CITY ST GEORGE'S UNIVERSITY OF LONDON

STEM Digital Academy

School of Science & Technology

Two Function Examples

Web Technologies

Lecture by

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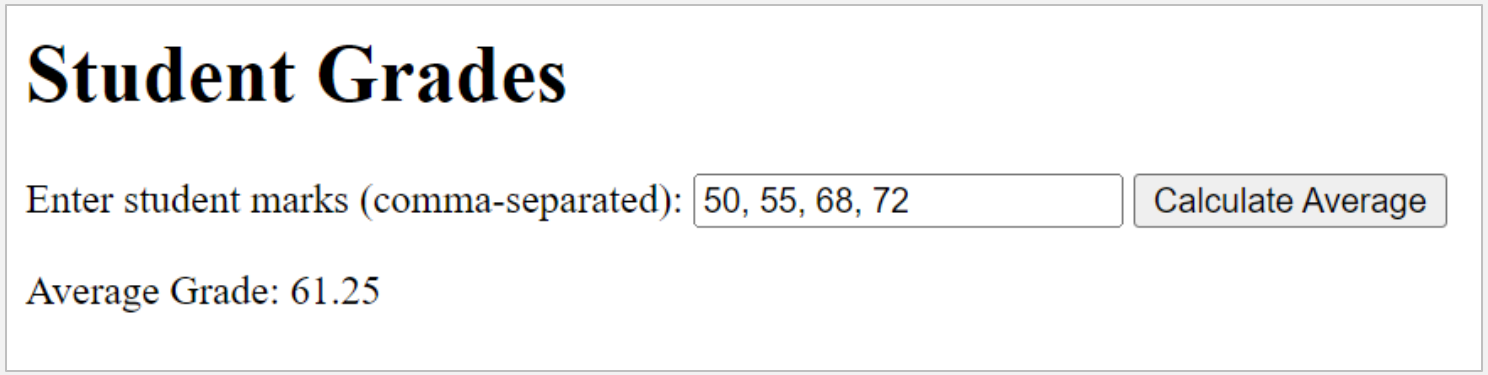
```
<!doctype html>
<html>
    <head>
      <title>
        Web Technologies
      </title>
      <style>
        p {
          color: blue;
        }
      </style>
      <script>
      console.log("client-side");
      </script>
    </head>
    <body>
        <p>
            Welcome!
        </p>
    </body>
</html>
```

What we will cover

- Student Grade Web Application
- MPG Web Application

Student Grade Application



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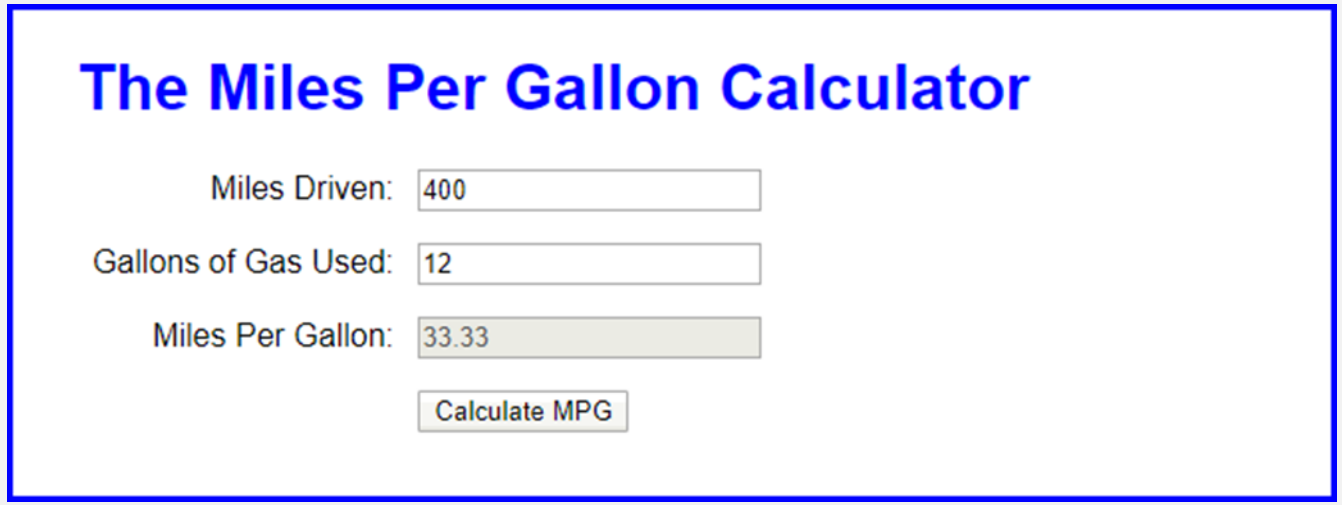
The HTML Code for the Application

```
<!DOCTYPE html>
<html>
<head>
  <title>Student Grades</title>
</head>
<body>
  <h1>Student Grades</h1>
  <label for="marks">Enter student marks (comma-separated):</label>
  <input type="text" id="marks" placeholder="e.g., 75, 80, 90, 85, 95">
  <button onclick="calculateAndDisplayAverage()">Calculate Average</button>
  <p>Average Grade: <span id="averageGrade"></span></p>
  <script>···
  </script>
</body>
</html>
```

The JavaScript Code for the Application

```
<script>
  function calculateAndDisplayAverage() {
    const marksInput = document.getElementById("marks");
    const marksArray = marksInput.value.split(",").map(Number);
    const averageGrade = calculateAverageGrade(marksArray);
    const averageGradeElement = document.getElementById("averageGrade");
    averageGradeElement.textContent = averageGrade.toFixed(2);
  }
  const calculateAverageGrade = function(marks) {
    let total = 0;
    for (let i = 0; i < marks.length; i++) {
      total += marks[i];
    }
    const average = total / marks.length;
    return average;
  };
</script>
```

MPG Application



HTML

```
<main>
    <h1>The Miles Per Gallon Calculator</h1>
    <div>
        <label for="miles">Miles Driven:</label>
        <input type="text" id="miles">
    </div>
    <div>
        <label for="gallons">Gallons of Gas Used:</label>
        <input type="text" id="gallons">
    </div>
    <div>
        <label for="mpg">Miles Per Gallon:</label>
        <input type="text" id="mpg" disabled>
    </div>
    <div>
        <label> </label>
        <input type="button" id="calculate" value="Calculate MPG">
    </div>
</main>
<script src="mpg.js"></script>
```

JavaScript 1

```
"use strict";
const $ = selector => document.querySelector(selector);
const getErrorMsg = lbl => `${lbl} must be a valid number greater than zero.`;
const focusAndSelect = selector => {···
};
const processEntries = () => {···
};
document.addEventListener("DOMContentLoaded", () => {
    $("#calculate").addEventListener("click", processEntries);
    $("#miles").focus();
});
```

JavaScript 2

```
const focusAndSelect = selector => {
    const elem = $(selector);
    elem.focus();
    elem.select();
};
const processEntries = () => {
    const miles = parseFloat($("#miles").value);
    const gallons = parseFloat($("#gallons").value);

    if (isNaN(miles) || miles <= 0) {
        alert(getErrorMsg("Miles driven"));
        focusAndSelect("#miles");
    } else if (isNaN(gallons) || gallons <= 0) {
        alert(getErrorMsg("Gallons of gas used"));
        focusAndSelect("#gallons");
    } else {
        $("#mpg").value = (miles / gallons).toFixed(2);
    }
};
```

Try It Yourself

In this activity you can practice creating a web application that uses a function delectation. So,

1. In your editor create the a html file using the code provided in slides 5 and 6.