Submitted By:

Sudhanshuu Bansal

2110992036

G22(B)

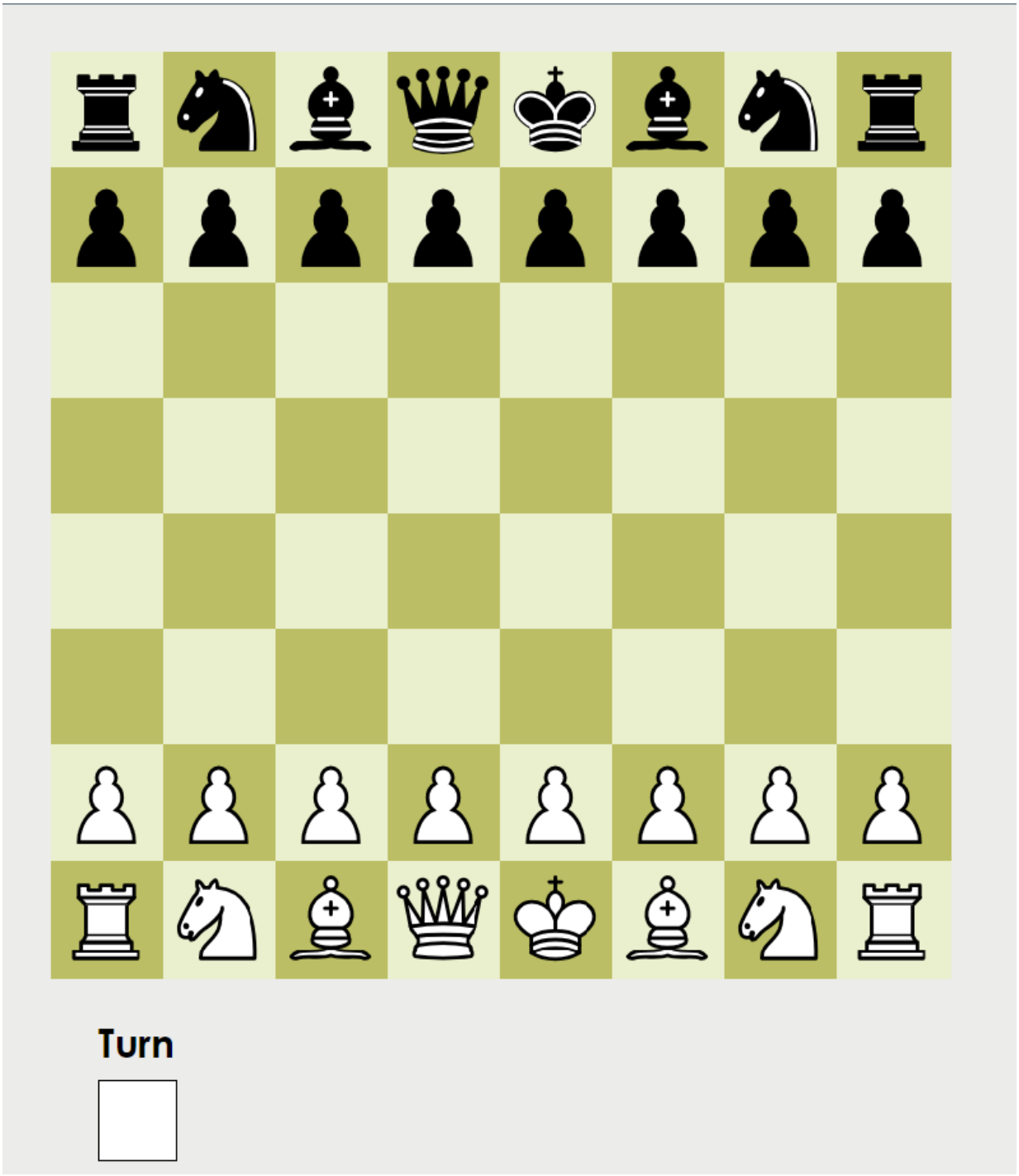
Submitted To:

Ms. Pritpal Mam

Chess

Project Description

The Chess Web Application is a web-based platform that allows users to play chess online. The application is developed using HTML, CSS, JavaScript, and React, and it aims to provide a user-friendly interface for playing chess games.



Project Goals

The main goals of this project include:

Create a Responsive User Interface: Develop a responsive and user-friendly interface for playing chess, ensuring that it works on both desktop and mobile devices.

Implement Chess Game Logic: Implement the rules and logic of chess to allow users to make legal moves and play the game according to standard rules.

Multiplayer Support: Enable users to play chess against each other online, including options for both real-time and turn-based gameplay.

User Authentication: Implement user authentication to allow players to create accounts, log in, and track their game history.

Game History and Replay: Store and display a history of past games, allowing users to review and replay their previous matches.

Technologies Used

HTML: Used for structuring the web page.

CSS: Used for styling the web page and making it visually appealing.

JavaScript: Used for implementing chess game logic and user interactions.

React: Used for building a dynamic and responsive user interface.

Node.js: Utilized for server-side functionalities such as user authentication and game history storage.

Socket.io: Employed for real-time communication between players during a game.

Project Workflow

1. Requirements Gathering

In the initial phase of the project, we gathered requirements from stakeholders and established the scope of the project. We identified key features, user stories, and design preferences.

2. Design and Wireframing

The UI/UX designer created wireframes and mockups for the web application, defining the layout and visual elements of the chessboard, pieces, and user interface.

3. Frontend Development

The frontend developer used HTML, CSS, and React to implement the user interface based on the designs. This phase also involved integrating chessboard components and user interaction.

4. Chess Logic

The implementation of chess game logic was a critical component of the project. We developed the rules for valid moves, check/checkmate detection, and legal game states.

5. Multiplayer Functionality

We implemented multiplayer functionality using Socket.io to enable real-time gameplay between two users. Players can make moves and see their opponent's moves in real time.

6. User Authentication

User authentication was integrated into the application, allowing users to create accounts, log in, and track their game history.

7. Game History and Replay

We developed a feature to store game history and allow users to review and replay their previous matches.

Challenges Faced

Chess Logic Implementation: Implementing the rules of chess and handling edge cases proved to be challenging.

Real-time Communication: Synchronizing game state between two players in real time presented technical challenges, especially in handling disconnections and reconnections.

Responsive Design: Ensuring that the web application works well on various devices and screen sizes required careful design and testing.

Conclusion

The Chess Web Application project successfully delivered a web-based platform for playing chess online. It utilized HTML, CSS, JavaScript, and React to create a responsive and visually appealing user interface, implemented chess game logic, supported multiplayer gameplay, integrated user authentication, and allowed users to track their game history. Despite the challenges faced, the project met its objectives and provides a platform for chess enthusiasts to play the game online.

Future Enhancements

In the future, the project could be expanded with the following enhancements:

Adding support for chess variants, such as chess960 or three-check chess.

Implementing an AI opponent for single-player mode.

Enabling chat functionality between players during games.

Optimizing the application for mobile devices and tablets.

Acknowledgments

We would like to express our gratitude to the entire team for their hard work and dedication to the project. Additionally, we thank our stakeholders for their valuable input and support throughout the development process.

This report provides an overview of the Chess Web Development project, its goals, technologies used, workflow, challenges faced, and future enhancements. It serves as a comprehensive document to understand the project's scope and accomplishments.