HTML5_js_Day-4 Hands On Practice_ Uday

1) Problem Statement : Design a responsive webpage that adapts its layout, font size, navigation, and background for mobile and desktop using the viewport meta tag and CSS media queries.

Index.html:

```html
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">

    <meta name="viewport" content="width=device-width, initial-scale=1.0">

  <title>Responsive Practice</title>
  <link rel="stylesheet" href="style.css">
</head>
<body>

  <header>
    <h1>Our Educational Page</h1>
  </header>

  <nav>
    <a href="#">Home</a>
    <a href="#">Courses</a>
    <a href="#">Contact</a>
  </nav>

  <section class="content">
    <h2>About</h2>
    <p>
      Welcome to Our Educational page, In this page we will make our career with a strong skills
and hands on Experience.
    </p>
  </section>

</body>
</html>
```

style.css :

```css
body {
  font-family: Arial, sans-serif;
  margin: 0;
  background-color: lightblue;
}

header {
  background-color: green;
  color: white;
  text-align: center;
  padding: 15px;
}
```

```css
nav {
  background-color: #333;
  display: flex;
  gap:20px;
  justify-content: center;
}

nav a {
  color: white;
  padding: 14px 20px;
  text-decoration: none;
}

.content {
  padding: 20px;
  font-size: 18px;
}


/* Media Query for Mobile */

@media (max-width: 768px) {

 /*  Background change */

  body {
    background-color: lightgreen;
  }

  .content {
    font-size: 14px;   /*  Smaller font */
  }

  nav {
    flex-direction: column;  /*  Vertical menu */
    text-align: center;
  }

  nav a {
    border-top: 1px solid white;
  }
}
```
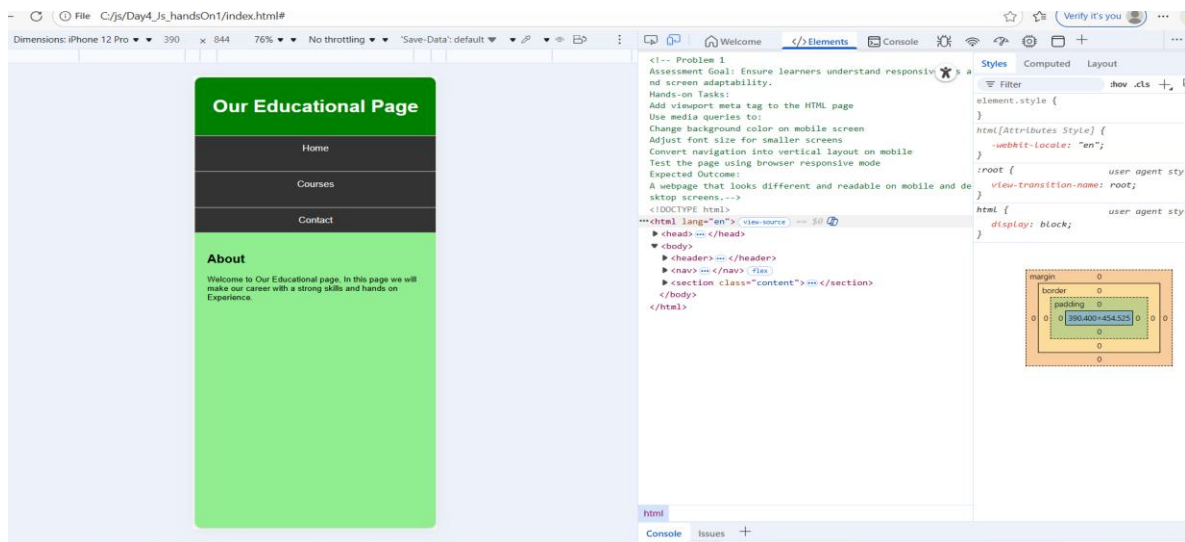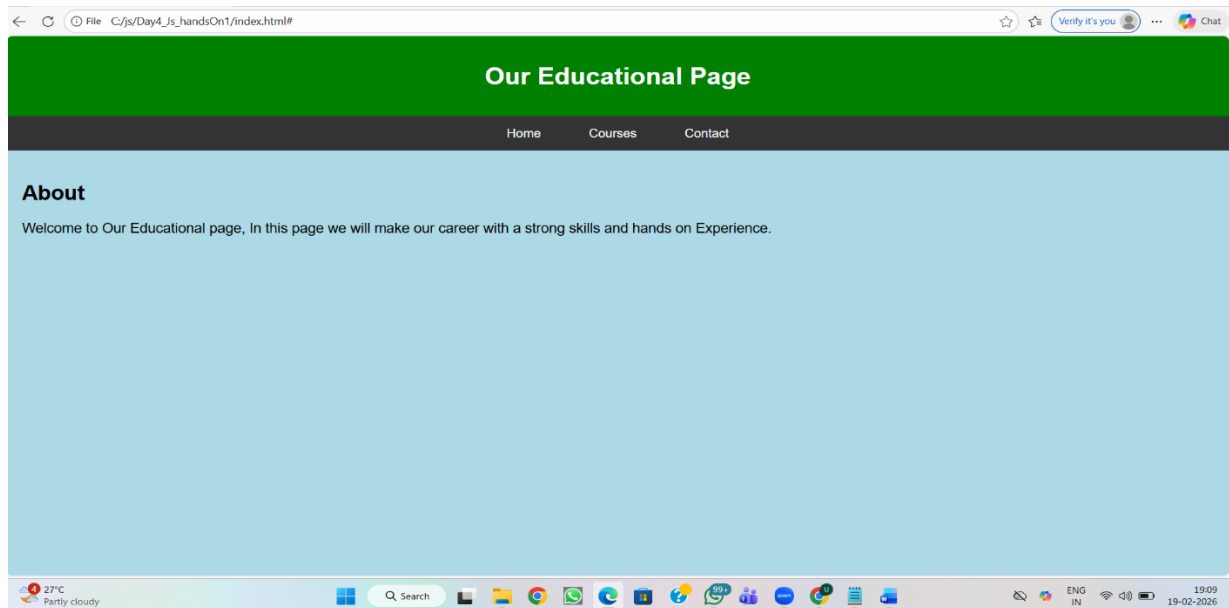
- **Technical Explanation** : **Responsive Web Design** is implemented by combining the viewport meta tag with CSS media queries so that the webpage automatically adjusts to different screen sizes and devices.

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- **OUTPUT:**

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2) Problem Statement : Develop a JavaScript program that accepts a student's marks and determines the grade using if–else conditional statements based on predefined score ranges.

- **HTML CODE :**

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Student Results</title>
</head>
<body>
  <h1>Primary School</h1>
  <p>Student Grade</p>

  <script>
    let Marks = Number(prompt("Enter student marks:"));

    if (isNaN(Marks) || Marks < 0) {
      document.write("Invalid input, Please Enter valid marks");
      console.log("Invalid input, Please Enter valid marks");
    }
    else if (Marks >= 75) {
    document.write("Grade A");
      console.log("Grade A");

    }
    else if (Marks >= 60) {
    document.write("Grade B");
      console.log("Grade B");
    }
    else if (Marks >= 40) {
    document.write("Grade C");
      console.log("Grade C");
    }
    else {
    document.write("Fail");
      console.log("Fail");

    }
  </script>
</body>
</html>
```
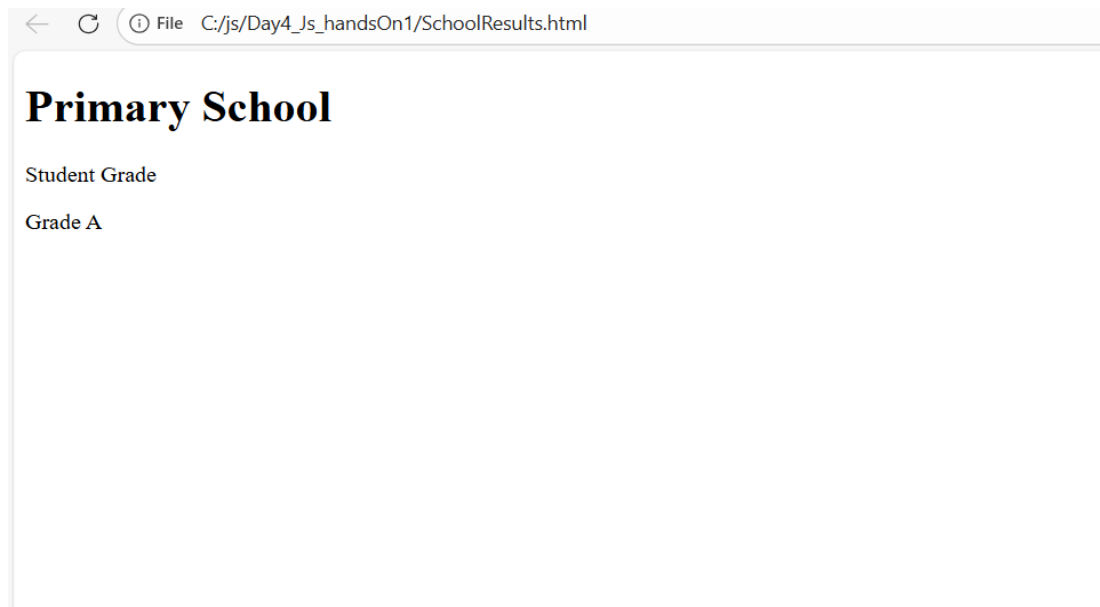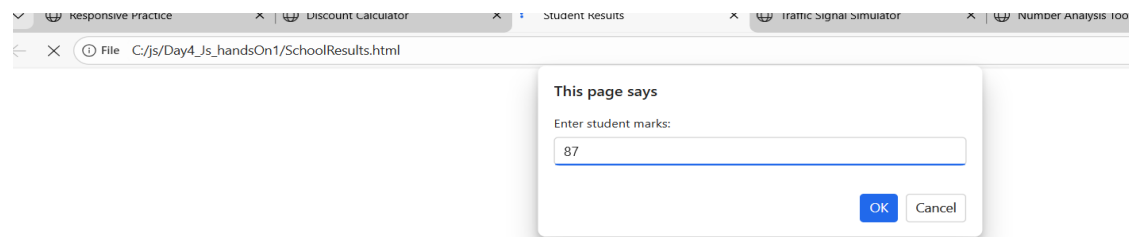
- **Technical Explanation :** The program stores the student's marks in a variable and uses an **if–else decision-making structure** to evaluate the score against multiple conditions.
  Based on the matching range (≥75, ≥60, ≥40, <40), the appropriate grade (A, B, C, or Fail) is assigned and displayed as output.

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This demonstrates the use of **relational operators, conditional control flow, and logical evaluation** to implement a simple performance classification system.

- **OUTPUT:**

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3) Problem Statement : Create a JavaScript program that calculates the discount and final payable amount based on the purchase value using conditional statements.

- **HTML CODE :**

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
   <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Discount Calculator</title>

</head>
<body>

<h2>Online Store Discount</h2>

<script>

let amount = 3500;   // Purchase amount

let discount = 0;
let finalAmount = 0;

// Discount rules
if (amount >= 5000) {
   discount = amount * 0.20;
}
else if (amount >= 3000) {
   discount = amount * 0.10;
}
else {
   discount = 0;
}

// Final payable amount
finalAmount = amount - discount;

// Output
document.write("Purchase Amount: " + amount + "<br>");
document.write("Discount: " + discount + "<br>");
document.write("Final Payable Amount: " + finalAmount);

</script>

</body>
</html>
```
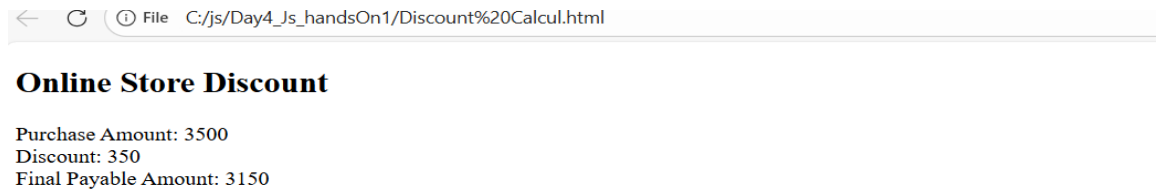
- **Technical Explanation :** The program stores the total purchase amount in a variable and uses if–else conditional logic with relational operators to determine the

applicable discount percentage according to predefined ranges (≥5000, ≥3000, <3000). It then performs arithmetic calculations to compute the discount amount and subtracts it from the original value to obtain the final payable amount, which is displayed as output.
This demonstrates the use of decision-making, percentage calculation, and dynamic value computation in JavaScript.

- **OUTPUT:**

← C ⓘ File C:/js/Day4_Js_handsOn1/Discount%20Calcul.html

Online Store Discount

Purchase Amount: 3500
Discount: 350
Final Payable Amount: 3150

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4) Problem Statement : Develop a JavaScript program that uses a switch statement to display appropriate traffic instructions based on the given signal color.

- **HTML CODE :**

```html
<!DOCTYPE html>
<html lang="en">
<head>
  <title>Traffic Signal Simulator</title>
</head>
<body>

<h2>Traffic Signal</h2>

<script>

let signal = prompt("Enter signal color (red / yellow / green):");

// convert input to lowercase to handle RED, Red, etc.
signal = signal.toLowerCase();

switch(signal)
{
  case "red":
    document.write("STOP");
    console.log("STOP");
    break;

  case "yellow":
    document.write("GET READY");
    console.log("GET READY");
    break;

  case "green":
    document.write("GO");
    console.log("GO");
    break;

  default:
    document.write("Invalid signal input");
    console.log("Invalid signal input");
}

</script>

</body>
</html>
```

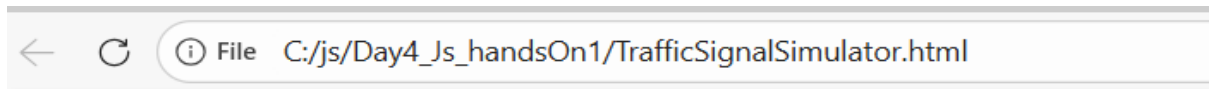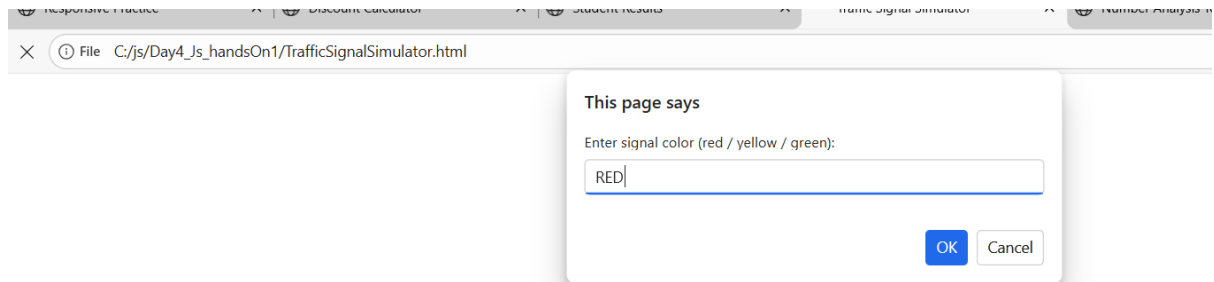# HTML5_js_Day-4 Hands On Practice_ Uday

- **Technical Explanation :**

The program stores the traffic signal color as a **string variable** and uses a **switch–case control structure** to match the input with predefined cases ("red", "yellow", "green").

Each case executes a specific instruction (Stop, Get Ready, Go), while the **default case** handles invalid inputs gracefully.

This demonstrates the use of **multi-way selection, string comparison, and structured output handling** in JavaScript for real-time decision-making scenarios.

- **OUTPUT:**

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5) Problem Statement : Create a JavaScript program that analyzes a given number to determine its sign, parity, and numerical range using ternary, conditional, and looping constructs.

- **HTML CODE :**

```
<!DOCTYPE html>
<html lang="en">
<head>
   <title>Number Analysis Tool</title>
</head>
<body>

<h2>Number Analysis</h2>

<script>

let num = Number(prompt("Enter a number:"));

// Ternary → Positive or Negative
let result = (num >= 0) ? "Positive Number" : "Negative Number";
document.write(result + "<br>");
console.log(result);

// If–else → Even or Odd
if(num % 2 === 0)
{
   document.write("Even Number<br>");
   console.log("Even Number");
}
else
{
   document.write("Odd Number<br>");
   console.log("Odd Number");
}

// Loop → 1 to given number
document.write("Numbers from 1 to " + num + "<br>");
console.log("Numbers from 1 to " + num);

for(let i = 1; i <= num; i++)
{
   document.write(i + "<br>");
   console.log(i);
}

</script>

</body>
</html>
```

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- **Technical Explanation :**

A number is analyzed using a ternary operator for sign detection, if–else for even/odd checking, and a loop to print values from 1 to the given number.

- **OUTPUT:**

← C ⓘ File C:/js/Day4_Js_handsOn1/NumberAnalysisTool.html

Number Analysis

Positive Number
Odd Number
Numbers from 1 to 9
1
2
3
4
5
6
7
8
9