### **Words Per Minute Calculator**

#### A MINI-PROJECT REPORT

Submitted by

**NITHISH RAO P - 220701188** 

in partial fulfillment of the award of the degree

of

# BACHELOR OF ENGINEERING IN

#### COMPUTER SCIENCE AND ENGINEERING



# RAJALAKSHMI ENGINEERING COLLEGE AUTONOMOUS, CHENNAI NOV/DEC, 2024

#### **BONAFIDE CERTIFICATE**

Certified that this project report "WORDS PER MINUTE CALCULATOR" is the bonafide work of "NITHISH RAO P (220701188)" who carried out the project work under my supervision.

#### **SIGNATURE**

Mrs.JANANEE.V Assistant Professor, Computer Science and Engineering, Rajalakshmi Engineering College (Autonomus) Thandalam, Chennai - 602 105.

**INTERNAL EXAMINER** 

**EXTERNAL EXAMINER** 

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NITHISH RAO P

2116220701188

#### **ABSTRACT**

This project aims to develop a Word Per Minute (WPM) calculator using React, with user authentication, customizable features, and performance tracking. The application allows users to log in and track their typing speed every time they complete a WPM test. A leaderboard will be implemented, ranking users based on their highest WPM scores, fostering competition and engagement.

The website will support customization, allowing users to adjust the design elements and configure the word set used for each test, providing a tailored and dynamic user experience. This mini-project showcases the integration of real-time data tracking, user management, and a customizable interface in a modern web application.

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#### Introduction

#### 1.1 Introduction

The WPM (Words Per Minute) Calculator project is a web application built using React that measures typing speed and tracks user performance over time. The platform is designed to engage users through a customizable and competitive environment. It offers user authentication, allowing individuals to log in, personalize their experience, and keep track of their typing progress. The leaderboard feature ranks users based on their typing speed, fostering a competitive atmosphere. Additionally, users can configure the word sets for the test, offering more flexibility in practice. This project demonstrates the effective use of modern web technologies to create an interactive, engaging, and personalized user experience.

#### 1.2 Scope Of The Work

The scope of work for the typing test project encompasses creating a user-friendly and engaging platform for users to improve their typing speed and accuracy. This includes implementing a secure login system with data storage for tracking user performance across multiple sessions. The core functionality involves a WPM (Words Per Minute) calculation module that provides real-time feedback on typing speed and accuracy, along with customizable test configurations to suit various skill levels. Additionally, a dynamic leaderboard encourages competition by ranking users based on their top scores, and a statistics page tracks historical performance, motivating users through progress visualization. The project also incorporates theme customization options, enabling users to personalize the interface. Finally, ensuring the application is responsive and accessible across devices and implementing robust security measures will support a seamless experience and safeguard user data, making the platform scalable for a growing user base.

#### 1.3 Objective

WPM Calculation: Provide an accurate and user-friendly calculator to measure typing speed.

User Authentication: Implement login functionality to allow users to track their performance over multiple sessions.

Performance Tracking: Store and display users' past WPM scores, allowing them to monitor their progress over time.

Leaderboard System: Foster competition by ranking users based on their highest WPM scores.

Customization: Enable users to personalize the website's interface and configure the word sets for typing tests.

Responsive Design: Ensure the website is responsive and functions well on a variety of devices.

#### **System Specifications**

#### 2.1 Hardware Requirements

- Server: The WPM Calculator requires a server with an Intel i5 processor (or equivalent), 8 GB of RAM or higher, and 250 GB of SSD storage to efficiently manage the application's data and ensure fast, reliable user experiences. The SSD storage provides quick read/write speeds that benefit the database and application deployment. A high-speed internet connection is also essential to handle multiple users accessing the platform simultaneously, ensuring that real-time features, like live leaderboard updates and WPM tracking, are responsive and efficient.
- Client Device (User): Users can access the application from devices with basic specifications, including any modern processor, a minimum of 2 GB of RAM, and a screen resolution of at least 1024x768 pixels. For an optimal experience, a broadband internet connection is recommended to support real-time data retrieval and update features. This configuration ensures that users can access the application seamlessly on desktop, tablet, or mobile devices, enabling responsive performance regardless of device type.

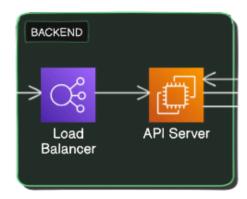
#### 2.2 Software Requirements

- Front-End: The user interface is developed using React.js for dynamic component rendering, while HTML5 and CSS3 define the structure and style, respectively. JavaScript handles interactive components, providing users with a smooth, real-time typing experience. These technologies combine to create a responsive, user-friendly interface that adapts across different screen sizes and devices, ensuring consistency in appearance and functionality.
- Back-End: Node.js, combined with Express.js, powers the server-side logic and handles RESTful API requests, enabling smooth data communication between the front-end and back-end. SQL-based databases, such as MySQL or PostgreSQL.

# CHAPTER 3 Architecture Diagram













eraser

### **Module Description**

#### 4.1. Authentication Module

The Authentication Module handles all aspects of user account management, from initial registration to secure login and logout processes. It authenticates users by verifying their credentials and manages session data to ensure consistent access across multiple sessions. Once authenticated, the module associates each user with a unique identifier that links to their personal data, such as WPM scores and progress history. This enables users to log in from any device and track their typing statistics over time. The module also includes security features, such as password encryption and session expiration, to protect user data and maintain the integrity of the system.

#### 4.2. WPM Calculation Module

This module measures typing speed in words per minute (WPM) by continuously tracking the user's input and timing the duration of the typing test. It provides real-time feedback on both speed an0d accuracy, highlighting errors and calculating WPM dynamically as users type. To enhance the learning experience, the module displays indicators such as typing speed and error rate, helping users identify areas for improvement instantly. The WPM Calculation Module plays a key role in creating a motivating and interactive environment by offering immediate performance metrics that encourage users to practice and enhance their typing skills.

#### 4.3. Leaderboard Module

The Leaderboard Module ranks users based on their top WPM scores, fostering a sense of competition and community among users. This module continuously updates as new scores are recorded, ensuring that users can see their position relative to others in real-time. The leaderboard can be filtered by various criteria, such as daily, weekly, or all-time high scores, allowing users to track their standing on different levels. This feature not only motivates users to improve their typing speed but also promotes engagement by encouraging friendly competition.

#### 4.4. Customization Module

To enhance user experience, the Customization Module provides options for adjusting the website's appearance and configuration of typing tests. Users can personalize the interface by selecting from various themes and layouts, making it visually appealing and suited to individual preferences. Additionally, users can set up custom word lists or select difficulty levels for typing tests, tailoring the test content to their skill level or specific learning goals. This flexibility enables users to create a comfortable and personalized environment, promoting longer engagement and a more enjoyable experience.

#### 4.5.Performance Tracking Module

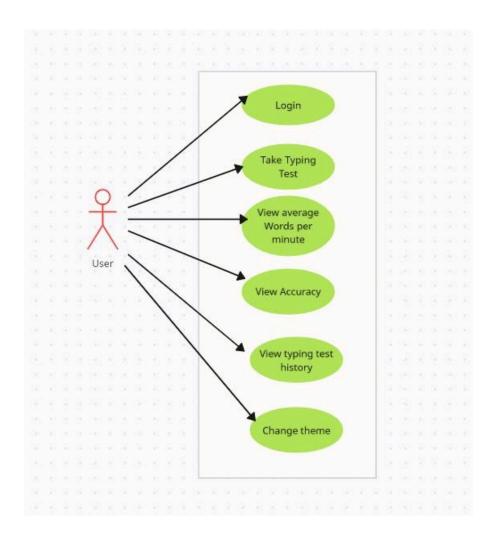
The Performance Tracking Module records users' past typing test results and compiles historical data on their WPM scores, accuracy, and improvement trends. Users can view detailed performance analytics, such as average WPM, highest and lowest scores, and trends over time. This module provides users with insights into their progress and typing patterns, helping them set realistic goals and monitor their development. By offering a visual history of their achievements, the module motivates users to continue practicing and improving their typing abilities.

#### 4.6. Responsive UI Module

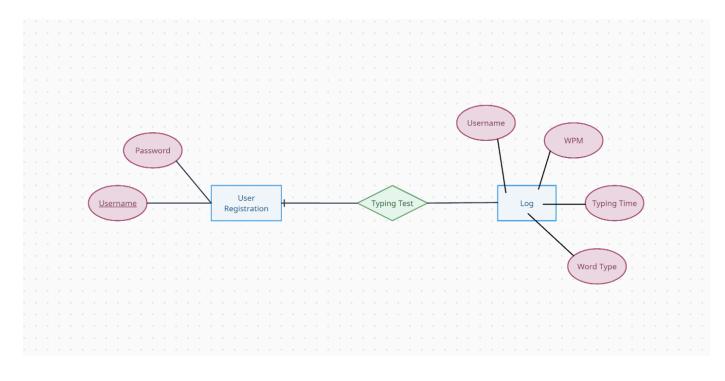
This module ensures that the WPM Calculator application is optimized for various screen sizes and devices, including desktops, tablets, and smartphones. The Responsive UI Module dynamically adjusts the layout and interface elements to provide an intuitive and accessible experience, regardless of device type. This adaptability makes the application widely accessible and usable on different devices, enhancing the user experience by maintaining a consistent look and feel across platforms. The module leverages responsive design principles to make sure the application remains functional, easy to navigate, and visually appealing for all users.

### **SYSTEM DESIGN**

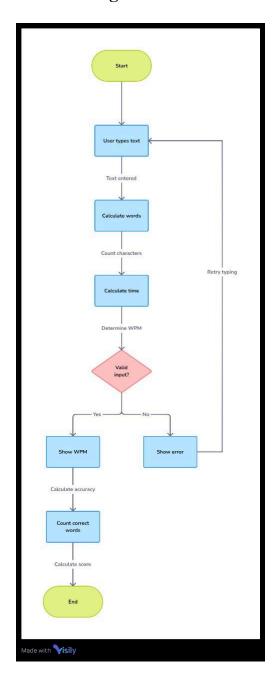
## 5.1 Use Case Diagram



# 5.2 ER Diagram



# 5.3 Data Flow Diagram



# **CHAPTER 6 Sample Coding**

```
Index.php
<?php
session start(); // Start the session
// Check if a username exists in the session
if (isset($ SESSION['username'])) {
  // If the username is set, the button will link to profile.php and show "Profile"
  $user = $ SESSION['username'];
} else {
  // If no username, the button will link to login.html and show "Login"
  $user = "Guest";
}
if (isset($ SESSION['wpm'])) {
 $wpm = $ SESSION['wpm'];
} else {
 pm = 0; // Default to 0 if not set
if (isset($ SESSION['accuracy'])) {
 $accuracy = $_SESSION['accuracy'];
} else {
 accuracy = 0; // Default to 0 if not set
```

?>

#### Index.html

```
<!DOCTYPE html>
<html lang="en">
<head>
 <meta charset="UTF-8"/>
 <meta name="viewport" content="width=device-width, initial-scale=1.0" />
 <meta http-equiv="X-UA-Compatible" content="ie=edge" />
 <title>typings</title>
 <meta name="description" content="typings.gg is a sleek and modern typing test</pre>
website. it support many custom themes" />
 <link rel="stylesheet" href="style.css" />
 <link id="theme" rel="stylesheet" href="themes/light.css" />
 <link id="theme" rel="stylesheet" href="index.css" />
</head>
<body>
<div class="button-container">
  <!-- 1st button - redirects to index.php -->
  <button title="Home Page" class="button"</pre>
onclick="window.location.href='index.php';">
    <svg
      class="bi bi-person-fil"
      stroke="currentColor"
      fill="currentColor"
      stroke-width="0"
      viewBox="0 0 1024 1024"
      height="1em"
      width="1em"
     xmlns="http://www.w3.org/2000/svg">
      <path
```

```
d="M946.5 505L560.1 118.8l-25.9-25.9a31.5 31.5 0 0 0-44.4 0L77.5
505a63.9 63.9 0 0 0-18.8 46c.4 35.2 29.7 63.3 64.9
63.3h42.5V940h691.8V614.3h43.4c17.1 0 33.2-6.7 45.3-18.8a63.6 63.6 0 0 0
18.7-45.3c0-17-6.7-33.1-18.8-45.2zM568
868H456V664h112v204zm217.9-325.7V868H632V640c0-22.1-17.9-40-40-40H432c
-22.1 0-40 17.9-40 40v228H238.1V542.3h-96l370-369.7 23.1 23.1L882
542.3h-96.1z"></path>
    </svg>
  </button>
  <!-- 2nd button - triggers showThemeCenter function -->
  <button title="Themes" class="button" onclick="showThemeCenter();">
  <svg xmlns="http://www.w3.org/2000/svg" height="1em" width="1em"</pre>
stroke="currentColor" fill="currentColor" viewBox="0 0 512 512"><path d="M512">
256c0 .9 0 1.8 0 2.7c-.4 36.5-33.6 61.3-70.1 61.3L344 320c-26.5 0-48 21.5-48 48c0
3.4 .4 6.7 1 9.9c2.1 10.2 6.5 20 10.8 29.9c6.1 13.8 12.1 27.5 12.1 42c0 31.8-21.6
60.7-53.4 62c-3.5 .1-7 .2-10.6 .2C114.6 512 0 397.4 0 256S114.6 0 256 0S512 114.6
512 256zM128 288a32 32 0 1 0 -64 0 32 32 0 1 0 64 0zm0-96a32 32 0 1 0 0-64 32 32
0 1 0 0 64zM288 96a32 32 0 1 0 -64 0 32 32 0 1 0 64 0zm96 96a32 32 0 1 0 0-64 32
32 0 1 0 0 64z"/></svg>
  </button>
  <!-- 3rd button - redirects to profile.php -->
  <button class="button" onclick="window.location.href='profile.php';">
   <svg
    class="icon"
    stroke="currentColor"
    fill="currentColor"
    stroke-width="0"
    viewBox="0 0 24 24"
    height="1em"
    width="1em"
    xmlns="http://www.w3.org/2000/svg">
    <path
```

```
d="M12 2.5a5.5 5.5 0 0 1 3.096 10.047 9.005 9.005 0 0 1 5.9 8.181.75.75 0 1
1-1.499.044 7.5 7.5 0 0 0-14.993 0 .75.75 0 0 1-1.5-.045 9.005 9.005 0 0 1
5.9-8.18A5.5 5.5 0 0 1 12 2.5ZM8 8a4 4 0 1 0 8 0 4 4 0 0 0-8 0Z"></path>
   </svg>
  </button>
    <!-- Leaderboard Button - redirects to leaderboard.php -->
<button class="button" onclick="window.location.href='leaderboard.php';">
  <svg xmlns="http://www.w3.org/2000/svg" height="24px" viewBox="0 -960 960</pre>
960" width="24px" fill="#e8eaed">
  <path d="M160-200h160v-320H160v320Zm240 0h160v-560H400v560Zm240</pre>
0h160v-240H640v240ZM80-120v-480h240v-240h320v320h240v400H80Z"/>
 </svg>
</button>
  <!-- 4th button - redirects to logout.php -->
  <button class="button" onclick="window.location.href='login.html';">
  <svg xmlns="http://www.w3.org/2000/svg" width="16" height="16"</pre>
fill="currentColor" class="bi bi-box-arrow-left" viewBox="0 0 16 16">
 <path fill-rule="evenodd" d="M6 12.5a.5.5 0 0 0 .5.5h8a.5.5 0 0 0 .5-.5v-9a.5.5 0 0</pre>
0-.5-.5h-8a.5.5 0 0 0-.5.5v2a.5.5 0 0 1-1 0v-2A1.5 1.5 0 0 1 6.5 2h8A1.5 1.5 0 0 1 16
3.5v9a1.5 1.5 0 0 1-1.5 1.5h-8A1.5 1.5 0 0 1 5 12.5v-2a.5.5 0 0 1 1 0z"/>
 <path fill-rule="evenodd" d="M.146 8.354a.5.5 0 0 1 0-.708l3-3a.5.5 0 1 1</pre>
.708.708L1.707 7.5H10.5a.5.5 0 0 1 0 1H1.707l2.147 2.146a.5.5 0 0 1-.708.708z"/>
</svg>
  </button>
</div>
 <h2 id="header">Welcome <?php echo $user; ?></h2>
 <div id="command-center" class="">
  <div class="bar">
```

```
<div id="left-wing">
    <span id="word-count">
     <span id="wc-10" onclick="setWordCount(10)">10</span>
     <text> / </text>
     <span id="wc-25" onclick="setWordCount(25)">25</span>
     <text> / </text>
     <span id="wc-50" onclick="setWordCount(50)">50</span>
     <text> / </text>
     <span id="wc-100" onclick="setWordCount(100)">100</span>
     <text> / </text>
     <span id="wc-250" onclick="setWordCount(250)">250</span>
    </span>
    <span id="time-count">
     <span id="tc-15" onclick="setTimeCount(15)">15</span>
     <text> / </text>
     <span id="tc-30" onclick="setTimeCount(30)">30</span>
     <text> / </text>
     <span id="tc-60" onclick="setTimeCount(60)">60</span>
     <text> / </text>
     <span id="tc-120" onclick="setTimeCount(120)">120</span>
     <text> / </text>
     <span id="tc-240" onclick="setTimeCount(240)">240</span>
    </span>
   </div>
   <div id="right-wing">WPM: <?php echo $wpm; ?> / ACC: <?php echo</pre>
$accuracy; ?></div>
  </div>
  <div id="typing-area">
   <div id="text-display"></div>
   <div class="bar">
    <input id="input-field" type="text" spellcheck="false" autocomplete="off"</pre>
autocorrect="off" autocapitalize="off" tabindex="1" />
    <button id="redo-button" onclick="setText(event)" tabindex="2">redo</button>
   </div>
  </div>
 </div>
```

#### Leaderboard.php

```
<?php
// Database connection (replace with your connection details)
$servername = "localhost";
$username = "root"; // or your SQL username
$password = ""; // or your SQL password
$dbname = "typewriting_test_db"; // replace with your database name

// Create connection
$conn = new mysqli($servername, $username, $password, $dbname);

// Check connection
if ($conn->connect_error) {
    die("Connection failed: " . $conn->connect_error);
}
```

```
// SQL query to fetch leaderboard data
$sql = "SELECT username, wpm, accuracy
    FROM leaderboard
    WHERE accuracy > 90
    ORDER BY wpm DESC";
$result = $conn->query($sql);
?>
Leaderboard.html
<!DOCTYPE html>
<html lang="en">
<head>
  k rel="preconnect" href="https://fonts.googleapis.com" />
  k rel="preconnect" href="https://fonts.gstatic.com" crossorigin />
  <meta charset="UTF-8" />
  <meta name="viewport" content="width=device-width, initial-scale=1.0" />
  <script src="https://unpkg.com/@phosphor-icons/web"></script>
  link
href="https://fonts.googleapis.com/css2?family=Rubik:wght@400;500&display=swa
p"
    rel="stylesheet" />
  k id="theme" rel="stylesheet" href="leaderboard.css" />
</head>
<body>
<div class="button-container">
  <!-- 1st button - redirects to index.php -->
  <button title="Home Page" class="button"</pre>
onclick="window.location.href='index.php';">
     <svg
```

```
class="bi bi-person-fil"
     stroke="currentColor"
     fill="currentColor"
     stroke-width="0"
     viewBox="0 0 1024 1024"
     height="1em"
     width="1em"
     xmlns="http://www.w3.org/2000/svg">
      d="M946.5 505L560.1 118.8l-25.9-25.9a31.5 31.5 0 0 0-44.4 0L77.5
505a63.9 63.9 0 0 0-18.8 46c.4 35.2 29.7 63.3 64.9
63.3h42.5V940h691.8V614.3h43.4c17.1 0 33.2-6.7 45.3-18.8a63.6 63.6 0 0 0
18.7-45.3c0-17-6.7-33.1-18.8-45.2zM568
868H456V664h112v204zm217.9-325.7V868H632V640c0-22.1-17.9-40-40-40H432c
-22.1 0-40 17.9-40 40v228H238.1V542.3h-96l370-369.7 23.1 23.1L882
542.3h-96.1z"></path>
    </svg>
  </button>
  <!-- 3rd button - redirects to profile.php -->
  <button class="button" onclick="window.location.href='profile.php';">
   \leqsvg
    class="icon"
    stroke="currentColor"
    fill="currentColor"
    stroke-width="0"
    viewBox="0 0 24 24"
    height="1em"
    width="1em"
    xmlns="http://www.w3.org/2000/svg">
    <path
```

```
d="M12 2.5a5.5 5.5 0 0 1 3.096 10.047 9.005 9.005 0 0 1 5.9 8.181.75.75 0 1
1-1.499.044 7.5 7.5 0 0 0-14.993 0 .75.75 0 0 1-1.5-.045 9.005 9.005 0 0 1
5.9-8.18A5.5 5.5 0 0 1 12 2.5ZM8 8a4 4 0 1 0 8 0 4 4 0 0 0-8 0Z"></path>
   </svg>
  </button>
    <!-- Leaderboard Button - redirects to leaderboard.php -->
<button class="button" onclick="window.location.href='leaderboard.php';">
  <svg xmlns="http://www.w3.org/2000/svg" height="24px" viewBox="0 -960 960</pre>
960" width="24px" fill="#e8eaed">
  <path d="M160-200h160v-320H160v320Zm240 0h160v-560H400v560Zm240</pre>
0h160v-240H640v240ZM80-120v-480h240v-240h320v320h240v400H80Z"/>
 </svg>
</button>
  <!-- 4th button - redirects to logout.php -->
  <button class="button" onclick="window.location.href='login.html';">
  <svg xmlns="http://www.w3.org/2000/svg" width="16" height="16"</pre>
fill="currentColor" class="bi bi-box-arrow-left" viewBox="0 0 16 16">
 <path fill-rule="evenodd" d="M6 12.5a.5.5 0 0 0 .5.5h8a.5.5 0 0 0 .5-.5v-9a.5.5 0 0</pre>
0-.5-.5h-8a.5.5 0 0 0-.5.5v2a.5.5 0 0 1-1 0v-2A1.5 1.5 0 0 1 6.5 2h8A1.5 1.5 0 0 1 16
3.5v9a1.5 1.5 0 0 1-1.5 1.5h-8A1.5 1.5 0 0 1 5 12.5v-2a.5.5 0 0 1 1 0z"/>
 <path fill-rule="evenodd" d="M.146 8.354a.5.5 0 0 1 0-.708l3-3a.5.5 0 1 1</pre>
.708.708L1.707 7.5H10.5a.5.5 0 0 1 0 1H1.707l2.147 2.146a.5.5 0 0 1-.708.708z"/>
</svg>
  </button>
</div>
  <main>
  <div id="header">
    <br>
    <h1>Ranking</h1>
     <button class="share">
       <i class="ph ph-share-network"></i>
    </button>
```

```
<div id="leaderboard">
    <div class="ribbon"></div>
    <?php
      // Check if there are any results
      if (\$result->num rows > 0) {
        // Output data for each row
        $rank = 1; // Initialize rank counter
        while ($row = $result->fetch assoc()) {
          echo "";
          echo "" . $rank . "";
          echo "" . htmlspecialchars($row['username']) . "";
          echo "" . htmlspecialchars($row['wpm']) . "";
          echo "";
          $rank++; // Increment rank counter
        }
      } else {
        echo "No data available";
      ?>
    <div id="buttons">
      <button class="exit">Exit</button>
      <button class="continue">Continue</button>
    </div>
  </div>
</main>
<?php
// Close the database connection
```

</div>

```
$conn->close();
?>
</body>
</html>
```

#### Login.html

```
<html>
  <link id="theme" rel="stylesheet" href="login.scss" />
<div class="wrapper">
  <div class="card-switch">
    <label class="switch">
       <input type="checkbox" class="toggle">
       <span class="slider"></span>
       <span class="card-side"></span>
       <div class="flip-card inner">
         <div class="flip-card front">
            <div class="title">Log in</div>
            <form class="flip-card form" action="loginaction.php"
method="POST">
              <input class="flip-card input" name="loginemail"</pre>
placeholder="Username" type="name">
              <input class="flip-card input" name="loginpassword"</pre>
placeholder="Password" type="password">
              <button type="submit" class="flip-card btn">Let`s go!</button>
            </form>
         </div>
         <div class="flip-card back">
            <div class="title">Sign up</div>
```

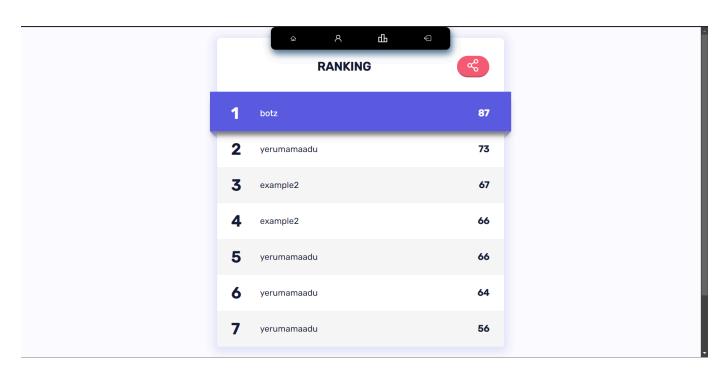
```
<form class="flip-card form" action="signupaction.php"</pre>
method="POST">
              <input class="flip-card input" name="signupname"</pre>
placeholder="Name" type="name">
              <input class="flip-card__input" name="signupemail"</pre>
placeholder="Email" type="email">
              <input class="flip-card input" name="signuppassword"</pre>
placeholder="Password" type="password">
              <button type="submit" class="flip-card btn">Confirm!</button>
            </form>
         </div>
       </div>
    </label>
  </div>
</div>
</html>
```

# **CHAPTER 7 Screenshots**

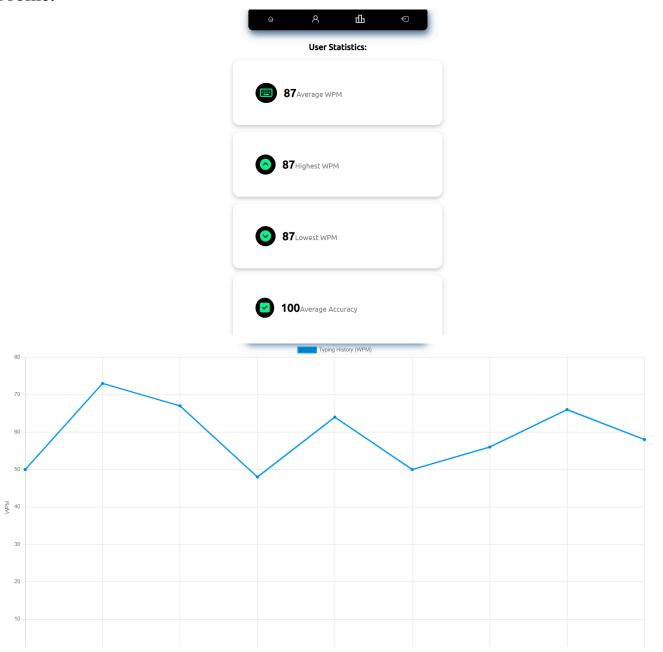
# **Main Page**

Welcome botz  10 / 25 / 50 / 100 / 250 WPM: 58 / ACC: 86
<u>10</u> / 25 / 50 / 100 / 250 WPM: 58 / ACC: 86
<u>10</u> / 25 / 50 / 100 / 250 WPM: 58 / ACC: 86
develop right give of here very group lead mean number
redo

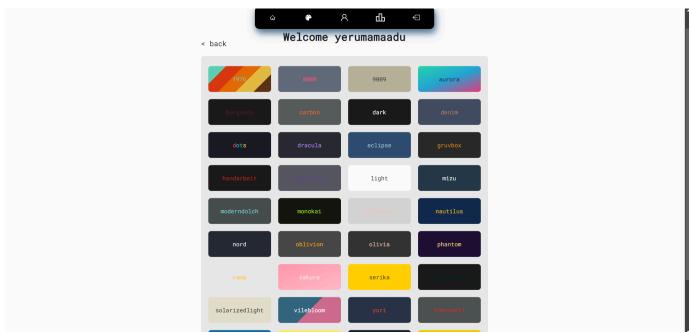
## Leaderboard.php



### **Profile:**



### Themes:



#### **Conclusion**

In conclusion, the Typewriting Test project has successfully developed a comprehensive and user-centered platform that promotes skill improvement in typing speed and accuracy through an engaging and interactive experience. The project effectively combines multiple modules to provide users with a seamless journey from registration to real-time WPM calculation, allowing them to track their typing progress over time. By integrating a secure and structured authentication system, users can confidently store and retrieve their data, such as WPM scores and test histories, across sessions. The addition of real-time performance feedback allows users to instantly gauge their typing accuracy and speed, empowering them to identify areas for improvement as they type. Furthermore, the customizable typing test options provide flexibility, accommodating users of all skill levels with features like adjustable word sets, themed layouts, and difficulty levels. This adaptability fosters an enjoyable and tailored experience, ensuring that users can challenge themselves while tracking progress on a personalized path. A dynamic leaderboard system adds an element of competition by ranking users based on their highest WPM scores, which encourages friendly competition and motivates continuous practice. Additionally, the Performance Tracking Module presents valuable insights into users' progress, visually illustrating WPM trends, averages, and improvement over time, thus providing a clear perspective on their skill development. The responsive design of the platform further enhances its usability by ensuring compatibility with various devices, allowing users to practice anytime, anywhere. The project has emphasized a secure, scalable architecture, making the platform resilient and capable of accommodating a growing user base with future scalability in mind. This ensures that the typing test platform will continue to provide a consistent, reliable, and engaging experience for all users as it evolves. Ultimately, the Typewriting Test project stands as a holistic tool for improving typing proficiency, combining technical robustness with user-centric design to support users in achieving their typing goals while maintaining an intuitive and competitive environment.

# CHAPTER 9 References

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