AI Chess Game Using Javascript

Archit Singh[1], Abhay Khurana[2]

Student, UIE, Chandigarh University Gharuan Punjab[1]

Student, UIE, Chandigarh University Gharuan Punjab[2]

Abstract: Chess is a game that is played between two players, it has its own rules of play which help to enhance and improve the mental and intellectual activities of the player. This game has a large number of followers around the world. This document works with a complete computer chess game, for the first time, the game sets the computers of two players to play chess according to the legal rules of chess on the computer. Secondly by making the game more enjoyable which will allow users to play directly against the computer so the mental power of the computer is added.

Keywords:AI , Zero-Sum game , Evaluation function , Alpha beta pruning.

I. INTRODUCTION

Chess is a game which is played by two players called White and Black. The goal is to capture the king of your opponent and that it is known as Checkmate. Chess is a game that is played on a board with 64 squares. Every player starts the game with 16 pieces, align in two rows. The first line is made up of pawns. In the next line there is a king, queen, two rooks, two bishops, and two knights. Chess is described as a "complete knowledge" game because both players know the whole the state of the game world at all times: just by looking at the board, you can see which pieces are alive and where they are found. Checkers, Go, Go-Moku, Backgammon and Othello are other members in the category, but not Stud Poker (you do not know which card your opponent holds in their handshere in order to change the game of chess from physical form to figurative form to face reality, several things are needed to make the game of chess more computer-friendly and clever.

II. GOALS AND OBJECTIVES

The main purpose of this article is to develop a clever computer game chess by creating a computer chess game.
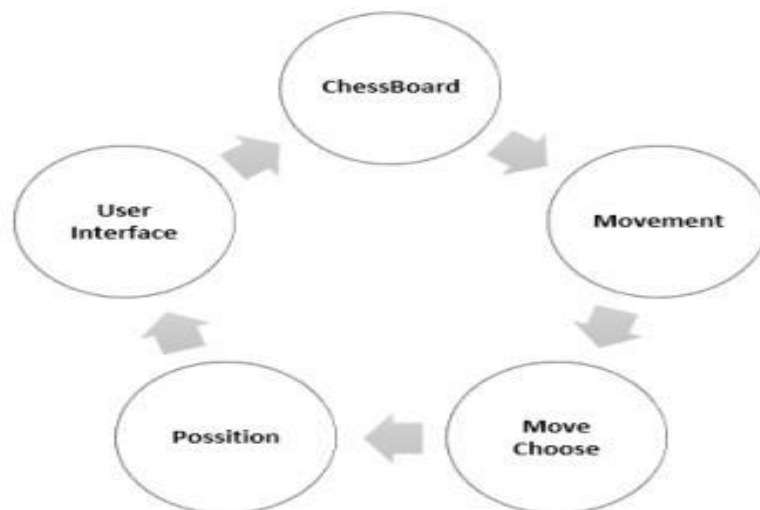
The scope of this project is a two-player limit for playing chess as real on a computer. The player also has the ability to play with a computer, and the computer can play with its opponent on the same level just according to the ingenuity given to us. The text is divided into six chapters, with the second chapter explaining the nature and rules of the game of chess.
The next chapter examines the method used to make a computer game of chess.
The fourth chapter describes how to add ingenuity to the game, the fifth and sixth chapters describe the development and implementation of the game of chess respectively while the final chapter is devoted to future developments and summaries of the entire document.

III. PROBLEM STATEMENT

Network communication is one area where this tool gets a wide range of applications. The Chess application establishes a link between 2 or more network-linked applications or an ad.

This tool can be used to communicate on a large scale and with a conference on a large organization or campus, thus increasing the level of collaboration.

In addition, it transforms the complex concept of sockets into an easy-to-use interface.

- This software may have other possibilities, such as file transfers and voice chat option that may be used later.
- The GUI works in two ways, list form and chat form. The list form contains the names of all the programs connected to the game.
- The chat form makes real communication possible in the form of text

This tool has been created using JavaScript Framework with the combination of AI and Data Structures.
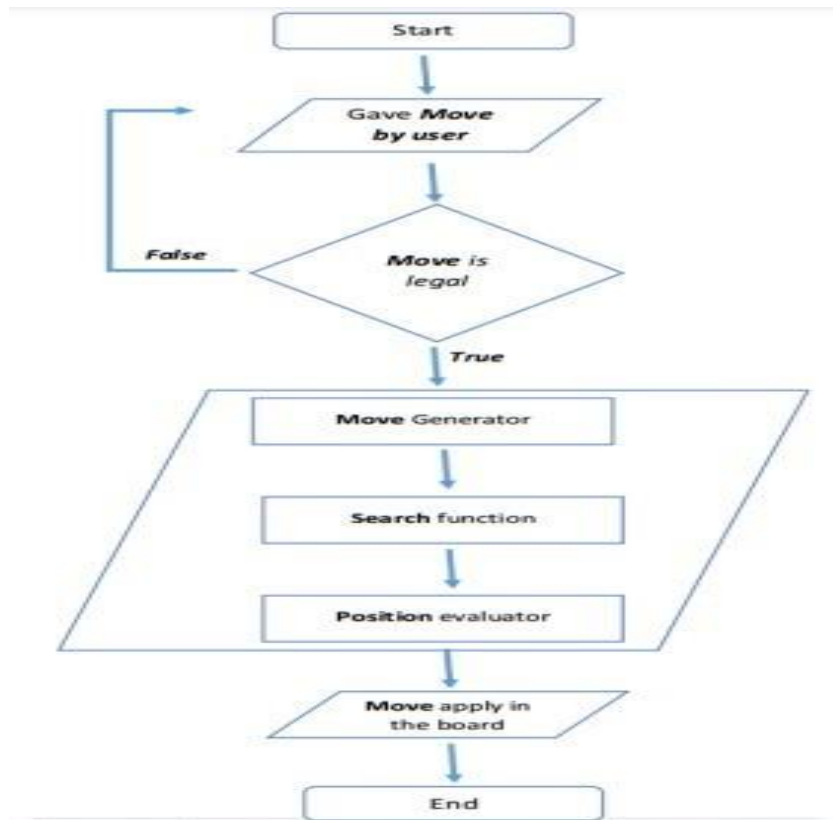
IV. TECHNOLOGY USED

JavaScript is a cross-platform, object-oriented language used on interactive web pages (e.g., complex images, click buttons, custom menu menus, etc. to work on a website rather than downloading files (such as real-time interaction between multiple computers).), JavaScript can be attached to its parental objects to provide system control over them.

Evaluation Function

We will need a test function. We have to allocate 'points' to each set of pieces on the chessboard so that our

$$f\left(\quad \right) = 5$$

Algorithm can decide which positions are more compatible than other positions.

Zero-Sum Game

Chess is a zero-sum game. Any benefits incurred by Player A refer to player B. Benefits can come in the form of grabbing opponent pieces or having pieces in the right positions. Therefore, when we allocate points from the perspective of our AI, positive points mean total benefit to our AI and the disadvantages of the opponent, while negative points mean the complete absence of our AI and the advantage of the opponent

INTERFACE REQUIREMENTS
- 1. Visual studio
- 2. Windows 7/8/10 (working environment)
- 3. Javascript
- 4. Minimum 256GB HDD, 4GBram.

V. CONCUSION AND FUTURE SCOPE

This Final Project aims to create a functional and usable product, which can be considered as software and become an educational tool. It was a fascinating and quite helpful experience for us to observe the differences between the two approaches by producing practical work rather than conducting just theoretical research.

The users will observe and realize the fact that it is a very open-ended model, allowing users to interact with it using their imagination, which was the main idea behind all this effort.

Evaluation function: Test work can be performed on the evaluation function to increase the efficiency of Computers. Although the evaluation function used in the program has more than 10 features, even more features can be implemented.

Forward pruning: Forward pruning techniques are not used in the program. In some traditional Chess systems, pruning techniques are used therefore, we can consider whether to apply forward pruning techniques like Null Move or not.

Faster framework: As part of this document, a framework was implemented from scratch and the Framework was built Alpha beta Pruning Techniques as well as implementation of Evaluation Function

ACKNOWLEDGMENT

REFERENCES

1. COMPUTER CHESS: TEST AND INTELLIGENCE ASSESSMENT (PAUL RAYMOND STEVENS Final Design Presented at Honors College in Minor Complete Bachelor and Honors Degree in Computer Science ARIZONA UNIVERSITY May 2009).

2. AN EFFICIENT CHESS PROGRAM (EdaOkurSelinKavuzluBoazii University June2011).

3. Chess Game (Rebecca Oehmen; Cecilia Hopkins; Ryan Lichtenwalter).

4. Algorithms for solving sequential (zero-sum) games Main case in these slides: chess (TuomasSandholm).

5. Bertsekas, D. and Tsitsiklis, J. N. Introduction to Probability. Athena Scientific.