TYPING GAME & QUIZ MOB

Project Report

Gujarat University

MASTERS OF COMPUTER SCIENCE INTEGRATED

SEMESTER – III

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DEPARTMENT OF COMPUTER SCIENCE
GUJARAT UNIVERSITY, AHMEDABAD

YEAR: 2023-24

Department Of Computer Science

Gujarat University

Certificate

Roll No: _____ Seat No: _____

This is to certify that Mr. /Ms. _____ student of 5 years Integrated M.Sc. (Computer Science) Semester – III has duly completed his / her term work for the semester ending in December 2023, in the subject _____ _____ towards partial fulfillment of his / her Degree of 5 years Integrated M.Sc. (Computer Science).

Date of Submission: Internal Faculty

Course Coordinator

Head of Department

Department Of Computer Science

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ACKNOWLEDGEMENT

We would like to express our deepest appreciation to Dr. Bhumika Shah, our esteemed project guide and mentor, for her exceptional support, expert guidance, and profound insights that have been instrumental in the successful completion of our game projects. Dr. Shah's dedication to our learning and her willingness to share her extensive knowledge have not only enriched our experience but also significantly elevated the quality of our work. Her mentorship has been a source of inspiration, and we are truly grateful for her invaluable contribution to our development.

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We would like to extend our sincere appreciation to the entire faculty of the Rollwala Computer Centre for their invaluable guidance, constructive feedback, and unwavering support throughout our journey. Their expertise and encouragement have played a crucial role in shaping our projects and enhancing our skills.

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1. INTRODUCTION

1.1 Project Profile

Attribute	Details
Title	Typing Game
Operating System	Windows
Type	Web Based Game
Duration	6 months

1.2 Project Description

The Typing Game is a web-based application designed to improve users' typing skills in an interactive and entertaining manner. The game offers a range of features aimed at engaging users of different skill levels while providing a platform for practicing and enhancing typing speed and accuracy.

Key Features of the Typing Game:

1. Word Typing Challenges:
   - The game presents users with a series of words that they need to type accurately and quickly.
   - The words are chosen from various categories such as General, Animals, and Technology, allowing users to practice typing with diverse vocabulary.
2. Difficulty Settings:
   - Users can select the difficulty level based on their skill and experience, with options for Easy, Medium, and Hard modes.
   - Each difficulty level adjusts the complexity and speed of the word challenges, providing a tailored experience for users of different proficiency levels.
3. Category Selection:
   - The game offers a selection of word categories, allowing users to choose the type of words they want to practice typing.

- This feature adds variety to the gameplay and caters to users with specific interests or preferences in vocabulary.

4. Power-Up Words:
   - Introducing an element of surprise and excitement, the game includes "Power-Up" words that have special effects when typed correctly.
   - Power-Up words can grant extra points, extend the game time, or provide other benefits to the player, adding a strategic layer to the gameplay.
5. Score Tracking:
   - The game keeps track of users' scores, allowing them to monitor their progress and improvement over time.
   - Users can set personal goals and strive to achieve higher scores, adding a competitive and motivational aspect to the game.
6. Time Constraints:
   - To challenge users and create a sense of urgency, the game includes a time limit for each word challenge.
   - Users need to type the word within the given time frame to earn points and move on to the next challenge, adding a dynamic and fast-paced element to the gameplay.

The Quiz Mob is a web-based quiz application designed to offer users an engaging platform for testing their knowledge in various subjects. The application incorporates a range of features aimed at providing an interactive and educational experience, catering to users with diverse interests and learning objectives.

Key Features of Quiz Mob:

1. Category Selection:
   - Users can choose from different categories such as Biology, Physics, and Geography, allowing them to select quizzes based on their areas of interest or academic needs.
   - Each category contains a set of questions related to the chosen subject, providing a focused and targeted quiz experience.
2. Question Types:
   - The application offers multiple-choice questions with four options for each question, providing a standard format for users to select their answers.
   - The questions are designed to cover a wide range of topics within each category, ensuring a comprehensive and challenging quiz experience.
3. Score Tracking:
   - Quiz Mob tracks users' scores as they progress through the quizzes, allowing them to monitor their performance and improvement over time.
   - Users can view their scores at the end of each quiz, providing feedback on their knowledge and understanding of the subject matter.
4. Timer:
   - The application includes a timer for each quiz, adding a sense of urgency and challenge to the experience.
   - Users need to answer the questions within the given time limit, enhancing the competitive and dynamic nature of the quizzes.
5. User-Friendly Interface:

- Quiz Mob features a user-friendly interface with clear navigation and intuitive design, making it easy for users to select quizzes and navigate through the application.
- The interface is designed to be accessible and engaging, catering to users of all ages and levels of technological proficiency.

6. Educational Value:
   - Beyond entertainment, Quiz Mob aims to provide educational value by testing users' knowledge and encouraging learning through quizzes.
   - The quizzes are designed to be informative and stimulating, promoting engagement with the subject matter and fostering a deeper understanding of the topics covered.

1.3 Abstract

The project report presents the development and implementation of two web-based educational games: a Typing Game and a Quiz Game. The Typing Game aims to improve players' typing skills by presenting them with words to type within a specified time, while the Quiz Game challenges their knowledge in subjects such as biology, physics, and geography. Both games are designed to be engaging and educational, with the goal of providing users with an interactive learning experience. The report details the methodologies used in the development of the games, including the technologies and tools employed. It also discusses the learning outcomes targeted by the games and their potential impact on users. The project report serves as a comprehensive documentation of the design, development, and deployment of the Typing Game and Quiz Game, providing insights into the process and outcomes of the project.

1.4 Related Work

Wang, Tsung-Li & Chen, Tin-Kai & Tseng, Ya-Fen. (2010). An leaner-centred, game-based, learning framework for typing games in English course. 3CA 2010 - 2010 International Symposium on Computer, Communication, Control and Automation. 1. 93 - 95. 10.1109/3CA.2010.5533723.

Summary

This project proposes an adaptive and game-base framework for typing to improve players' typing performance as well as learning.
Typing game is among the top selling software products. Using the typing games, learners can improve their ability to type, and also enjoy it's playfulness. Computer games are rapidly growing in the entertainment industry. Typing game also help students to improve their vocabularies especially players' whose first language is not English.

1.5 Tools and Technologies used

The Typing Game and Quiz Mob applications use a variety of tools and technologies to deliver their functionality. Here's an overview of the key tools and technologies used in both projects:

1. **HTML/CSS/JavaScript:**

- **Description:** The core technologies for building the user interface (HTML), styling it (CSS), and adding interactivity and functionality (JavaScript).
- **Role:** HTML provides the structure, CSS styles the layout, and JavaScript adds dynamic behaviour to the games.

2. **Web Browser:**
   - **Description:** The application runs in a web browser environment, leveraging the browser's rendering engine to display the user interface and execute JavaScript code.
   - **Role:** The browser acts as the platform for running the web-based games.
3. **Version Control (e.g., Git):**
   - **Description:** Version control systems like Git are used to track changes to the codebase, collaborate with team members, and manage the project's code repository.
   - **Role:** Git helps in maintaining a history of changes, enabling collaboration among team members, and managing the project's codebase.
4. **Text Editors/IDEs (e.g., Visual Studio Code, Sublime Text, Notepad++):**
   - **Description:** Text editors or Integrated Development Environments (IDEs) are used for writing and editing code. They often provide features like syntax highlighting, code completion, and debugging tools.
   - **Role:** Text editors/IDEs provide a convenient environment for writing and managing the project's code.
5. **Web Hosting (e.g., GitHub Pages):**
   - **Description:** Web hosting services are used to deploy and host the web-based applications, making them accessible over the internet.
   - **Role:** Web hosting services ensure that the applications are available to users worldwide, providing a platform for deployment and access.
6. **Graphics Software (e.g., Adobe Photoshop, Illustrator):**
   - **Description:** Graphics software is used for creating visual assets such as images, logos, and icons used in the games' user interfaces.
   - **Role:** Graphics software helps in designing and creating visual elements that enhance the overall look and feel of the games.
7. **Testing Frameworks/Libraries (e.g., Jest, Mocha, Chai):**
   - **Description:** Testing frameworks and libraries are used for writing and executing automated tests to ensure the quality and reliability of the code.
   - **Role:** Testing frameworks/libraries help in automating the testing process, identifying bugs and errors, and ensuring the correctness of the codebase.
8. **Responsive Design Techniques (e.g., Media Queries):**
   - **Description:** Responsive design techniques are used to ensure that the games' user interfaces adapt and display correctly across different devices and screen sizes.
   - **Role:** Responsive design techniques help in creating a consistent user experience across various devices, including desktops, laptops, tablets, and smartphones.

1.6 Work Distribution

Fatoumatta Jaiteh

- Responsibility: Structure and Layout

Samuel Anyieth & Favour Emmanuel

- Responsibility: Styling & Outlook

Lamin Janka & Etiko Solih

- Responsibility: Interactivity and Advanced JavaScript Functionalities

1.7 Proposed System

The proposed system encompasses the development of two interactive web-based games: a Typing Game and a Quiz Game. These games are designed to provide engaging and educational experiences for users while demonstrating various programming concepts and techniques.

Typing Game

- **Objective**: The Typing Game aims to improve users' typing speed and accuracy by presenting random words or phrases that users need to type correctly within a specified time limit.
- **Features**:
  - Random word generation from predefined categories (General, Animals, Technology).
  - Power-up words that affect gameplay (e.g., time extension, score multiplier).
  - Adjustable difficulty levels (Easy, Medium, Hard) and category selection.
  - Real-time score tracking and time management.
- **Technologies**:
  - HTML, CSS, and JavaScript for front-end development.
  - Integration with external libraries or APIs for word generation and game mechanics.
  - Responsive design for compatibility across devices.

Quiz Game (Quiz Mob)

- **Objective**: The Quiz Game, titled "Quiz Mob," aims to test users' knowledge in various subjects such as Biology, Physics, and Geography through a series of multiple-choice questions.
- **Features**:
  - Category selection for the quiz topic.
  - Random selection of questions from a predefined pool.
  - Real-time feedback on user responses.
  - Timer-based gameplay with a time limit for each question.
- **Technologies**:
  - HTML, CSS, and JavaScript for front-end development.
  - Dynamic content generation using JavaScript.
  - User interface design for an intuitive quiz experience.

Implementation Strategy

- **Development Phases**:
  - **Phase 1**: Initial setup and design planning.
  - **Phase 2**: Front-end development of the games.

- **Phase 3**: Integration of game logic and user interface enhancements.
- **Phase 4**: Testing and debugging for quality assurance.

- **Tools and Technologies**:
  - Text editors for code development (e.g., Visual Studio Code).
  - Version control using Git for collaborative development.
  - Code hosting platforms like GitHub for project management and sharing.

Expected Outcomes

- A fully functional Typing Game and Quiz Game that meet the project requirements.
- User-friendly interfaces with responsive design for optimal user experience.
- Integration of interactive elements and game mechanics to engage users.
- Comprehensive testing to ensure the reliability and performance of the games.

1.8 Methodology

The methodology for the project report outlines the systematic approach adopted for the development of the Typing Game and Quiz Game. The methodology encompasses the following key phases:

1. **Planning and Requirements Gathering**

- **Objective**: Define the scope, objectives, and requirements of the games.
- **Activities**:
  - Identify the target audience and their preferences.
  - Define the features and functionalities of the games.
  - Create a project plan outlining timelines and deliverables.

2. **Design and Prototyping**

- **Objective**: Develop the visual and interactive design of the games.
- **Activities**:
  - Create wireframes and mock-ups for the game interfaces.
  - Design the game mechanics and user interactions.
  - Develop prototypes for user testing and feedback.

3. **Development and Implementation**

- **Objective**: Build the functional components of the games based on the design.
- **Activities**:
  - Write HTML, CSS, and JavaScript code for the games.
  - Implement game logic, user interface elements, and interactions.
  - Integrate external resources such as word databases and APIs.

4. **Testing and Quality Assurance**

- **Objective**: Ensure the reliability, performance, and usability of the games.
- **Activities**:
  - Conduct functional testing to validate game features.
  - Perform usability testing for user interface and experience.
  - Address any bugs, errors, or issues identified during testing.

5. **Deployment and Launch**

- **Objective**: Prepare the games for public release and usage.
- **Activities**:

- Set up hosting environment for the games (e.g., web server).
- Deploy the games to the hosting environment.
- Perform final checks and optimizations for the launch.

6. **Documentation and Reporting**

- **Objective**: Document the development process and outcomes for reference.
- **Activities**:
  - Create detailed documentation of the games' features and functionalities.
  - Compile a project report outlining the methodology, results, and insights.
  - Prepare user manuals or guides for the games' usage.

7. **Maintenance and Support**

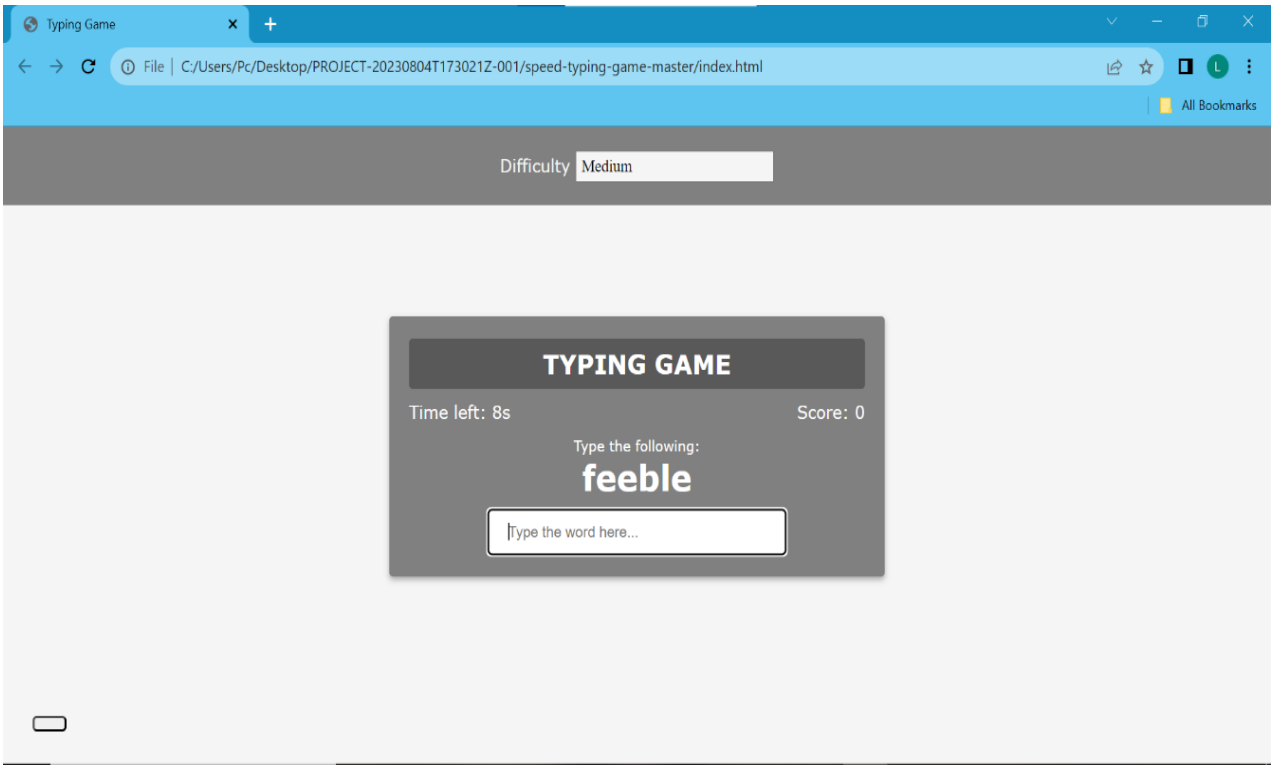
- **Objective**: Provide ongoing maintenance and support for the games.
- **Activities**:
  - Monitor the performance and usage of the games.
  - Address any issues or feedback from users.
  - Implement updates or enhancements based on user feedback and changing requirements.

Conclusion

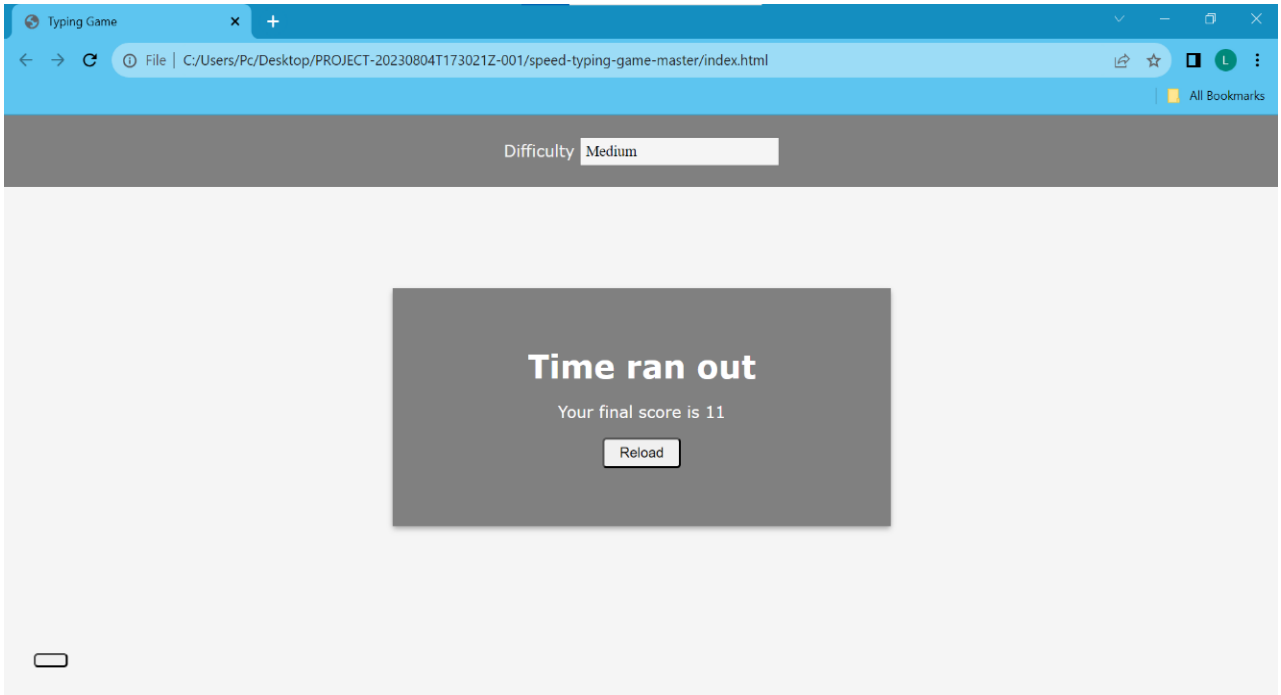
The methodology provides a structured framework for the development of the Typing Game and Quiz Game, ensuring that the project progresses through defined stages with clear objectives and deliverables. This systematic approach aims to achieve the project's goals of creating engaging and functional web-based games while maintaining quality and user satisfaction

1.9 Implementation/Screenshots

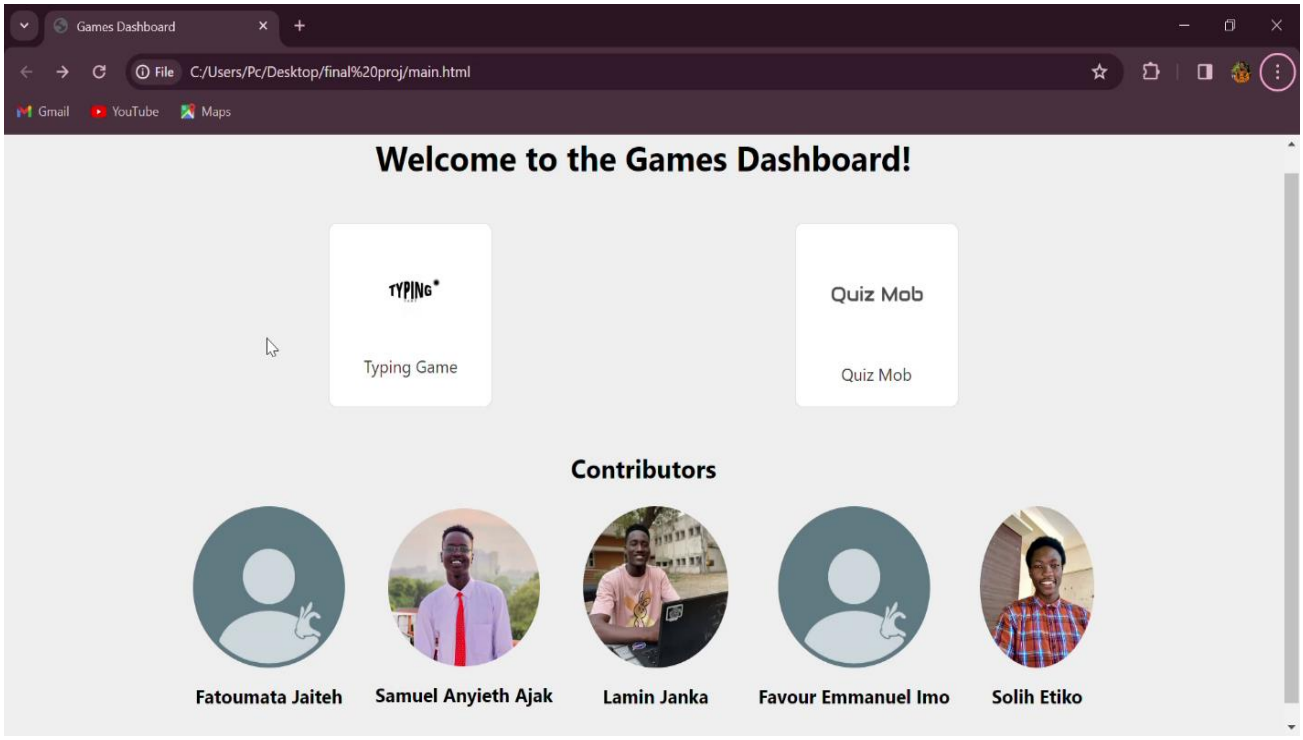
Typing Game with HTML, CSS & JS



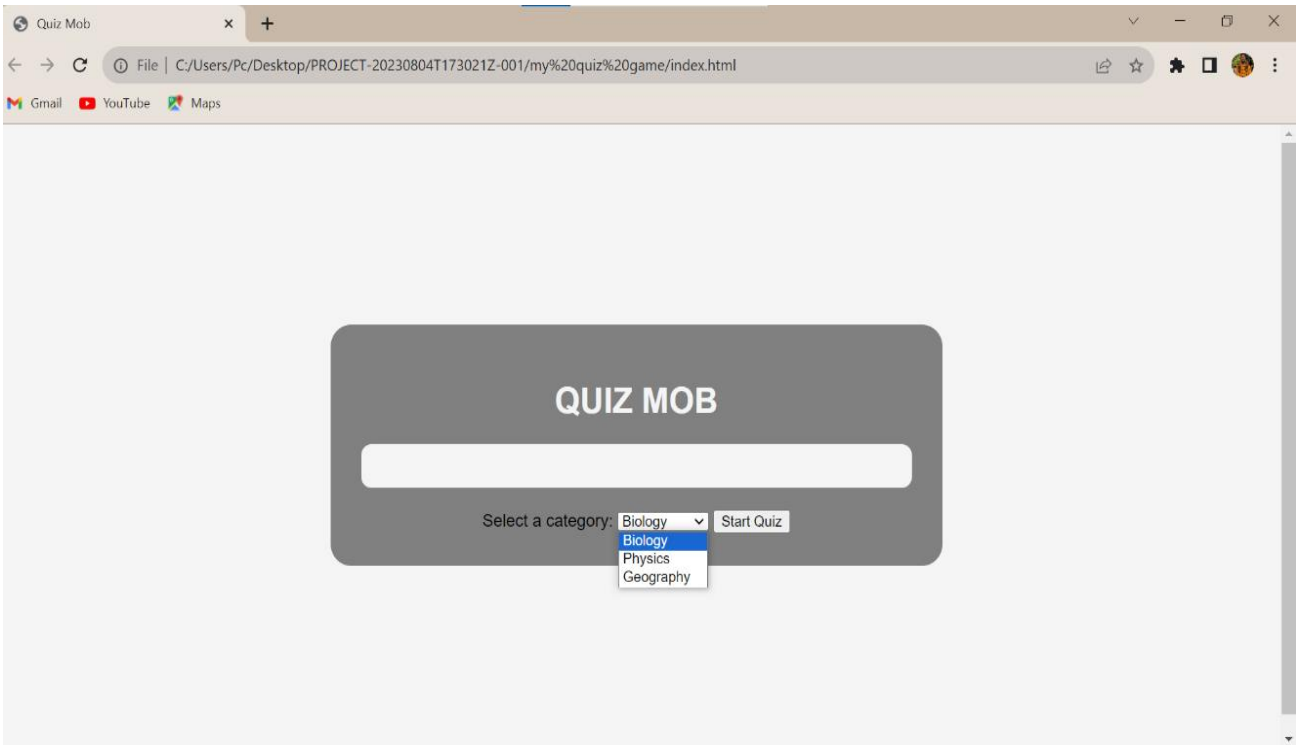
Functionality



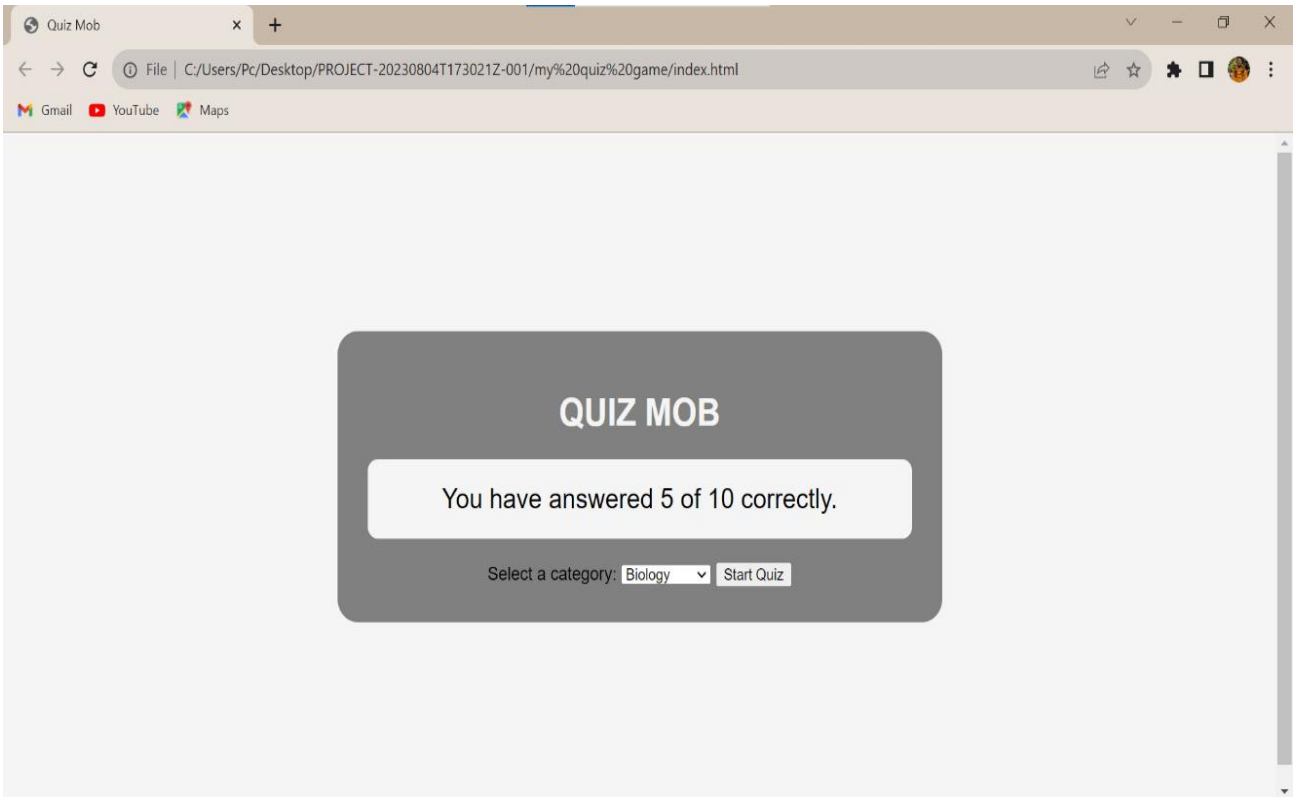
Games Dashboard with Contributors



Quiz Game with HTML, CSS & JS



Functionality



1.10 Learning Outcomes

1. **Improved Typing Skills:** Players will enhance their typing speed and accuracy as they strive to type words correctly within a specified time limit.
2. **Vocabulary Expansion:** By encountering a diverse range of words in different categories (general, animals, technology), players can expand their vocabulary.
3. **Knowledge Retention:** The Quiz Game challenges players with questions from various subjects (biology, physics, geography), aiding in the retention and reinforcement of knowledge.
4. **Cognitive Skills Development:** Both games engage cognitive skills such as memory, attention, and problem-solving, contributing to overall cognitive development.
5. **Time Management:** The time limit in the Typing Game encourages players to manage their time efficiently, improving their ability to work under pressure.
6. **Fun and Engagement:** Through interactive gameplay and challenging tasks, players can enjoy a fun learning experience that motivates continued engagement.
7. **Technology Familiarization:** Interacting with web-based games like these can help users become more comfortable with technology and its applications.
8. **Adaptability to New Environments:** The games' dynamic nature and varied content can help users become more adaptable to new challenges and environments.
9. **Self-Assessment:** Both games provide immediate feedback on performance, enabling players to assess their skills and track their progress over time.

10. **Competition and Cooperation:** Players can engage in healthy competition with themselves or others, fostering a spirit of achievement and cooperation.

1.11 Future Enhancements

Enhancing typing and quiz games involves a combination of refining existing features and introducing new elements to keep the experiences engaging and relevant. Here are some potential future enhancements for both types of games:

Typing Game:

1. Advanced Typing Challenges:
   - Introduce more complex and varied typing challenges, such as coding snippets, paragraphs from literature, or technical documents. This can cater to different skill levels and interests.
2. Customizable Difficulty Levels:
   - Allow users to customize the difficulty of the typing exercises. This could involve adjusting the speed, complexity of words, or introducing special characters.
3. Progressive Learning Paths:
   - Develop a structured learning path that adapts to the user's skill level. Gradually introduce new challenges and typing techniques as the user progresses.
4. Analytics and Feedback:
   - Provide detailed analytics on typing speed, accuracy, and areas for improvement. Personalized feedback can motivate users and help them track their progress.
5. Integration with External Platforms:
   - Allow users to import texts or articles of their choice from external platforms or websites, turning any content into a typing exercise.
6. Accessibility Features:
   - Implement accessibility features such as voice-guided instructions, customizable font sizes, and colour schemes to make the game accessible to a wider audience.

Quiz Game:

1. Dynamic Question Generation:
   - Implement algorithms that dynamically generate questions based on the user's previous responses, ensuring a personalized and adaptive learning experience.
2. Multi-Subject Quizzes:
   - Expand the quiz game to cover a wider range of subjects. Users could choose quizzes from different categories or mix subjects for a comprehensive challenge.
3. Time Challenges and Leaderboards:
   - Add timed challenges to certain quizzes and incorporate leaderboards. This fosters a competitive environment and encourages users to improve their knowledge against others.
4. Collaborative Quizzing:
   - Enable users to create and share their quizzes, promoting collaborative learning. This user-generated content can diversify the quiz offerings.
5. Integration with Learning Platforms:

- Integrate the quiz game with educational platforms or learning management systems to track progress, sync with coursework, and provide a seamless learning experience..

6. Real-time Feedback and Explanations:
   - Offer real-time feedback on quiz answers and provide detailed explanations for correct and incorrect responses. This enhances the educational value of the quizzes.

1.12 Bibliography & References

Here's a bibliography and references for the resources used in the Typing Game and Quiz Mob projects:

Books:

- Haverbeke, M. (2018). *Eloquent JavaScript*. No Starch Press.

Online Platforms:

- CodePen Retrieved from https://codepen.io
- GitHub Repositories:
  - Typing Game: Heislamin Typing Game. [GitHub Repository]. Retrieved from https://github.com/Heislamin/Typing-Game
  - Quiz Game: Heislamin Quiz Game. [GitHub Repository]. Retrieved from https://github.com/Heislamin/Quiz-game
- GeeksforGeeks Retrieved from https://www.geeksforgeeks.org

Images:

- HTML, CSS & JS Logo: Dreamstime Retrieved from https://www.dreamstime.com/
- Windows Logo: Wikimedia Commons Retrieved from https://commons.wikimedia.org

These resources have been instrumental in the development and design of the projects, providing valuable information, code hosting, design assets, and platforms for highlighting the applications.