

**CA-360**  
**PROJECT: CHESS**  
**SYNOPSIS**

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## ABSTRACT

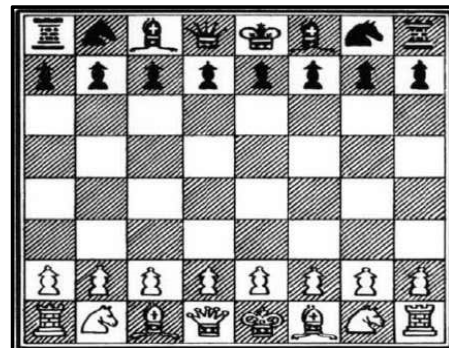
The project report focuses on a new portable game system based on chess schematics. The main purpose of this particular project is to develop a low cost game that will allow to individuals to play with each other. In order to meet this goal, I will assemble the resources that are available over the internet as well as the physical game that is available at our home. Chess game, as we know is a combination of skill and mind which hones our decision making abilities. Since chess game is based on moves and these moves can be infinite in nature it will, forces me to perform a rigorous coding and unimaginable logic, therefore, it will enhance my logical boundaries. Python will be used along with it's Pygame library to produce a graphical user interface required for this game. This game is the low cost alternative to the existing costly game in the market. As a result of the project, individuals will be able to use the system for entertainment.

## INTRODUCTION

Chess is a two-player strategy board game played on a chessboard, a checkered gameboard with 64 squares arranged in an eight-by-eight grid. Chess is played by millions of people worldwide, both amateurs and professionals.

Each player begins the game with 16 pieces: one king, one queen, two rooks, two knights, two bishops, and eight pawns. Each of the six piece types moves differently. The most powerful piece is the queen and the least powerful piece is the pawn. The objective is to 'checkmate' the opponent's king by placing it under an inescapable threat of capture. To this end, a player's pieces are used to attack and capture the opponent's pieces, while supporting their own. A game can conclude in different ways:

- By an individual winning by the following ways:
  - Checkmate
  - Resignation – either player may resign, conceding the game to the other player. It is usually considered poor etiquette to play on in a truly hopeless position, and for this reason high level games rarely end with a checkmate.
  - Loss on time – in games with a time control ,a player may also lose by running out of time, even with a much superior position
- Forfeit : An individual don't want to continue the game further and admits his/her defeat.
- Draw Games may end in a draw in several ways:
  - Draw by agreement– draws are most commonly reached by mutual agreement between the players.
  - Stalemate the player whose turn it is to move is not in check, but has no legal move.
  - Threefold -Repetition of a position – this most commonly occurs when neither side is able to avoid repeating moves without incurring a disadvantage. In this situation,either player may claim a draw.
  - The fifty-move rule – if during the previous 50 moves no pawn has been moved and no capture has been made, either player may claim a draw, as for the threefold-repetition rule.



## REQUIREMENT ANALYSIS

- **Hardware requirements:**
  - Processor: Minimum 1.5 GHz, Recommended 2Ghz of 32bit,64bit
  - Ethernet Connection (LAN) or Wireless Adaptor (Wi-Fi)
  - Hard Drive: Minimum 32 GB; Recommended 64 GB
  - Memory: Minimum 4 GB; Recommended 8GB or more
- **Software requirements:**
  - Operating System : Windows 7 or higher
  - Language : Python with PIP and Pygame Library
  - Integrated Development Environment(IDE) : IDLE(python) and VS Code
  - Memory: Minimum 4 GB; Recommended 8GB or more

## PROGRAMING LANGUAGES AND TECHNOLOGY

- **Python**: It is a programming language that lets you work more quickly and integrate your systems more effectively. It is powerful... and fast; plays well with others runs everywhere; is friendly & easy to learn; is Open.
  - It is an excellent choice for prototyping. The effect of your work is visible immediately and it's possible to quickly deliver a playable project to potential investors. Therefore, Python is also an ideal language to begin your adventure with creating games, The effects, which are quickly visible, allow us to get actively involved in the process of creating a project. developers, on the other hand, will appreciate the fact that they can create something playable using their everyday work tool, and that the process of coding will be, as always, very enjoyable and satisfying.
- One of the libraries we will be using is **PYGAME** : Pygame is a free and open-source cross-platform library for the development of multimedia applications like video games using Python. It uses the Simple DirectMedia Layer library and several other popular libraries to abstract the most common functions, making writing these programs a more intuitive task

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