

Software Requirements Specification

War Room Systems

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Revision History

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1 Introduction

1.1 Purpose

This document specifies all the software requirements for a chess game. It is intended to be read and reviewed by Technology Business Development, as well as Dr. Yuanfang Cai and Sunny Huynh.

1.2 Scope

War Room Chess is a cross-platform application that allows two players to engage in a real-time game of chess. The primary goal is to provide a chess game that is intuitive and entertaining for players of all skill levels. The game also provides some useful features, such as the ability to save a game and return to it later. In general, it focuses on providing a simple, streamlined playing experience.

1.3 Definitions, Acronyms, and Abbreviations

bishop A chess piece.

castling A special move in the game of chess involving the king and either of the original rooks of the same color. Castling consists of moving the king two squares towards a rook, then moving the rook onto the square over which the king crossed.[1] Castling can only be done if the king has never moved, the rook involved has never moved, the king is not in check, and the king does not cross over or end on a square in which it would be in check.

check A situation in chess when a king is threatened by another piece.

checkmate A situation in chess when a king is threatened by another piece and cannot escape. Game Over.

chess A strategy game played between two players. Win by capturing the opposing king.

en passant A special capture made immediately after a player moves a pawn two squares forward from its starting position, and an opposing pawn could have captured it if it had only moved one square forward.

king A chess piece.

knight A chess piece.

GUI Graphic User Interface.

Java The Java programming language, developed by Sun Microsystems.

Java runtime The necessary files needed to run Java programs in a virtual machine.

network A connection between two computers. In this case used to play chess without being on the same computer.

pawn A chess piece.

rook A chess piece.

.sav File format used to save chess game information.

SRS Software Requirements Specification. This document.

socket An interface used to establish a network connection.

stalemate A situation in chess wherein the game ends in a tie. There is no possible move.

Technology Business Development The customer.

War Room Systems An excellent software development team. Subsidiary of FiveFourteen.net.s

WRC War Room Chess. The game being developed.

queen A chess piece.

1.4 Overview

The rest of the document details the functional and non-functional requirements for *War Room Chess*. Its format follows IEEE Std 830-1998 as closely as possible.

2 Overall Description

2.1 Product Perspective

There is no shortage of computer-based chess games. *War Room Chess* is not significantly different from these other games.

The game allows two players to play a game of chess over a network. It provides a simple GUI. It also allows players to save and load games. Players may undo the most recent move as well.

2.1.1 System Interfaces

Client The WRC software has an interface that translates the user's actions with the mouse into data the server will be able to understand and relay to the other user's computer, in order to actually perform the move on both computers.

2.1.2 User Interfaces

WRC provides a simple GUI that the user operates with a mouse. The client is stand-alone. It only requires the Java Runtime Environment (JRE) and, of course, a working Internet connection. Game data will be stored on a central server.

2.1.3 Hardware Interfaces

WRC will run on any computer with the following:

- An Internet connection
- The Java Runtime Environment
- A keyboard and mouse

2.1.4 Communications Interfaces

Communication between the client software and the network software is facilitated by common network protocols.

2.1.5 Memory Constraints

The memory requirements for WRC are largely determined by the version of the Java Runtime Environment installed on the player's computer. They should not exceed 1 GB of RAM. 512 MB should be sufficient for responsive gameplay.

2.2 Product Functions

1. Allows two people to play a game of chess over a network
2. Allows a player to save their current game or load a previous one
3. Allows a player to undo their last move

2.3 User Characteristics

The users of WRC need only be familiar with the game of chess in order to use our program.

2.4 Apportioning of Requirements

Priority	Description
1	The highest priority level; all requirements of this level must be fully satisfied and verified in order for the software to be released.
2	Requirements of this level do not need to be implemented in order for the software to still be viable.

3 Specific Requirements

3.1 Functional Requirements

3.1.1 Movement

- 0100 **Pawn** Pawns shall move one space forward, optionally two spaces forward on their opening move. **Priority 1**
- 0110 **Rook** Rooks shall move vertically or horizontally any number of spaces unless impeded by another piece. **Priority 1**
- 0120 **Knight** Knights shall move two spaces either vertically or horizontally followed by one space perpendicularly. **Priority 1**
- 0130 **Bishop** Bishops shall move diagonally any number of spaces unless impeded by another piece. **Priority 1**
- 0140 **Queen** Queens shall move vertically, horizontally, or diagonally any number of spaces unless impeded by another piece. **Priority 1**
- 0150 **King** Kings shall move one space in any direction. **Priority 1**
- 0160 **Castling** When requirements are met for castling (see definition), kings may move two spaces towards a rook, with the rook moving onto the space crossed over by the king. **Priority 1**

3.1.2 Capturing

- 0200 **General Capture** If a piece other than a pawn, moving in its normal fashion, may move into a square occupied by an opposing piece, the friendly piece may capture the opposing piece. **Priority 1**
- 0210 **Pawn** Pawns shall capture by moving forward one space diagonally into an opposing piece. **Priority 1**
- 0220 **En Passant** When requirements are met for en passant capture, a pawn may capture as above into a space crossed, but no longer occupied by an opposing piece. **Priority 1**

3.1.3 Promotion

- 0300 **Promotion** A pawn, having entered the rank opposite where it started, shall be promoted to a piece of its controller's choosing. **Priority 1**

3.1.4 Move Legality

- 0400 **Legality** A move shall be deemed illegal if it does not follow the above rules or would cause the moving player's king to become in check. **Priority 1**

3.1.5 Game Saving/Loading

- 0500 A player shall be able to save his game to a .sav file. **Priority 2**
- 0510 He shall be able to load his game from a .sav file, even if he is on a different computer than the one where the game was originally saved. **Priority 2**
- 0520 The .sav format shall be plain text, unencrypted. **Priority 2**
- 0530 A .sav file shall contain the following information:

0535 the positions of each player's pieces **Priority 2**

0540 whose turn it is **Priority 2**

0545 the most recent move made **Priority 2**

3.1.6 Network

0600 Connection

0610 **Establishing** Connection shall be between two computers, each with the War Room Chess program. **Priority 1**

0620 **IP Addresses** Connections shall be determined by IP(v4) addresses. **Priority 1**

0630 **Game Start** When two games have connected, they shall send a ready message to signal the start of the game. **Priority 1**

0700 Messages

0710 **Protocol** Messages shall be passed using algebraic chess notation. **Priority 1**

3.2 Non-functional Requirements

3.2.1 Network

1000 **Bandwidth** There shall be sufficient bandwidth to handle game messages. **Priority 1**

1010 The network shall be available. **Priority 1**

3.3 Abnormal Conditions

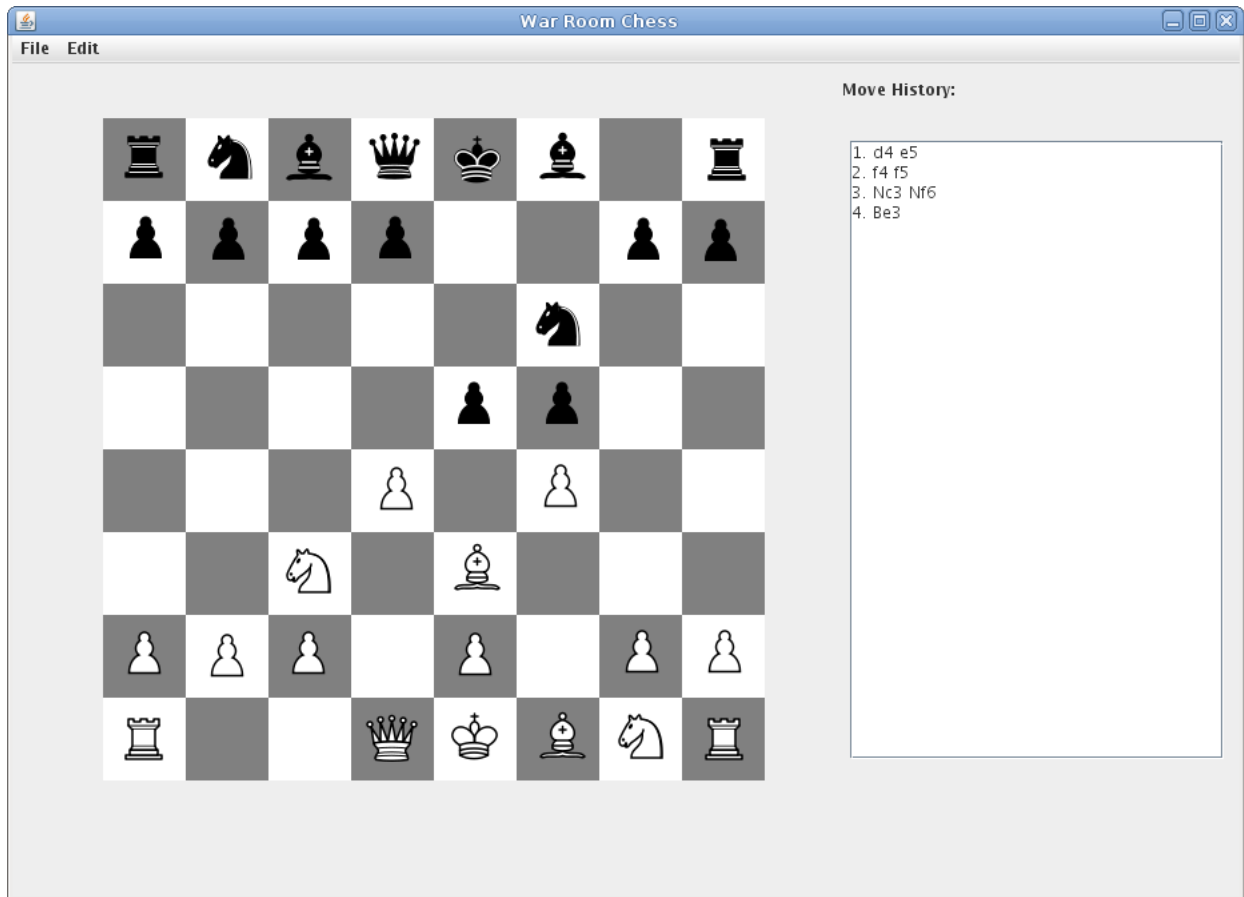
3.3.1 Save Files

2000 **Malformed File** A file that does not follow the .sav format will be rejected and an error message displayed. **Priority 2**

3.3.2 Network

2100 **Mid-game Failure** If the network connection fails in the middle of a game, WRC shall retry 3 times and then display an error message. **Priority 2**

4 User Interface



5 Use Cases

