Terna Engineering College
Computer Engineering Department
Program: Sem VIII

Course: Human-Machine Interaction Lab (CSL801)

Experiment No. 2

A.1 Aim: Create a mathematical application for kids of age 4-7 years to teach them the basics of mathematics.

PART B
(PART B: TO BE COMPLETED BY STUDENTS)

Roll No. 50	**Name:** AMEY MAHENDRA THAKUR
Class: BE COMPS B 50	**Batch:** B3
Date of Experiment: 11-02-2022	**Date of Submission:** 11-02-2022
Grade:	

B.1 Tools used to develop an application:

- HTML
- CSS
- JavaScript
- Visual Studio Code
- GitHub Pages

B.2 Choice of User Interface Elements:

- Buttons
- Navigation bar

B.3 Sample Source code of the application:

- **Index.html**

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>AMEY THAKUR</title>
  <link rel="icon" type="image/png" href="favicon.png">
  <link rel="stylesheet" href="style.css">
</head>
```

```
<body>
  <div class="game-container">
    <!-- Header -->
    <div class="header">
      <h1>MATH SPRINT GAME</h1>
    </div>

    <!-- splash Page -->
    <div class="card" id="splash-page">
      <form id="start-form">
        <div class="selection-container">
          <!-- 10 Questions radio Input -->
          <div class="radio-container">
            <label for="value-10">10 Questions</label>
            <input type="radio" name="questions" value="10" id="value-10">
            <span class="best-score">
              <span>Best Score</span>
            <span class="best-score-value"></span>
            </span>
          </div>

          <!-- 25 Questions radio Input -->
          <div class="radio-container">
            <label for="value-25">25 Questions</label>
            <input type="radio" name="questions" value="25" id="value-25">
            <span class="best-score">
              <span>Best Score</span>
            <span class="best-score-value"></span>
            </span>
          </div>

          <!-- 50 Questions radio Input -->
          <div class="radio-container">
            <label for="value-50">50 Questions</label>
            <input type="radio" name="questions" value="50" id="value-50">
            <span class="best-score">
              <span>Best Score</span>
            <span class="best-score-value"></span>
            </span>
          </div>

          <!-- 99 Questions radio Input -->
          <div class="radio-container">
```

```
            <label for="value-99">99 Questions</label>
            <input type="radio" name="questions" value="99" id="value-99">
            <span class="best-score">
              <span>Best Score</span>
            <span class="best-score-value"></span>
            </span>
          </div>
        </div>
        <!-- Start Form -->
        <div class="selection-footer">
          <button class="start" type="submit">Start Round</button>
        </div>
    </form>
</div>

<!-- Countdown Page-->

<div class="card" id="countdown-page" hidden>
    <h1 class="countdown"></h1>
</div>

<!-- Game Page -->

<div class="card" id="game-page" hidden>
    <!-- Item Container -->
    <div class="item-container"></div>
    <!-- Right/Wrong Buttons -->
    <div class="item-footer">
        <button class="wrong" onclick="select(false)">Wrong</button>
        <button class="right" onclick="select(true)">Right</button>
    </div>
</div>

<!-- Score Page -->
<div class="card" id="score-page" hidden>
    <!-- Score Container -->
    <div class="score-container">
        <h1 class="title">Your Time</h1>
        <h1 class="final-time"></h1>
        <h1 class="base-time"></h1>
        <h1 class="penalty-time"></h1>
    </div>
```

```
 <!-- Play Again Button -->
        <div class="score-footer">
                        <button  class="play-again"  onclick="playAgain()"  hidden>Play
Again</button>
        </div>
      </div>

   </div>
   <!-- Script -->
   <script src="shuffle.js"></script>
   <script src="script.js"></script>

</body>
</html>
```

- **Shuffle.js**

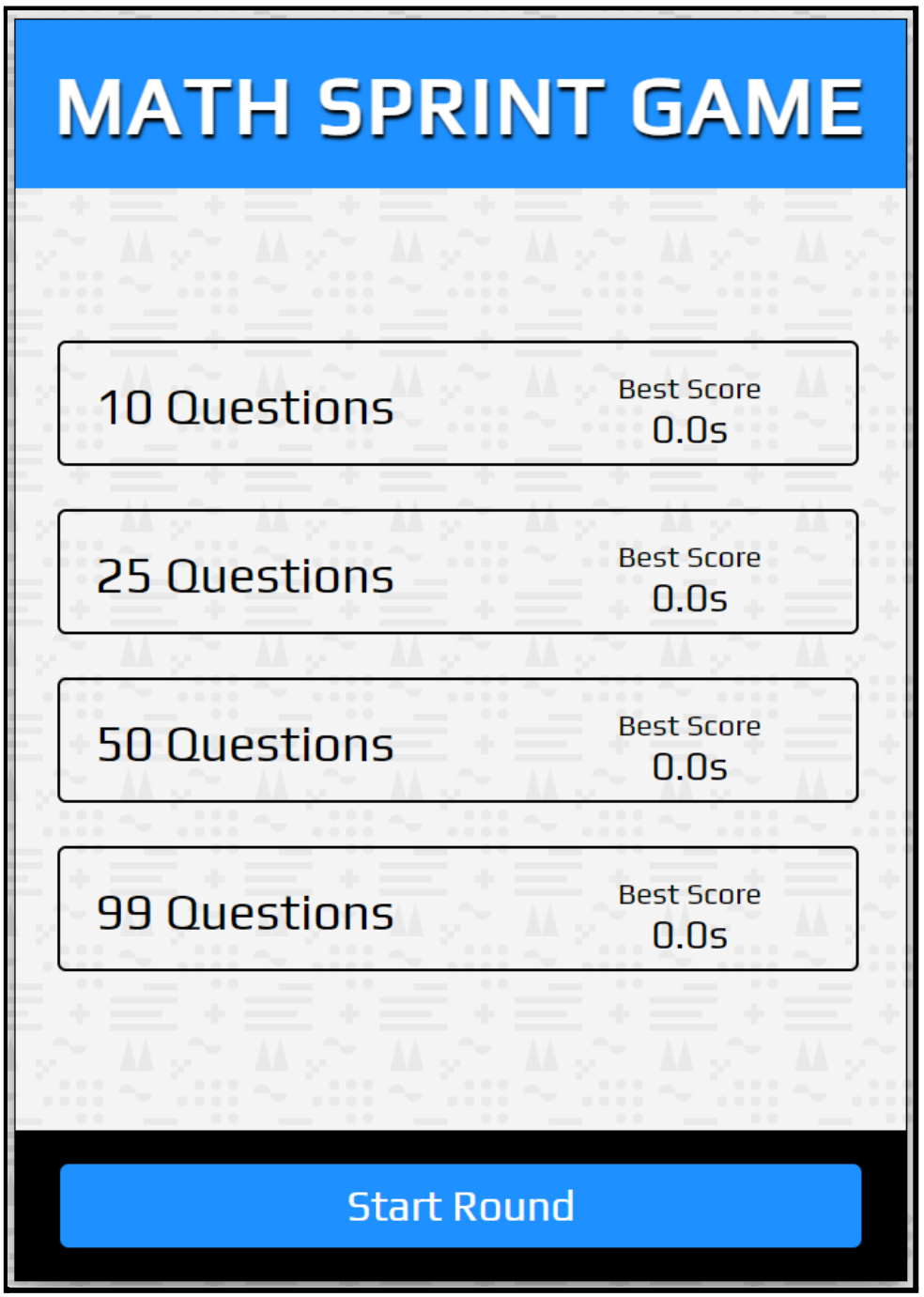
```
function shuffle(array) {
   var currentIndex = array.length,
      temporaryValue, randomIndex;

   // While there remain elements to shuffle...
   while (0 !== currentIndex) {

      // Pick a remaining element...
      randomIndex = Math.floor(Math.random() * currentIndex);
      currentIndex -= 1;

      // And swap it with the current element.
      temporaryValue = array[currentIndex];
      array[currentIndex] = array[randomIndex];
      array[randomIndex] = temporaryValue;
   }

   return array;
}

// Used like so
//   var arr = [2, 11, 37, 42];
//   shuffle(arr);
//   console.log(arr);
```

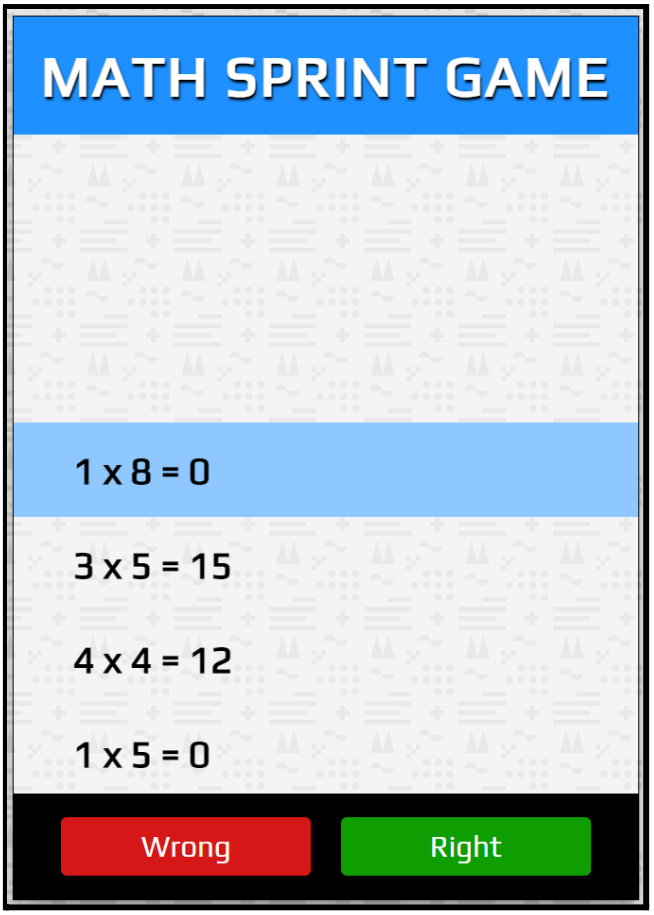
B.4 User Interface Designs:

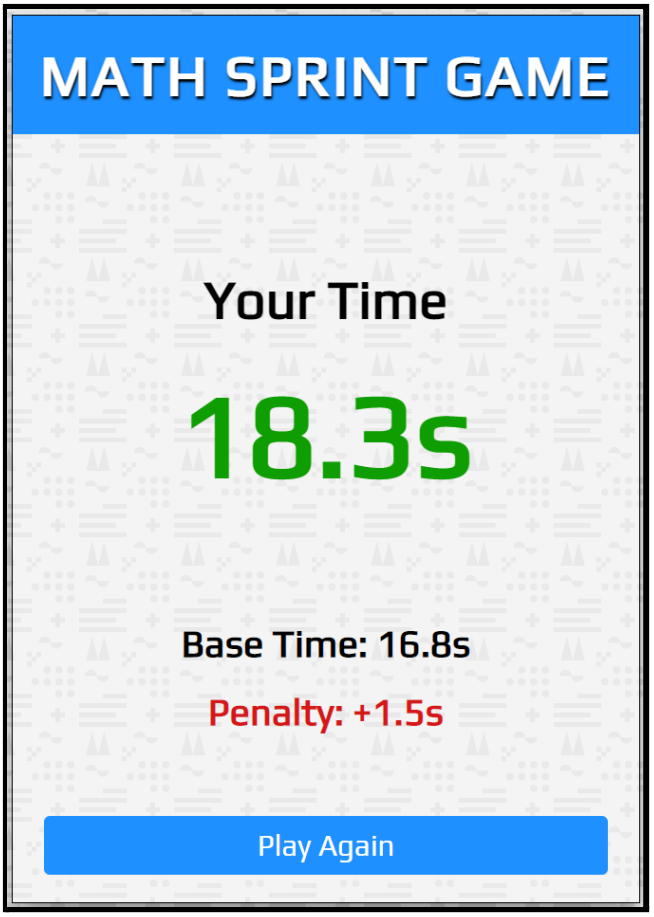
GitHub Repository: https://github.com/Amey-Thakur/MATH-SPRINT-GAME

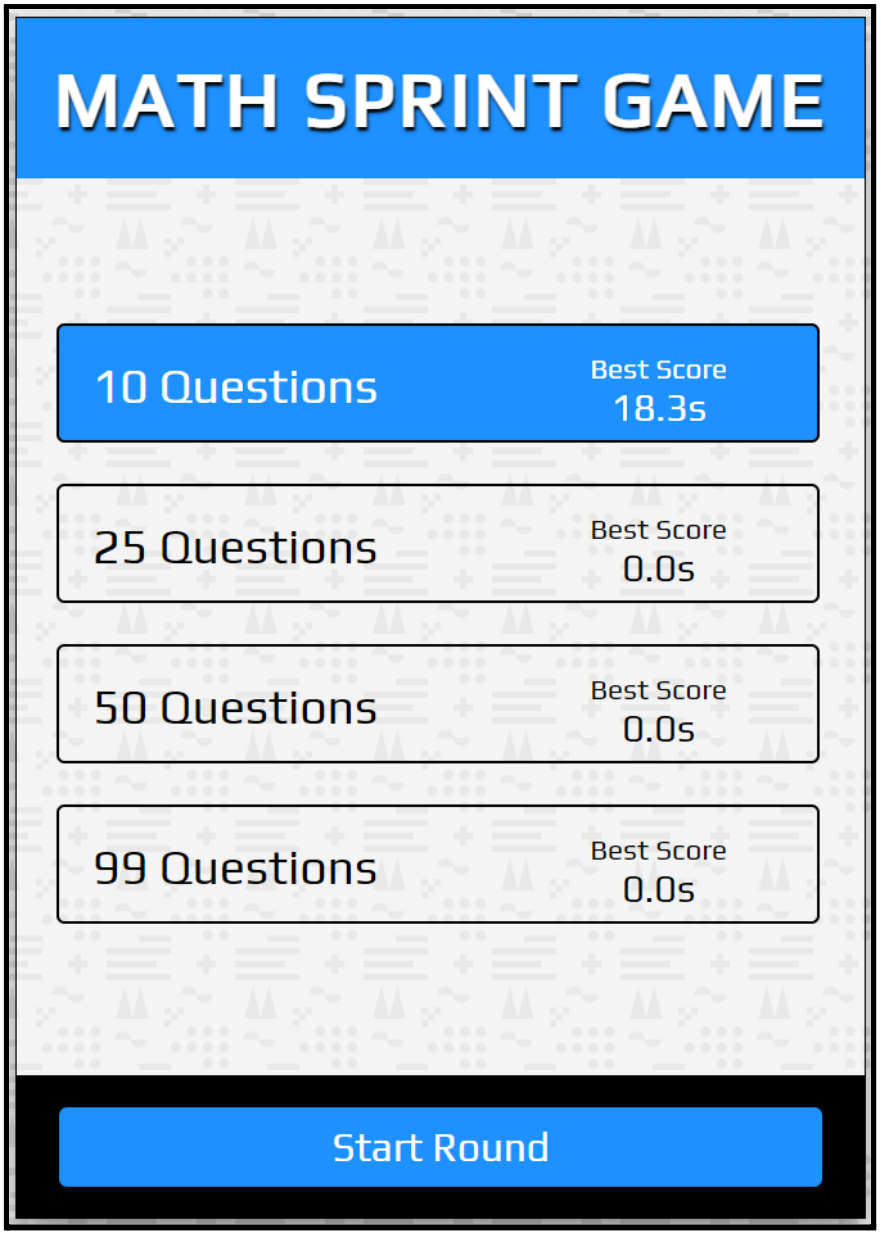
Web Application: https://amey-thakur.github.io/MATH-SPRINT-GAME

- **Home Page**




MATH SPRINT GAME
1 x 8 = 0
3 x 5 = 15
4 x 4 = 12
1 x 5 = 0
Wrong
Right


MATH SPRINT GAME
Your Time
18.3s
Base Time: 16.8s
Penalty: +1.5s
Play Again



B.5 Conclusion:

To create a truly usable system, a designer must always do the following:

- Understand how people interact with computers.
- Understand the human characteristics important in design.
- Identify the user's level of knowledge and experience.
- Identify the characteristics of the user's needs, tasks, and jobs.
- Identify the user's psychological characteristics.
- Identify the user's physical characteristics.
- Employ recommended methods for gaining an understanding of users.

Adhering to these points I've created a simple maths application for kids between the age of 4 and 7 to help them learn about multiplication.