Marathwada Mitramandal's

COLLEGE OF ENGINEERING, PUNE

An Autonomous Institute

Project Based Learning

Title of Project : Typing tutor in C

Sr.No	Name of Students	PRN No
1	Vishal Gadekar	B24IT1018
2	Anirudha Kashide	B24IT1023
3	Anirudh Lakkavatri	B24IT1037
4	Swaraj Katkar	B24IT1043
5	Harshawardhan Khaire	B24IT1045

Date: 29/11/2024

Faculty In-Charge

1) Research :

The Typing Tutor project addresses the challenge of improving typing speed and accuracy, critical skills in both academic and professional environments.Secondary research showed that many typing applications focus on speed alone, leaving a gap in providing actionable feedback for accuracy and consistency. Analyzing similar tools revealed limited features for encouraging iterative improvement. To bridge this gap, the Typing Tutor was designed to provide a comprehensive learning experience. Primary research included surveying users to identify pain points, such as lack of motivation and engaging practice mechanisms, which informed the program's development.

2) Analysis :

The primary problem lies in ensuring users can type quickly without compromising accuracy. The analysis focused on three main aspects: user needs, system functionality, and user engagement. Users require timely feedback to understand their performance and areas for improvement. To address this, the program calculates and displays metrics such as time taken, words per minute (WPM), and accuracy percentage. The randomized selection of typing texts ensures variety, reducing monotony and encouraging practice. This analysis informed the design and implementation, ensuring the system is user-friendly, intuitive, and effective.

3) Ideate :

During the ideation phase, brainstorming sessions identified key features and their implementation strategies. Concepts such as providing instant performance statistics and ctionable feedback were prioritized. Creative techniques like sketching the user flow and mind mapping different functionalities helped refine the design. Features like multiple practice attempts, feedback on typing speed, and encouragement to continue practicing were developed to foster a positive learning environment. We decided on a clean, minimal interface and focused on incorporating engaging yet practical features to maintain user interest.

4) Build :

The Typing Tutor was developed using C programming to ensure efficiency and simplicity. The key functionalities include:

- Randomized Text Selection: A predefined array of texts ensures users practice with diverse sentences.
- Real-Time Feedback: Time taken, WPM, and accuracy are calculated dynamically using string comparison and timing functions.
- Multiple Attempts: The program allows up to three attempts to help users.
- Encouraging Feedback: Users receive personalized messages based on their performance, motivating them to either focus on accuracy or increase speed.
- The implementation relies on essential C libraries like stdio.h, stdlib.h, and time.h. The system architecture is modular, separating input, processing, and feedback for easier debugging and scalability.

5) Test:

- Rigorous testing was conducted to ensure functionality and reliability. The program was tested with different input scenarios:
- Accurate Typing: Verified accurate computation of speed and accuracy when user inputs match the text perfectly.
- Partial Matches: Assessed how the program identifies correct characters and calculates accuracy percentage.
- Randomized Text: Ensured the text selection mechanism provided different texts across attempts.
- Timing Accuracy: Validated correct measurement of time taken using the difftime() function.
- Feedback gathered from test users highlighted the program's ease of use and motivational feedback as standout features. All test cases produced the expected results, confirming the robustness of the application.

6) Implement:

The Typing Tutor is an effective tool for personal development and skill building. Its core application lies in typing practice for students, professionals, and anyone aiming to improve their typing abilities. Future implementations could include:

- Progress Tracking: Adding a feature to save and visualize progress over multiple sessions.
- Typing Games: Incorporating gamification elements to make learning more engaging.
- Multilingual Support: Expanding to support typing practice in different languages.
- Advanced Metrics: Integrating more detailed statistics such as error count, typing rhythm, and improvement trends

The project could be scaled for institutional use, allowing educators to assign and monitor typing exercises for students. Its adaptability makes it a versatile tool for skill-building across various contexts.

Conclusion

The Typing Tutor successfully combines speed and accuracy evaluation with motivational feedback to create a comprehensive learning experience. Its simple yet effective approach ensures usability for beginners and advanced typists alike. With further development, the Typing Tutor can evolve into a powerful platform for enhancing typing skills in a fun and engaging manner