**CHESS MASTER**

**Team members: GALGOTIAS UNIVERSITY**

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**1. Description**

"A chess game developed in Java with an AI opponent using minimax algorithm and alpha-beta pruning. It supports importing/exporting games in FEN and PGN formats and has adjustable difficulty levels."

**2. Features:**

Core Features:

* Play against an AI opponent.
* Adjustable difficulty.
* Game export and import in FEN and PGN formats.
* Drag and drop or click to play moves**.**
* AI powered by minimax algorithm with alpha-beta pruning.

Other Features:

* Game undo/redo functionality.
* Adjustable game rules (e.g., castling, en passant).

**3. Technologies Used**

* Java 8: Main programming language used for development.
* JavaFX: Used for the graphical user interface (GUI).
* JUnit: Used for testing the core logic and components.
* Maven: Used for dependency management and project building.
* GitHub: Version control and project hosting.
* HTML, CSS, and JavaScript: For the web-based components, if any (like documentation pages).
* Bootstrap: For responsive design in the UI, if applicable.
* JSP & Servlets: If you used them for web-based functionality.

**4. How to Run the Project**

* Clone the repository:

(https://github.com/SoaibAkhtar321/Chess-Master.git)

* Dependencies:

Make sure you have Java 8 or higher installed.

Use Maven to install dependencies and run the project:

mvn install

mvn javafx:run (or the appropriate command for your JavaFX setup)

* Run the Application:

After building the project, you can run the game from the main class

(Chess.java).

**5. Known Issues and Limitations**

* Performance Issues: For example, "The AI's decision-making process slows down as the recursion depth increases."
* Features to Implement: List any features that you plan to implement in the future, such as a stronger AI or multiplayer functionality.

**6. Future Improvements**

* Stronger AI: Implement more advanced algorithms or improve the current AI to make it harder to beat.
* Multiplayer Mode: Add an option for two players to play on the same device or over a network.
* UI Enhancements: Improve the look and feel of the interface with better animations, user feedback, etc.

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