SPEED TYPING TEST

A MINI-PROJECT REPORT

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CERTIFICATE

This is to certify that the Web Programming Mini-Project report entitled **"Speed Typing Test"** being submitted by **Adityavardhan Singh, Afreen Naaz, B.P Gayathri Ananya, Chirag P.D.** to Department of Computer Science and Engineering, School of Engineering, Dayananda Sagar University, Bangalore, for the 7th semester B.Tech C.S.E of this university during the academic year 2020-2021.

Date:_____ _____

Signature of the Faculty in Charge

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Signature of the Chairman

I

ABSTRACT

With the rapid advancement of technology, keyboarding has become one of the most important skills in our modern world today. People who can communicate easily and quickly using modern tools will be a step ahead of the crowd in the future. Before computers became an everyday part of life, handwriting was a crucial skill. As the world continues to evolve rapidly, people may not need a pen and a piece of paper to write down their thoughts and ideas. Everything will be recorded on technological devices using a keyboard. With this in mind, it is important to become fluent and adapt to the keyboard as soon as you can to improve your communication skills. The productivity of a business depends on how things are done faster. To complete your work faster it is important to develop typing skills. Typing helps you to work comfortably on the computer, it aids in communicating with colleagues and customers, creating documents, and finding new information. The Speed Typing Test is designed to provide the user with a platform to test their speed and accuracy. And also a place to practice and improve his/her typing skills, learn to type faster with fewer errors, and to practice new different words.

II

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III

TABLE OF CONTENTS

IV

LIST OF FIGURES

Chapter – 1

INTRODUCTION

As personal computers appear on nearly every desktop in both service and manufacturing businesses, keyboarding skills have increasingly become a fundamental part of "computer literacy" (Grierson, 1985, p. 11). In an earlier time, nearly all external and much internal business correspondence was prepared by relatively few secretarial and clerical employees. In this era of local and wide area networks, however, most internal and much external correspondence is being typed on a computer keyboard in its final form by the person originating the message.[4]

As a result of this developing vocational picture, some level of keyboarding skill has rapidly become a baseline requirement for both professional and non-professional workers. This situation has translated into opportunities for increased employability, higher earnings, and further educational attainment for those with even basic keyboarding skills (Lewis, 1994, p. 29).[3]

School boards are reacting to perceived pressures to "modernize" schools by massive introductions of computers with a solid empirical basis for cost-benefit analyses. Businesses that want to foster employee productivity by developing keyboarding skills are looking for the fastest, most economical way of doing this. Businesses are particularly perplexed because employees can be taught to use computer applications such as word processing or spreadsheet programs in a matter of days. However, it still takes months for an employee to acquire basic keyboarding skills.

Children with spelling difficulties are limited in their participation in all written school activities. This typing test provides a platform to practice spellings as well as a testing platform to check the speed and accuracy of words.

1.1 OBJECTIVE OF THE PROJECT

The main objective of the project is to provide the user with a platform to test their speed and accuracy. And also a place to practice and improve his/her typing skills, learn to type faster with fewer errors, and to practice new different words.

1.2 EXISTING SYSTEM

Existing Systems consist of different typing tests that give words typed per minute, characters typed per minute, accuracy, errors, etc.

1.3 PROBLEM STATEMENT

A typing test is designed to find how fast one types in a given amount of time. We will be designing a typing game using JavaScript that presents a simple typing test and awards points when the correct word is typed in the given time.

Chapter – 2

RELATED STUDY

A. A Comparative Study of Handwriting and Computer Typing in Note-taking by University Students

Taking notes is a common strategy among higher education students, and has been found to affect their academic performance. Nowadays, however, the use of computers is replacing the traditional pencil-and-paper methodology. The present study aims to identify the advantages and disadvantages associated with the use of the computer (typing) and pencil-and-paper (handwriting) for taking notes by college students. A total of 251 social and health science students participated in the study.[1]

Two experimental conditions were chosen: taking notes by hand (n=211) and taking notes by computer (n=40). Those that used computer-written notes performed better on tasks based on reproducing the alphabet, writing sentences, and recognizing words ($p<0.05$). However, those using handwritten notes performed better on free recall tasks ($p<0.05$). Differences between the two conditions were statistically significant rejecting the hypothesis of equality between groups ($X2=60.98$; $p<0.001$). In addition, the discriminant analysis confirmed that 77.3% of students were correctly classified by the experimental conditions. Although the computer allowed for greater velocity when taking notes, handwriting enhanced students' grades when performing memory tasks.[1]

B. Handwriting or Typewriting? The Influence of Pen or Keyboard-Based Writing Training on Reading and Writing Performance in Preschool Children

Digital writing devices associated with the use of computers, tablet PCs, or mobile phones are increasingly replacing writing by hand. It is, however, controversially discussed how writing modes influence reading and writing performance in children at the start of literacy. On the one hand, the easiness of typing on digital devices may accelerate reading and writing in young children, who have less developed sensory-motor skills. On the other hand, the meaningful coupling between action and perception during handwriting, which establishes sensory-motor memory traces, could facilitate written language acquisition.[2]

In order to decide between these theoretical alternatives, for the present study, we developed an intense training program for preschool children attending the German kindergarten with 16 training sessions. Using closely matched letter learning games, eight letters of the German alphabet were trained either by handwriting with a pen on a sheet of paper or by typing on a computer keyboard. Letter recognition, naming, and writing performance as well as word reading and writing performance was assessed. [2]

Results did not indicate a superiority of typing training over handwriting training in any of these tasks. In contrast, handwriting training was superior to typing training in word writing, and, as a tendency, in word reading. The results of our study, therefore, support theories of action-perception coupling assuming a facilitatory influence of sensory-motor representations established during handwriting on reading and writing.[2]

Chapter – 3

REQUIREMENT SPECIFICATION

3.1. INTRODUCTION

1. HTML

HTML stands for Hyper Text Markup Language. HTML uses tags to identify different types of content and the purposes they each serve on the webpage. HTML is at the core of every web page, regardless of the complexity of a site or the number of technologies involved. HTML provides the basic structure of sites, which is enhanced and modified by other technologies like CSS and JavaScript.

2. CSS

CSS stands for Cascading Style Sheets. This programming language dictates how the HTML elements of a website should appear on the frontend of the page.CSS is used to control presentation, formatting, and layout.

3. JavaScript

JavaScript is used to control the behavior of different elements. JavaScript is a logic-based programming language that can be used to modify website content and make it behave in different ways in response to a user's actions. Common uses for JavaScript include confirmation boxes, calls-to-action, and adding new identities to existing information.

3.2. HARDWARE REQUIREMENT SPECIFICATION

Processor: Pentium or higher processor.

RAM: 8 GB

Hard Disk: 1 TB

3.3. SOFTWARE REQUIREMENT SPECIFICATION

OS: Windows

Languages : HTML, CSS, Javascript

Editor: Brackets IDE

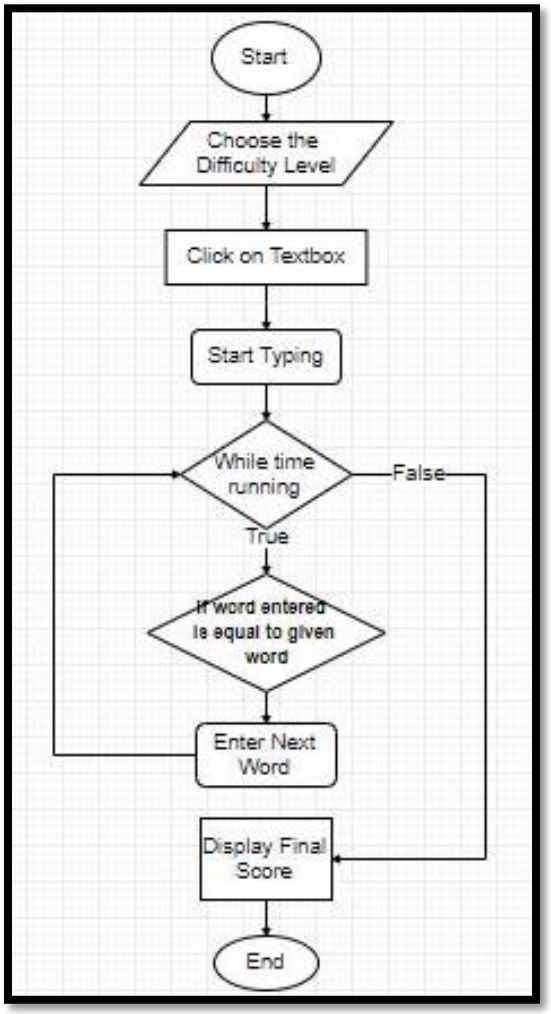
3.3.1. FUNCTIONAL REQUIREMENTS

1. Click on the Website Link.
2. Choose the Difficulty Level: Easy, Medium, and Hard.
3. The timer starts running.
4. A Test Word is displayed to the User.
5. The User has to type the Test Word with the proper case before the time runs out.
6. If the user types the correct word, while the timer is running. He/ She is rewarded with 10 points.
7. Depending on the Difficulty Level, time points are added to the timer.
8. When the time is up, the score of the User is displayed.

Chapter – 4

SYSTEM DESIGN AND MODELING

4.1. Dataflow Diagram



Chapter – 5

IMPLEMENTATION

5.1. Website Application Structure

A web application is just like a normal computer application except that it works over the Internet. The web application architecture describes the interactions between applications, databases, and middleware systems on the web. It ensures that multiple applications work simultaneously. With any typical web application, there are two different codes (sub-programs) running side-by-side. These are:

- Client-side Code - The code that is in the browser and responds to some user input
- Server-side Code - The code that is on the server and responds to the HTTP requests

A combination of CSS, HTML, and JavaScript is used for writing the client-side code. This code is parsed by the web browser.

The server component can be build using one or a combination of several programming languages and frameworks, including Java, .Net, NodeJS, PHP, Python, and Ruby on Rails.

5.2. Programming Languages for Implementation

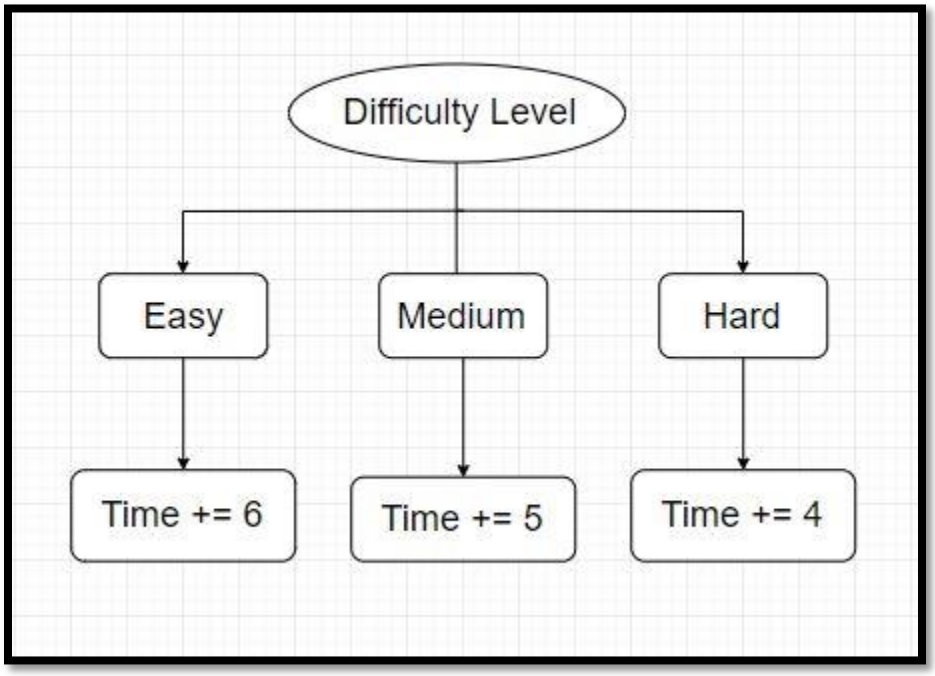
- **HTML** provides the basic structure of sites, which is enhanced and modified by other technologies like CSS and JavaScript.
- **CSS** is used to control presentation, formatting, and layout.
- **JavaScript** is used to control the behavior of different elements.

5.3. DataStructures/ Packages Used

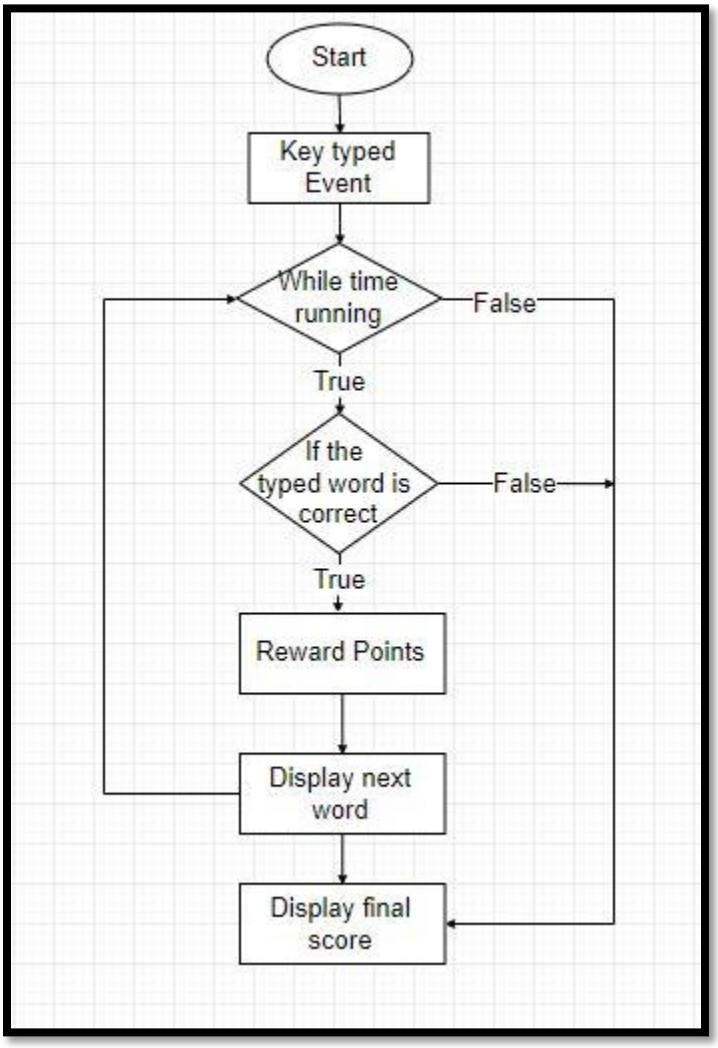
None

5.4. Functional Description of Modules

A. Difficulty Level Module



B. Typed Word Validation module



5.4.1. Module Name

A. Difficulty Level Module

- The user can select the difficulty level of the game: Easy, Medium, and Hard
- Easy Level: The given words to be typed are easy, and on correct word type, 10 points are awarded and the timer is added with 6 seconds.
- Medium Level: The given words to be typed are of medium difficulty level, and on correct word type, 10 points are awarded and the timer is added with 5 seconds.
- Hard Level: The given words to be typed are tough, and on correct word type, 10 points are awarded and the timer is added with 4 seconds.

B. Typed Word Validation Module

- **Getting the current value of the input box**

  The value property of the input text box is used to get the current text typed by the user. This is split into an array of characters to compare with the given word. This is done by addEventListener( ) function.

- **Moving to the next word**

  When the length of the input text along with the characters matches the given word, the addWordToDOM( ) function is called which changes the word and clears the input area.

Chapter – 6

PSEUDOCODE

- **index.html**

```
<!DOCTYPE html>
<html lang="en">
    <head>
                //defining metadata of webpage
        <meta charset="UTF-8" />
        <meta name="viewport" content="width=device-width, initial-scale=1.0" />
        <meta http-equiv="X-UA-Compatible" content="ie=edge" />

                //Linking external sheet – Font Awesome
        <link
        rel="stylesheet"
        href="https://cdnjs.cloudflare.com/ajax/libs/font-awesome/5.11.2/css/all.min.css"
        integrity="sha256-+N4/V/SbAFiW1MPBCXnfnP9QSN3+Keu+NlB+0ev/YKQ="
        crossorigin="anonymous"
        />
                //linking CSS file
        <link rel="stylesheet" href="style.css" />
        <title>Speed Typing Test</title>
    </head>

    <body>
                //creating settings button
        <button id="settings-btn" class="settings-btn">
            <i class="fas fa-cog"></i>
        </button>

                //creating Show Rules button
       <button id="rules-btn" class="btn rules-btn">Show Rules</button>

                //creating Text box area
        <div class="container">
            <h2>🕹💻 Speed Typing Test 🕹💻</h2>
            <small>Type the following:</small>
            <h1 id="word"></h1>
```

```
            <input
                    type="text"
                    id="text"
                    autocomplete="off"
                    placeholder="Type the word here..."
                    autofocus
            />

            <p class="time-container">Time left: <span id="time">10s</span></p>
                <p class="score-container">Score: <span id="score">0</span></p>
            <div id="end-game-container" class="end-game-container"></div>
        </div>

                //linking JS file
    <script src="script.js"></script>
    <script src="./confetti.js"></script>

</body>
</html>
```

- **style.css**

```
*
{
        box-sizing: border-box;
}
body
{
         background-color: #FFD801;
         display: flex;
         align-items: center;
         justify-content: center;
         min-height: 100vh;
         margin: 0;
         font-family: Verdana, Geneva, Tahoma, sans-serif;
}
small
{
        font-size: 14px;
        font-family: monospace;
}
h1
{
        margin: 0;
}
input
{
         border: 0;
         border-radius: 4px;
         font-size: 16px;
         width: 300px;
         padding: 12px 20px;
         margin-top: 10px;
}
button
{
         cursor: pointer;
         font-size: 14px;
         border-radius: 4px;
         padding: 5px 15px;
}
```

```
.container
{
	background-color: #FFF8C6;
	padding: 20px;
	border-radius: 4px;
	box-shadow: 0 3px 5px rgba(0, 0, 0, 0.3);
	color: #7D0552;
	position: relative;
	text-align: center;
	width: 500px;
}
.score-container
{
	position: absolute;
	top: 60px;
	right: 20px;
}
.time-container
{
	position: absolute;
	top: 60px;
	left: 20px;
}
.end-game-container
{
	background-color: inherit;
	display: none;
	align-items: center;
	justify-content: center;
	flex-direction: column;
	position: absolute;
	top: 0;
	left: 0;
	width: 100%;
	height: 100%;
	z-index: 1;
}
```

- **script.js**

```
	// Set difficulty to value in ls or medium
let difficulty = localStorage.getItem('difficulty') !== null ? localStorage.getItem('difficulty') : .
	'medium';

	// Set difficulty select value
difficultySelect.value =
	 localStorage.getItem('difficulty') !== null ? localStorage.getItem('difficulty') : 'medium';

	// Focus on text on start
text.focus();
function getRandomWord( )
{
	if(difficulty === 'easy')
	{
		return ewords[Math.floor(Math.random() * ewords.length)];
	}
	else if (difficulty === 'medium' )
	{
		return mwords[Math.floor(Math.random() * mwords.length)];
	}
	else if (difficulty === 'hard')
	{
		return hwords[Math.floor(Math.random() * hwords.length)];
	}

}
	// Add word to DOM
function addWordToDOM()
{
	randomWord = getRandomWord();
	word.innerHTML = randomWord;
}

	// Update score
function updateScore()
{
	score += 10;
	scoreEl.innerHTML = score;
}
```

```
	// Update time
function updateTime()
{
	time--;
	timeEl.innerHTML = time + 's';
	if (time === 0)
	{
		clearInterval(timeInterval);
			// end game
		gameOver();
	}
}

// Game over, show end screen
function gameOver()
{
	endgameEl.innerHTML =
	`
		<h1>Time ran out</h1>
		<p>Your final score is ${score}</p>
		<button onclick="location.reload()">Reload</button>
	`;

	endgameEl.style.display = 'flex';
	confetti.start();
}
```

Chapter – 7

OUTPUT SCREENSHOTS

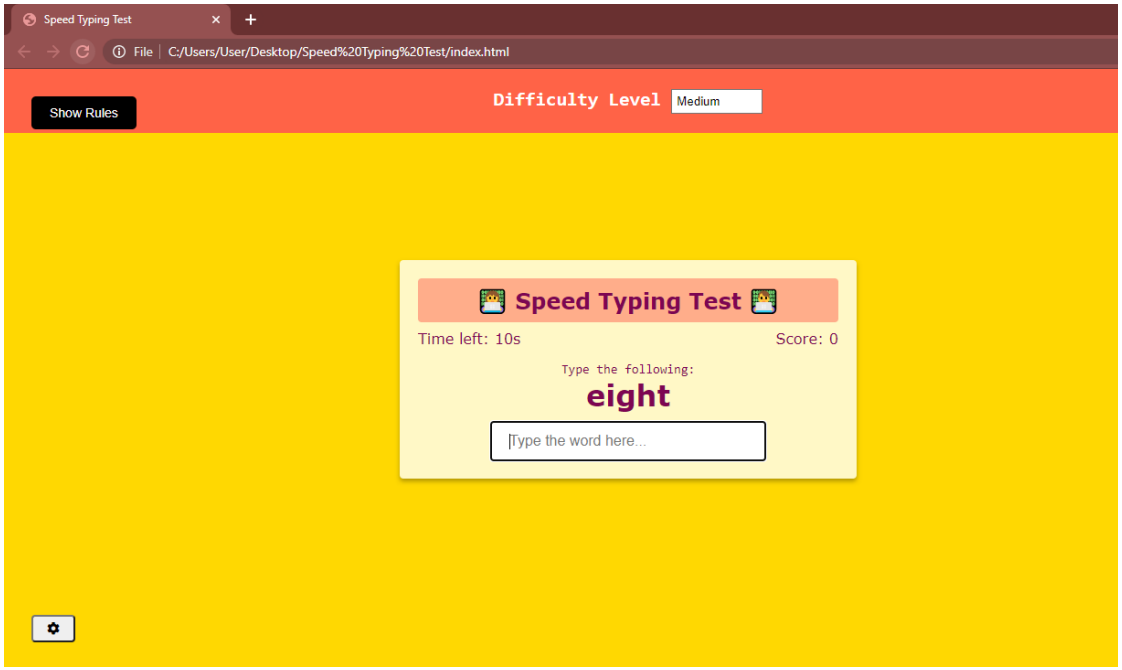


Fig 7.1. Initial Display on clicking the html file

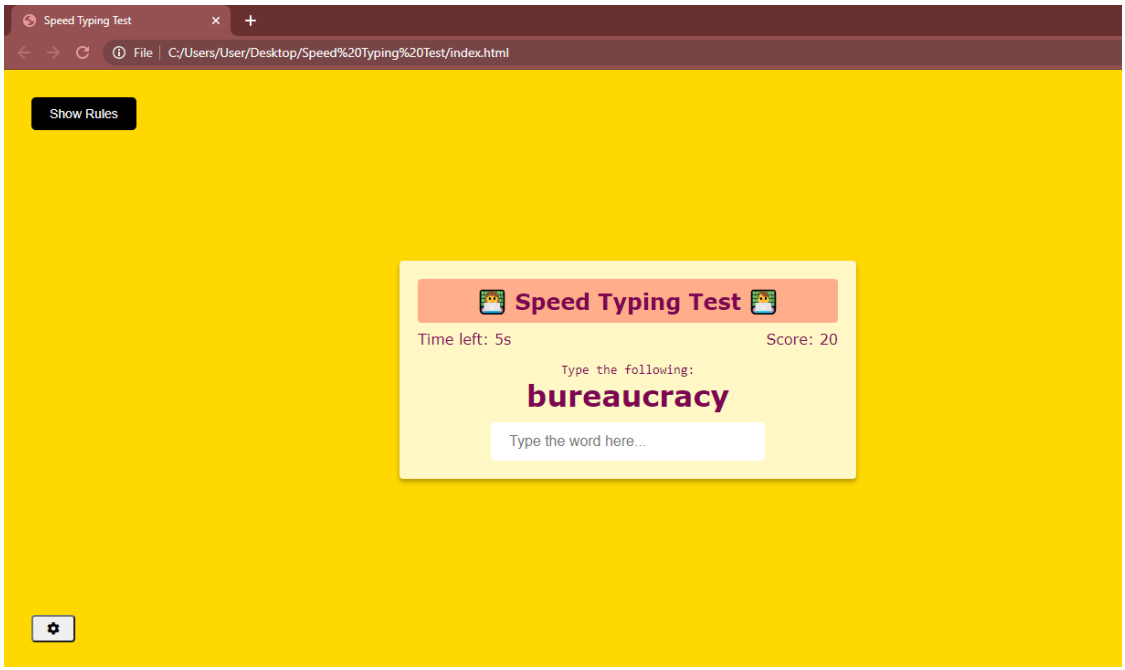


Fig 7.2. On clicking Settings button

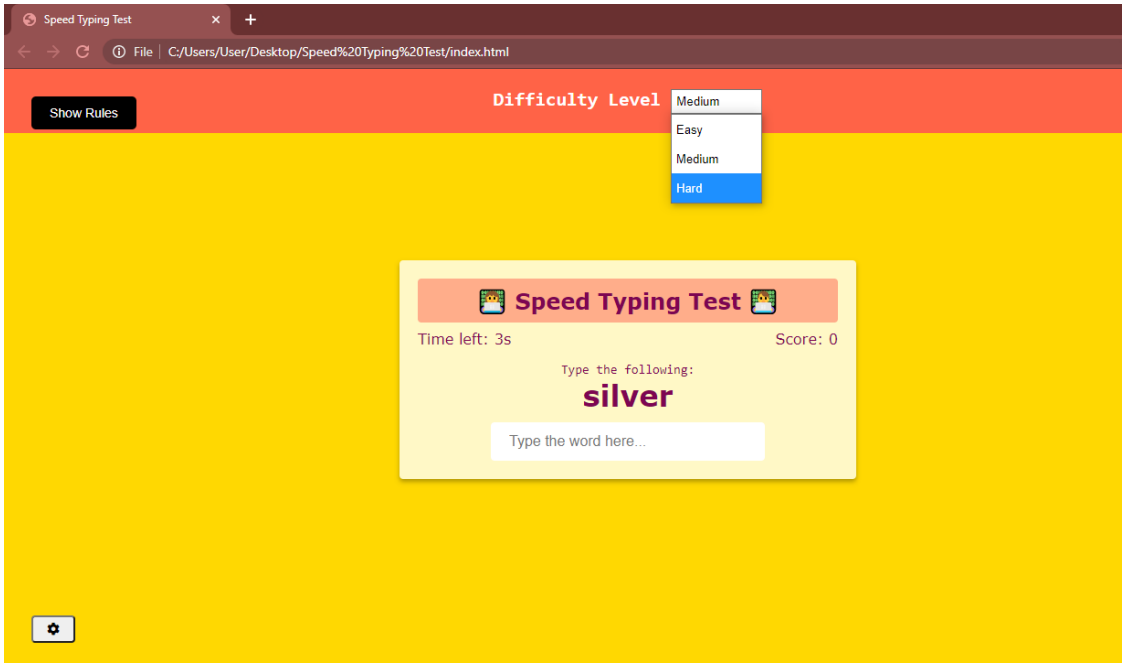


Fig 7.3. Selecting the Difficulty Level

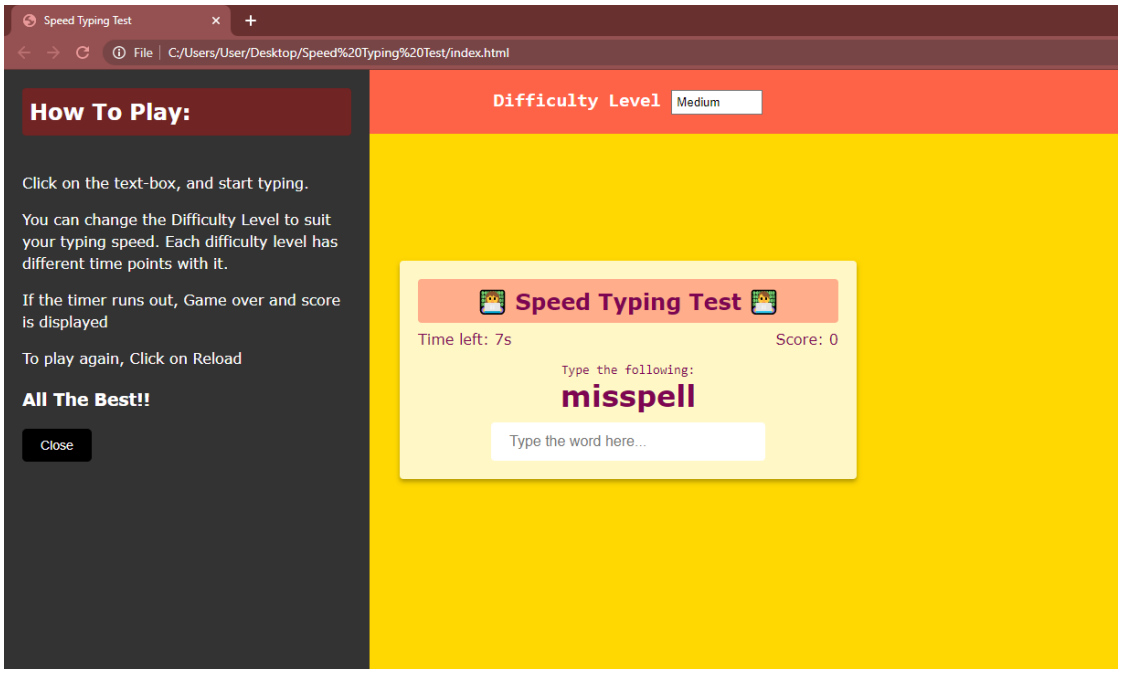


Fig 7.4. Clicking on Show Rules Button

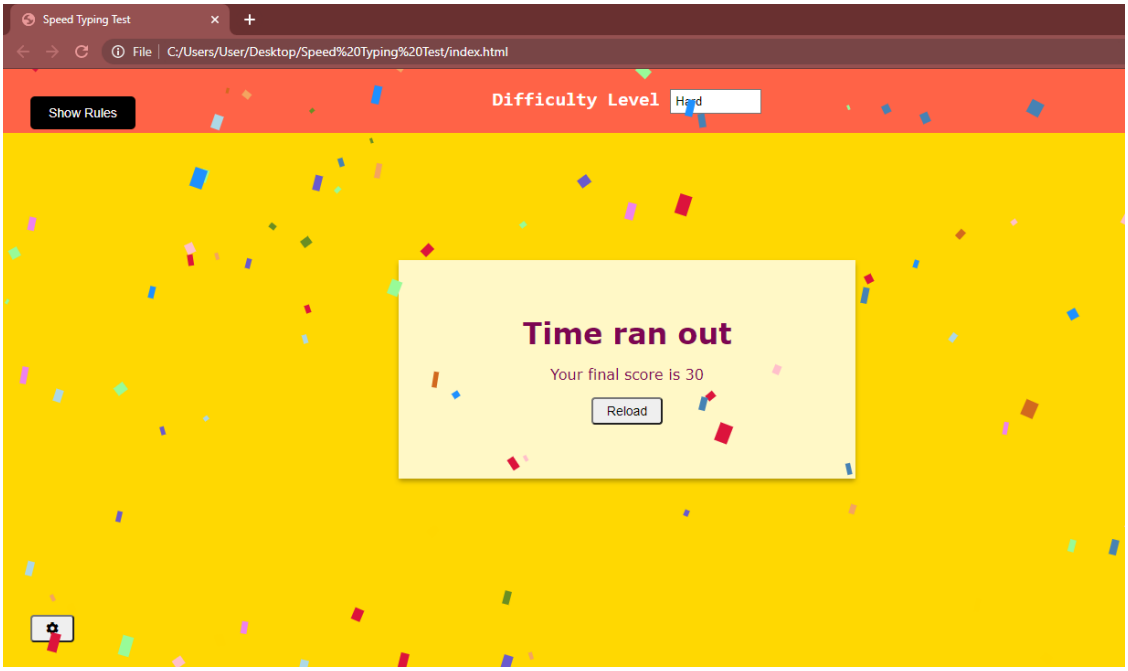


Fig 7.5. Game Over

Chapter - 8

INFERENCE FROM RESULT

From the results, it can be concluded that beginners can easily type the words with average speed in an easy level, when the difficulty is increased, they might have a tough time to type the given words in the given time. They can come back and practice more thoroughly so as to improve their speed. Users who follow 10-finger method, will easily type the given words and get a high score.

Chapter – 9

CONCLUSION AND FUTURE ENHANCEMENTS

9.1. Conclusion

The Speed typing test is designed to test the typing speed of the user with the least error and high accuracy. It is created for recreational purposes. For every correct word typed, the user is rewarded with points and time points are added to the timer. In this project, the user is provided with a platform their speed and accuracy and also a place to practice and improve his/her typing skills, learn to type faster with fewer errors, and to practice new different words.

9.2. Future Enhancements

The game can be added with a few features like counting the Number of correct typed words, Number of errors, Number of words typed per minute (WPM), Number of characters typed per minute(CPM).

Chapter – 10

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[2] Grierson, R. (1985, November). Mission: Define computer literacy. The Computing Teacher. pp. 10 - 14.