Typing Speed Test Game Documentation

Overview

This Typing Speed Test game is designed to help users develop their typing skills. The game displays a random sentence, and the user must type it as fast as they can. The game calculates and displays the user's typing speed in words per minute (WPM). The application is built using the Flask framework for the backend and HTML, CSS, and JavaScript for the frontend.

Architecture

The application's architecture is divided into the following components:

Backend (Flask):

- Handles routing and logic.
- Manages the game data (sentences) and processes the results.
- Provides endpoints for the game and result pages.

Frontend (HTML, CSS, JavaScript):

- Displays the game interface and results.
- Handles user interactions and form submissions.
- Communicates with the backend to retrieve and submit data.

Static Files:

- static/css/style.css: Contains the styling for the application.
- static/js/main.js: Contains the JavaScript functions for the game logic and navigation.

Templates:

- templates/index.html: The homepage with the "Start Game" button.
- templates/game.html: The game interface where the user types the sentence.
- templates/result.html: Displays the user's typing speed and results.

Directory Structure

game-based-learning/

- static/

    css/

        style.css

    js/

        main.js

- templates/

  index.html

  game.html

  result.html

- app.py
- requirements.txt

Game Design

- ➢ Objective: Improve the user's typing speed by having them type random sentences as quickly as possible.
- ➢ Game Flow:
  - The user navigates to the homepage and clicks the "Start Game" button.
  - The game page displays a random sentence for the user to type.
  - The user starts typing, and the time is recorded from the moment they start.
  - Once the user finishes typing and submits their result, the time taken is calculated.
  - The user's typing speed in words per minute (WPM) is calculated and displayed on the result page.
- ➢ Game Interface:
  - The game page displays the sentence to type and a text area for the user's input.
  - A "Submit Results" button is provided to submit the user's input and time taken.

Educational Content Integration

Sentences: The game uses a predefined list of sentences. These sentences are chosen to be varied and meaningful to provide a better learning experience. They include common phrases and motivational quotes to keep the user engaged.

Adaptive Learning Algorithms

- ➢ Basic Implementation:
  - Currently, the game does not have advanced adaptive learning algorithms. However, it could be extended to include adaptive difficulty based on the user's performance.
  - For example, if a user consistently types sentences quickly and accurately, the game could provide longer or more complex sentences to increase the difficulty.
- ➢ Future Enhancements:
  - Performance Tracking: Track the user's typing speed over multiple sessions to identify improvement trends.

- Personalized Sentences: Adapt the sentences based on the user's performance. For example, if a user struggles with certain types of words, the game could include more sentences with those words to provide targeted practice.
- Real-Time Feedback: Provide real-time feedback on typing accuracy and speed to help the user improve during the game.

How to Run the Application

1. Install Flask:

   pip install flask

2. Run the Flask App:

   python app.py

3. Navigate to the Homepage:

   Open your web browser and go to http://127.0.0.1:5000/.

4. Play the Game:

   Click on "Start Game" to begin.

Type the displayed sentence as fast as you can and submit your result.

View your typing speed and other results on the result page.