

**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.

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

|                                       |                                       |
|---------------------------------------|---------------------------------------|
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| <b>Class:</b> BE COMPS B              | <b>Batch:</b> B3                      |
| <b>Date of Experiment:</b> 11-02-2022 | <b>Date of Submission:</b> 11-02-2022 |
| <b>Grade:</b>                         |                                       |

**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);

```

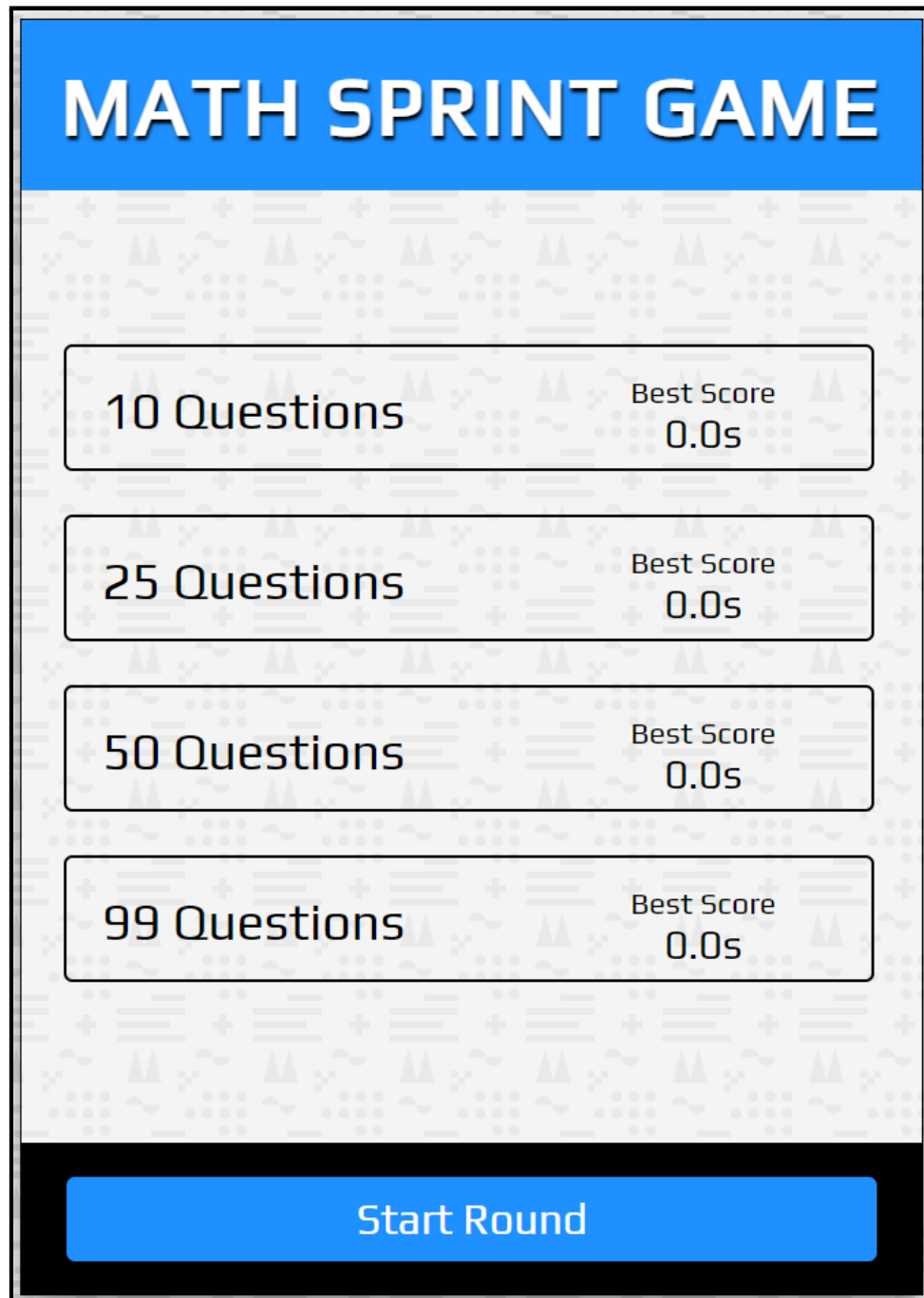
## B.4 User Interface Designs:

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

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

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- Home Page



## MATH SPRINT GAME

$$1 \times 8 = 0$$

$$3 \times 5 = 15$$

$$4 \times 4 = 12$$

$$1 \times 5 = 0$$

Wrong

Right

## MATH SPRINT GAME

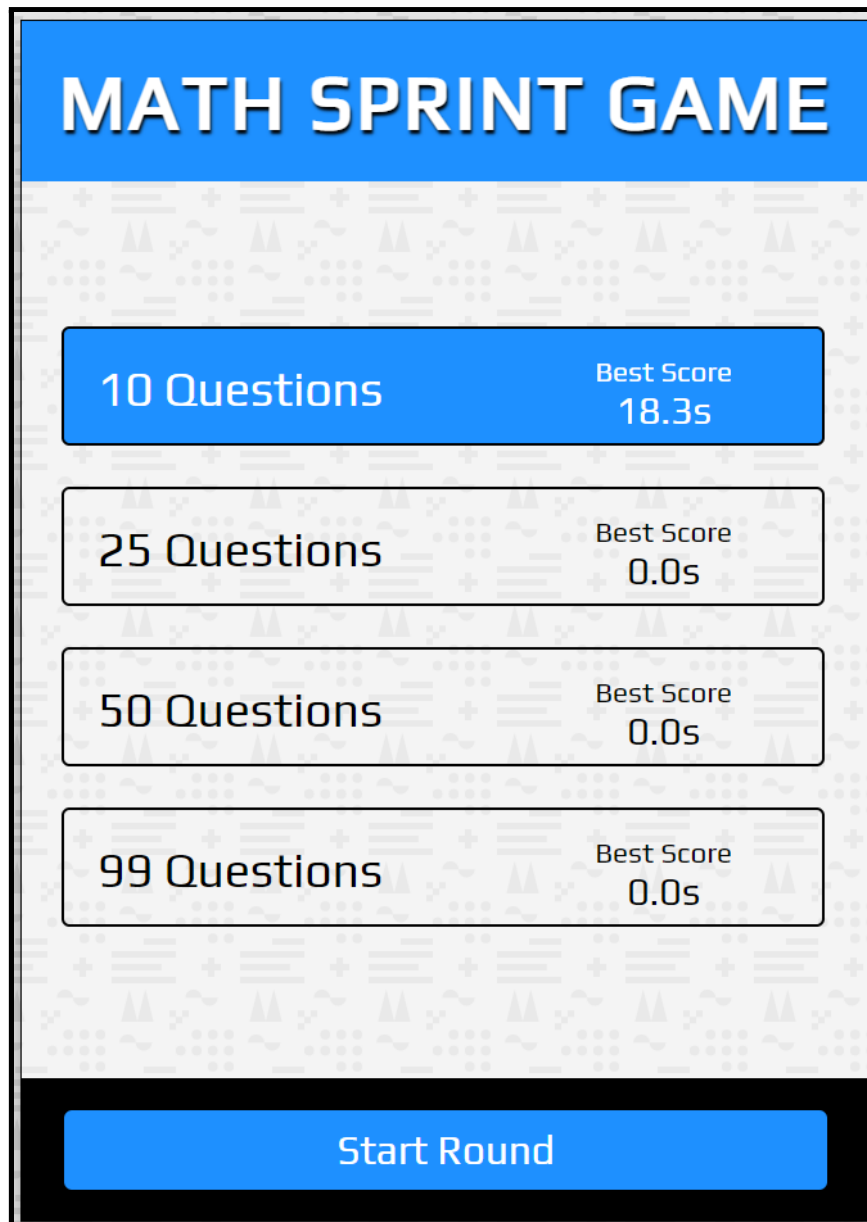
Your Time

**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.