

VISVESVARAYA TECHNOLOGICAL UNIVERSITY
“JnanaSangama”, Belgaum -590014, Karnataka.



PROJECT WORK-3 REPORT ON

AI CHESS GAME

Submitted by

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Under the Guidance of

Prof. SUNAYANA.S

Assistant Professor, BMSCE

in partial fulfilment for the award of the degree of

BACHELOR OF ENGINEERING

in

COMPUTER SCIENCE AND ENGINEERING



B.M.S. COLLEGE OF ENGINEERING BENGALURU-

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(Autonomous Institution under VTU)

B. M. S. College of Engineering,

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(Affiliated to Visvesvaraya Technological University, Belgaum)

Department of Computer Science and Engineering



CERTIFICATE

This is to certify that the project work entitled “**AI CHESS GAME**” carried out by **PRITHVI.J (1BM19CS122), SOHAN (1BM19CS159), SURAJ (1BM19CS163) AND S SHREE LAKSHMI(1BM19CS136)** who are Bonafede students of **B. M. S. College of Engineering**. It is in partial fulfilment for the award of **Bachelor of Engineering in Computer Science and Engineering** of the Visveswaraiah Technological University, Belgaum during the year 2020-2021. The project report has been approved as it satisfies the academic requirements in respect of **Project Work-3 (20CS5PWPW3)** work prescribed for the said degree.

Signature of the Guide

SUNAYANA S
Assistant Professor, Dept. of CSE
BMSCE, Bengaluru

Signature of the HOD

Associate Prof.& Head, Dept. of CSE
BMSCE, Bengaluru

External Viva

Name of the Examiner

Signature with date

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**B.M.S. COLLEGE OF ENGINEERING DEPARTMENT OF COMPUTER
SCIENCE AND ENGINEERING**



DECLARATION

We, PRITHVIJ (1BM19CS122), SOHAN R KUMAR (1BM19CS159), SURAJ NAIR (1BM19CS163), S SHREE LAKSHMI (1BM19CS136), students of 5th Semester, B.E, Department of Computer Science and Engineering, B. M. S. College of Engineering, Bangalore, hereby declare that this Project Work-1entitled "AI CHESS GAME" has been carried out by us under the guidance of SUNAYANA.S, Assistant Professor, Department of CSE, B. M. S. College of Engineering, Bangalore during the academic semester Sep-2020-Jan-2021

We also declare that to the best of our knowledge and belief, the development reported here is not from part of any other report by any other students.

Signature

PRITHVIJ(1BM19CS122)

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1. Introduction

The project is about 'Designing a Mobile App for CHESS GAME using AI' It implements a classic version of Chess with AI.

The chess AI developed for this app uses the minimax algorithm with alpha-beta pruning to calculate which moves to make. There are six difficulty levels in the app, each level corresponding to the depth of the search used in the minimax algorithm. The highest difficulty is 6, which corresponds to 3 full chess moves.

This system supports the following users

- a. **Player vs Player** (allows two users or players to play the game interactively from remote locations.)
- b. **AI vs Player** (allows the user or player to play the game with AI)

Functionalities under Player vs Player

- i. Move history can be checked.
- ii. It has a timer.
- iii. It has an undo and a redo option.

Functionalities under AI vs Player

- i. It has difficulty Levels ranging from 1-6 which the player can choose from.
- ii. It has a timer.
- iii. It has an undo and redo option.
- iv. Can choose which side you want to play, Black, White or Random.

2. Tools and Technologies

- Flutter - Google's independent, open source, user interface software development kit for creating application used on mobile, desktop and web platform.
- Dart – is the object oriented programming language designed for client development, its stable and high performance and its syntax is similar to that of java.
- Android Studio – is the official IDE(integrated development environment) for Google's android OS, designed specifically for android development.
- Android emulator – is Android virtual device(AVD) represents specific android device and provides all functionality of real device.
- Visual Studio Code – source code editor, it is platform independent and is made by Microsoft and includes support for debugging, syntax highlighting, intelligent code completion, etc.
- SDK manager – command line tool that allows you to view, install, update and uninstall packages for android sdk.
- GIT (Global Information Tracker) – software for tracking changes in any set of files and coordinates work among programmers and also collaboratively develops source code.

3. Design Layouts: Screen Shots of our Mobile App



Fig. 1

Figure 1 shown above, represents the home pages which include game mode (one/two player(s)), AI difficulty, side and time limit. It also displays start and setting option button.

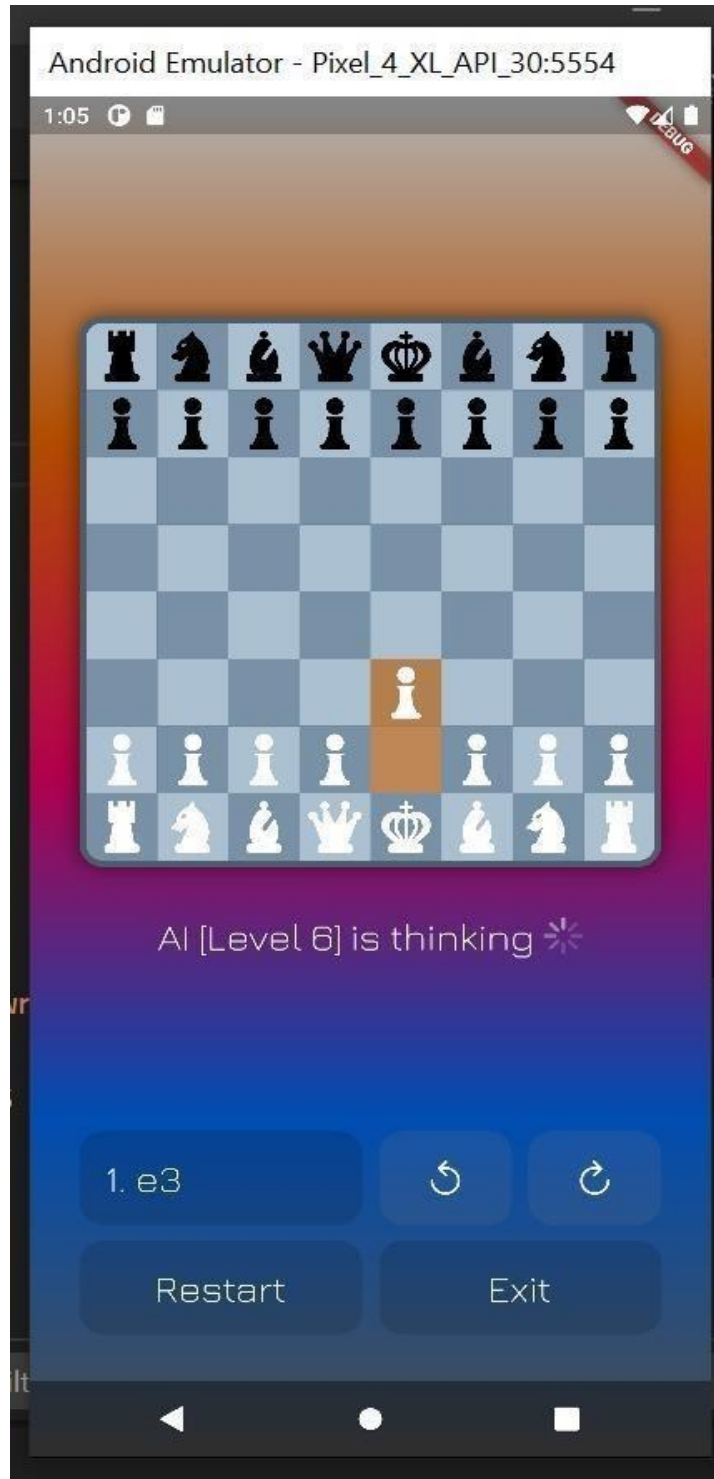


Fig. 2

Figure 2 shown above, represents chess game board along with move history, undo-redo option, restart and exit option buttons.

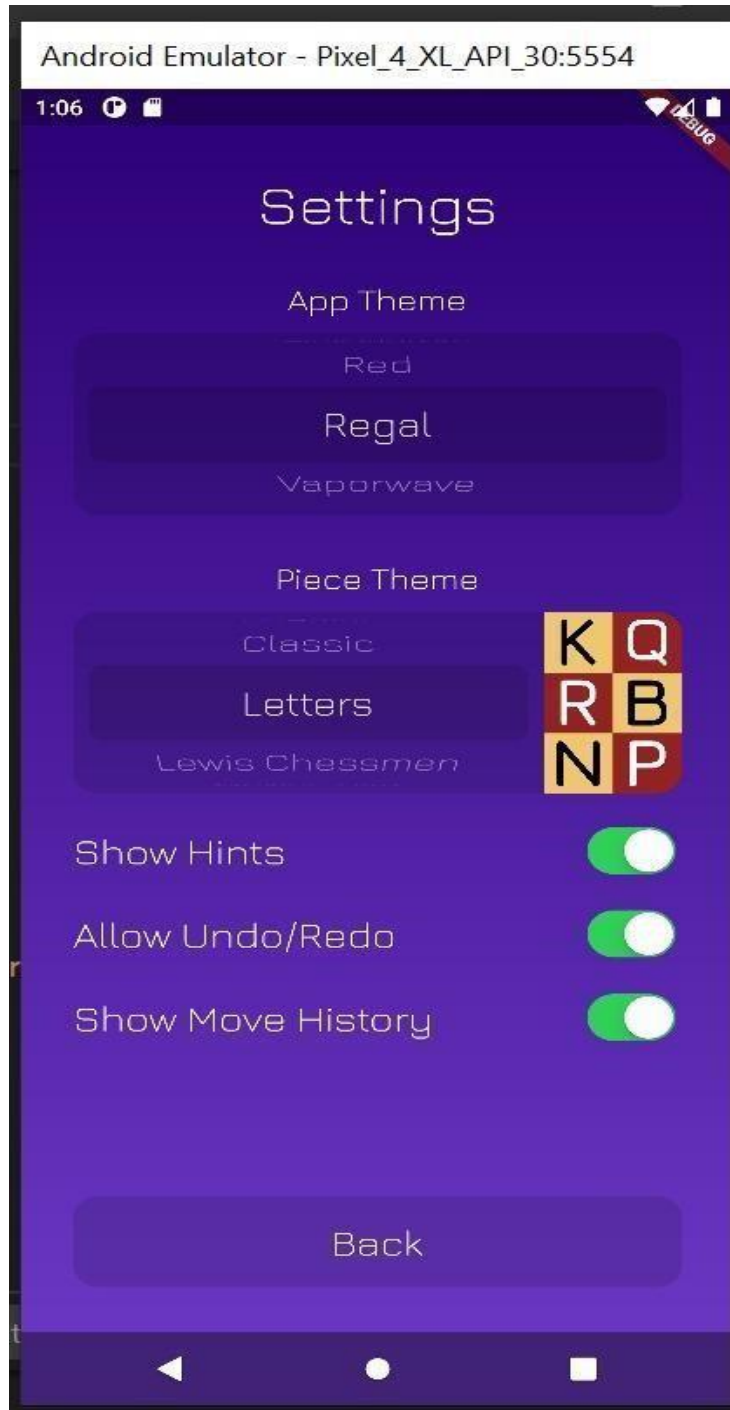


Fig. 3

Figure 3 shown above, represents the settings page where app theme & piece theme options is present along with hints, undo-redo and move history checkboxes as well as back button.

4. Conclusion

- Artificial Intelligence is a revolutionary phenomenon, and it has undoubtedly changed the landscape of chess, unlike many other platforms that are lucky to be embraced by AI. The impact of Artificial Intelligence on chess can be argued with both pros and cons, with spectrums having valid points.
- However, it is undeniable that the influence, the hype, and the excitement generated by AI are magnificent. In the future, Artificial Intelligence has great potential in the field of chess. The modern developments and advancements in chess engines are increasing rapidly. We can have much greater feats of accomplishments in the modern world of chess.

5. References

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