Name:- Darshan Patil
Div:- F
Roll no:- 17

Practical no-4

Title: Temperature Conversion Tool:
Task: Develop a temperature conversion tool using Java for web Requirements: Create an HTML form with input fields for temperature values and radio buttons to select the conversion
type (e.g., Celsius to Fahrenheit, Fahrenheit to Celsius) Use JavaScript to handle the form submission and perform the temperature Pattern conversion calculations. Display the converted temperature dynamically on the webpage

Objective:
The objective of this lab is to create a web-based tool that allows users to convert temperature
values between different units (Celsius to Fahrenheit and Fahrenheit to Celsius) using HTML for
the structure, CSS for the layout, and JavaScript for the functionality to handle user input and
display the results dynamically.
Tools Required:
● Text Editor (e.g., Visual Studio Code, Sublime Text, etc.)
● Web Browser (e.g., Google Chrome, Mozilla Firefox, etc.)
Prerequisites:
● Basic knowledge of HTML, CSS, and JavaScript.
● Understanding of temperature conversion formulas:

Procedure:
Step 1: Create the HTML Structure
Start by creating the basic HTML structure to set up the input fields and radio buttons for the conversion options.

```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
<meta name="viewport" content="width=device-width,
initial-scale=1.0">
<title>Temperature Conversion Tool</title>
<link rel="stylesheet" href="styles.css">
</head>
<body>
<div class="container">
<h1>Temperature Conversion Tool</h1>
<form id="tempForm">
<label for="temperature">Enter Temperature:</label>
<input type="number" id="temperature" placeholder="Enter
```

```
value" required>
<div>
<input type="radio" id="cToF" name="conversion"

value="CtoF" checked>

<label for="cToF">Celsius to Fahrenheit</label>
<input type="radio" id="fToC" name="conversion"

value="FtoC">

<label for="fToC">Fahrenheit to Celsius</label>
</div>
<button type="button"

onclick="convertTemperature()">Convert</button>

</form>
<h2>Converted Temperature: <span id="result">---</span></h2>
</div>

<script src="script.js"></script>
</body>
</html>
```

Explanation:

● The HTML structure contains a form with an input field for the temperature value and two radio buttons to choose the type of conversion (Celsius to Fahrenheit or Fahrenheit to Celsius).

● A button triggers the convertTemperature() function to perform the conversion.

● The result of the conversion will be displayed in the element.

Step 2: Apply CSS for Basic Styling (Optional)

You can use CSS to make the page look more attractive. Here is a basic styles.css file for styling:

```
body {
   font-family: Arial, sans-serif;
   background-color: #f4f4f4;
   margin: 0;
   padding: 0;
   display: flex;
   justify-content: center;
   align-items: center;
   height: 100vh;
   }
   .container {
   background-color: white;
```

```
padding: 20px;
border-radius: 8px;
box-shadow: 0 0 10px rgba(0, 0, 0, 0.1);
width: 300px;
text-align: center;
}
h1 {

font-size: 24px;
margin-bottom: 20px;
}
label {
display: block;
margin-top: 10px;
font-size: 16px;
}
input[type="number"] {
width: 100%;
padding: 8px;
margin-top: 5px;
border-radius: 4px;
border: 1px solid #ccc;
}
input[type="radio"] {
margin-top: 10px;
}
button {
width: 100%;
padding: 10px;
margin-top: 20px;
background-color: #4CAF50;
color: white;
border: none;
border-radius: 4px;
font-size: 16px;
cursor: pointer;
}
button:hover {
background-color: #45a049;
}

h2 {
font-size: 20px;
margin-top: 20px;
}
```

```
  #result {
  font-weight: bold;
  }
```

Step 3: Write JavaScript to Handle Conversion Logic

Now, add the JavaScript code to handle the temperature conversion. Create a file called script.js and include the following code:

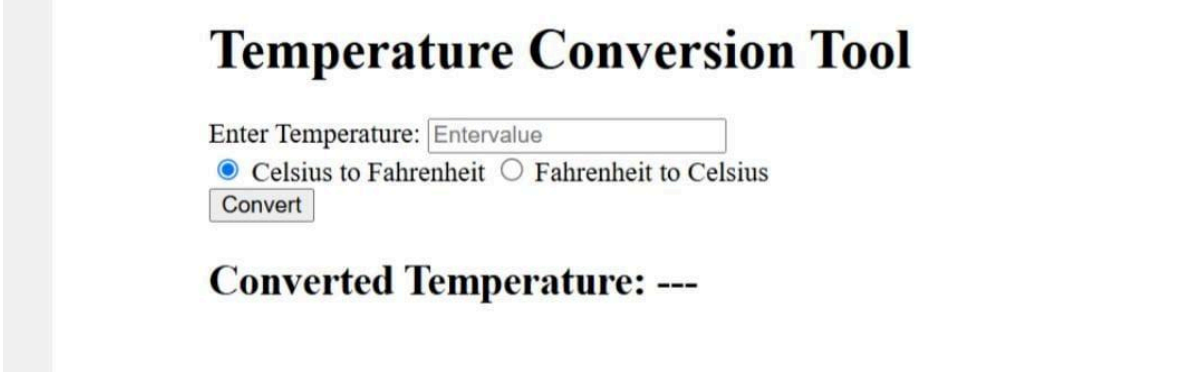
```
function convertTemperature() {
  // Get the input temperature value
  let temperature = document.getElementById("temperature").value;
  // Check if the input is a valid number
  if (isNaN(temperature) || temperature === "") {
  alert("Please enter a valid temperature.");
  return;
  }
  // Get the selected conversion type
  let conversionType =
  document.querySelector('input[name="conversion"]:checked').value;
  let result;
  // Perform conversion based on selected type
  if (conversionType === "CtoF") {
  result = (temperature * 9/5) + 32;
  result = result.toFixed(2); // Round the result to 2 decimal

  places
  } else if (conversionType === "FtoC") {
  result = (temperature - 32) * 5/9;

  result = result.toFixed(2); // Round the result to 2 decimal

  places
  }
  // Display the result on the page
  document.getElementById("result").textContent = result;
  }
```

OUTPUT:-



Explanation:

● The convertTemperature() function retrieves the input temperature value and checks if it is a valid number.

● It checks which radio button is selected (Celsius to Fahrenheit or Fahrenheit to Celsius) using document.querySelector.

● Depending on the conversion type, it performs the appropriate calculation and displays the result in the element.

● The result is rounded to two decimal places for better presentation.

Step 4: Testing the Tool

1. Open the index.html file in a web browser.
2. Enter a temperature value in the input field.
3. Select the conversion type (either Celsius to Fahrenheit or Fahrenheit to Celsius).
4. Click the "Convert" button to see the result displayed dynamically on the page.

Step 5: Example Use Cases

1. Celsius to Fahrenheit
   ○ Input: 25
   ○ Conversion Type: Celsius to Fahrenheit
   ○ Result: 77.00°F
2. Fahrenheit to Celsius
   ○ Input: 77
   ○ Conversion Type: Fahrenheit to Celsius
   ○ Result: 25.00°C

Additional Features (Optional)

● You can add a reset button to clear the input fields and the result.

● Implement a validation check for empty fields or non-numeric inputs.

● Allow the user to select multiple temperature units (Kelvin, Rankine, etc.) by extending the logic.

Conclusion:

Successfully created a simple web-based temperature conversion tool using HTML, CSS, and JavaScript. This tool allows users to input a temperature value, select the conversion type, and dynamically display the result on the page.