Project Report: Term Matching Game

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1. Project Title

Term Matching Game for Technical Definitions

2. Submitted by

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4. Introduction

This project is an interactive web-based game that helps students become familiar with technical terms. The game presents a random technical definition, and the player must select the correct term from three options (one correct and two false). This approach enhances learning through an engaging and enjoyable platform, reinforcing key IT concepts like "MAC Address," "IP Address," and "Django."

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5. Objectives

- To create an interactive learning experience for students by gamifying technical definitions.
- To allow players to learn key IT-related concepts in an engaging and intuitive way.
- To develop a user-friendly and responsive web-based game.
- To implement randomization for both the order of questions and answer options.

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6. Project Scope

The project focuses on developing a simple, easy-to-use web-based application with the following features:

- Display of random definitions of technical terms.
- Three answer choices (one correct term and two incorrect terms).

- A scoring system to track correct answers.
- Immediate feedback for the player’s selections.
- An end-of-game feature to display the final score once all questions are completed.

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7. Technology Stack

The following technologies were used to build the game:

- **HTML5**: To structure the web pages.
- **CSS3 & Bootstrap**: For styling and responsiveness of the UI.
- **JavaScript**: For the dynamic behavior and game logic.

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8. Project Design

The game design is simple and intuitive:

- **Question Section**: Displays a technical definition at the top of the screen.
- **Answer Choices**: Three buttons below the definition, each representing a possible answer.
- **Feedback Display**: Feedback is immediately shown in color-coded messages based on whether the answer was correct or incorrect.
- **Scoreboard**: The current score is updated dynamically, visible to the player at all times.
- **Next Button**: Players proceed to the next question only after answering the current one correctly.

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9. Implementation

The project is implemented in three key phases:

1. **Shuffling Questions and Answers**:
   The game uses a shuffle algorithm to randomize the order of questions (technical definitions) and answer options for each question, ensuring the game varies each time it's played.
2. **Game Logic in JavaScript**:
   JavaScript handles the logic for displaying questions, evaluating answers, and tracking the score. Feedback is shown instantly, and only after a correct answer is given does the "Next" button become active, allowing the player to proceed.
3. **Responsive UI with Bootstrap**:
   Bootstrap provides the responsive design, ensuring a consistent and attractive layout across different devices and screen sizes.

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12. Testing

The game was thoroughly tested across different devices and browsers to ensure:

- **Correct functionality**: All questions and options are correctly randomized, and the game responds appropriately to user input.
- **Responsiveness**: The design adapts well to all screen sizes.
- **Edge cases**: The game was tested for various user behaviors, such as quickly selecting answers and refreshing pages mid-game.

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13. Future Improvements

- **Timed Mode**: Adding a timer for each question to make the game more challenging.
- **Scoreboard**: Implementing a global or local leaderboard for players to compare scores.
- **Expanded Question Set**: Adding more terms and definitions to provide a richer learning experience.
- **Multiple Difficulty Levels**: Offering different levels of difficulty to cater to users with varying levels of knowledge.

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14. Conclusion

The Term Matching Game is an interactive and educational tool that enhances learning by combining technical knowledge with an engaging gaming experience. With randomized questions, multiple answer choices, and a scoring system, the game provides an effective way for students to learn IT-related terms while having fun. The project's scalability and the potential for future enhancements make it a valuable asset for students' learning journeys.

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15. References

- Bootstrap Documentation: https://getbootstrap.com
- JavaScript Array Shuffle Algorithm: https://stackoverflow.com/questions/2450954/how-to-randomize-shuffle-a-javascript-array