log("Number is Odd");
31         }
32
33         console.log("Numbers from 1 to " + number + ":");
34
35         for (let i = 1; i <= number; i++) {
36             console.log(i);
37         }
38     </script>
39 </body>
40 </html>
```

Output:



Number is Positive	<a href="#">index.html:25</a>
Number is Odd	<a href="#">index.html:30</a>
Numbers from 1 to 11:	<a href="#">index.html:33</a>
1	<a href="#">index.html:36</a>
2	<a href="#">index.html:36</a>
3	<a href="#">index.html:36</a>
4	<a href="#">index.html:36</a>
5	<a href="#">index.html:36</a>
6	<a href="#">index.html:36</a>
7	<a href="#">index.html:36</a>
8	<a href="#">index.html:36</a>
9	<a href="#">index.html:36</a>
10	<a href="#">index.html:36</a>
11	<a href="#">index.html:36</a>

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.