Quadratic Solver & Grading System - index.html

Below is the full HTML + JavaScript code for your ICT251 assignment.

```html
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Quadratic Solver & Grading System</title>
  <style>
    body {
      font-family: Arial, sans-serif;
      background-color: #f9f9f9;
      padding: 20px;
      color: #333;
      max-width: 600px;
      margin: auto;
    }
    h2 {
      color: #0066cc;
      border-bottom: 2px solid #0066cc;
      padding-bottom: 5px;
    }
    input[type="number"] {
      width: 80px;
      padding: 5px;
      margin: 5px;
    }
    button {
      background-color: #0066cc;
      color: white;
      border: none;
      padding: 8px 12px;
      border-radius: 4px;
      cursor: pointer;
      margin: 5px;
    }
    button:hover {
      background-color: #004d99;
    }
    .result, .error {
      margin-top: 10px;
      padding: 10px;
      border-radius: 5px;
    }
    .result { background-color: #e6f7ff; }
    .error { background-color: #ffdddd; color: #a00; }
  </style>
</head>
<body>

  <h1>Quadratic Solver & Grading System</h1>
  <p>Enter values below to solve a quadratic equation and convert a score to a grade.</p>

  <!-- Quadratic Solver -->
  <h2>Quadratic Equation Solver</h2>
  <form id="quadForm">
    <label>a: <input type="number" id="a" required></label>
    <label>b: <input type="number" id="b" required></label>
    <label>c: <input type="number" id="c" required></label><br>
    <button type="button" onclick="solveQuadratic()">Compute</button>
    <button type="reset" onclick="clearQuadratic()">Reset</button>
  </form>
  <div id="quadOutput" class="result"></div>

  <!-- Grading System -->
  <h2>Grading System</h2>
  <form id="gradeForm">
    <label>Score (0-100): <input type="number" id="score" required></label><br>
    <button type="button" onclick="convertGrade()">Get Grade</button>
    <button type="reset" onclick="clearGrade()">Reset</button>
```

```
      </form>
      <div id="gradeOutput" class="result"></div>

      <script>
        function solveQuadratic() {
          const a = parseFloat(document.getElementById("a").value);
          const b = parseFloat(document.getElementById("b").value);
          const c = parseFloat(document.getElementById("c").value);
          const output = document.getElementById("quadOutput");

          if (isNaN(a) || isNaN(b) || isNaN(c)) {
            output.innerHTML = "<div class='error'>Please enter all numbers.</div>";
            return;
          }
          if (a === 0) {
            output.innerHTML = "<div class='error'>a cannot be 0 in a quadratic equation.</div>";
            return;
          }

          const D = b*b - 4*a*c;
          let result = `<strong>Discriminant (D):</strong> ${D.toFixed(2)}<br>`;

          if (D > 0) {
            const r1 = (-b + Math.sqrt(D)) / (2*a);
            const r2 = (-b - Math.sqrt(D)) / (2*a);
            result += `Two distinct real roots: x■ = ${r1.toFixed(2)}, x■ = ${r2.toFixed(2)}`;
          } else if (D === 0) {
            const r = -b / (2*a);
            result += `One real repeated root: x = ${r.toFixed(2)}`;
          } else {
            const real = (-b / (2*a)).toFixed(2);
            const imag = (Math.sqrt(-D) / (2*a)).toFixed(2);
            result += `Two complex conjugate roots: x■ = ${real} + ${imag}i, x■ = ${real} - ${imag}i`;
          }

          output.innerHTML = result;
        }

        function clearQuadratic() {
          document.getElementById("quadOutput").innerHTML = "";
        }

        function convertGrade() {
          const score = parseInt(document.getElementById("score").value);
          const output = document.getElementById("gradeOutput");

          if (isNaN(score) || score < 0 || score > 100) {
            output.innerHTML = "<div class='error'>Enter a valid score between 0 and 100.</div>";
            return;
          }

          let grade = "";
          if (score >= 85) grade = "A+";
          else if (score >= 75) grade = "A";
          else if (score >= 65) grade = "B+";
          else if (score >= 60) grade = "B";
          else if (score >= 55) grade = "C+";
          else if (score >= 50) grade = "C";
          else grade = "D";

          output.innerHTML = `Score ${score} → Grade <strong>${grade}</strong>`;
        }

        function clearGrade() {
          document.getElementById("gradeOutput").innerHTML = "";
        }
      </script>

  </body>
  </html>
```