**Board Game Checkers**

**Date: 1st November 2022**

**Team Quick Fix**

Team Members:  **Aman Kumar**

**Aniket Khajanchi**

**Milind Pal Singh Tanwar**

**Pritesh Kumar**

**Rayapati Tejasree**

**Requirement Analysis**

1. **Introduction**

The aim of this document is to gather and analyze and give an in-depth insight of the Board Game: checkers Application by defining the problem statement in detail. Nevertheless, it also concentrates on the capabilities required by stakeholders and their needs. The detailed requirements of the Board Game: checkers are provided in this document.

* 1. **Purpose and Intended Audience**
  2. **Objectives and success criteria of the project**

1. Two humans can play against each other.
2. Computer will decide the valid move.
3. Computer detect and declare the winner.
4. **Current system**

There are various online based checkers game available out there. Most of them are two player games in which players can play a turn-based game but these applications do not have one or the other feature that enables players to select different modes (Easy, Intermediate) and variants of checkers.

1. **Proposed system**

This Application eliminates the limitations of existing systems by not only including a game between two players (multiplayer game) but also consisting of different modes and more than one variant of the checker.

1. **Overview:**

In the project of checkers, the product perspective is to provide complete interface where user can play single player and multiplayer game in web-based Environment. GUI will be provided to facilitate this purpose.

1. **Functional Specifications**

**The final product should include as a minimal the following:**

* 1. **Checkers working**

1. Checkers is played by two players. Each player begins the game with 12 coloured tokens. (One set of pieces is black and the other red)
2. The board consists of 64 squares, alternating between 32 dark and 32 light squares.
3. Black moves first . Players then alternate moves.
4. Moves are allowed only on the dark squares, so pieces are always limited to forward moves (toward the opponent).
5. When a piece is captured, it is removed from the board.
6. If a player is able to make a capture, there is no option – the jump must be made. If more than one capture is available, the player is free to choose whichever he or she prefers.
7. When a piece reaches the furthest row from the player who controls that piece, it is crowned and becomes a king.
8. For more rule’s information, click on this link [English Draughts](https://en.wikipedia.org/wiki/English_draughts)
   1. **Appearance**
9. The basic colours for the board must be in the light green and Adam white family.
10. The basic colours of the checker pieces must be black and red.
11. The colours of the board squares and the checker pieces must be distinguishable.
12. The basic checker pieces must resemble a round standard checker piece. When a checker piece is crowned King, you must change the look of the piece to clearly indicate it is a King. (Eg. draw a k in the middle).
    1. **Basic Features**
13. The checker pieces must be able to be clicked/dragged by the mouse to and from squares.
14. If the player tries to makes an illegal move, you must alert the player, making cursor unavailable symbol with red.
15. The checker piece must not to be able to be dragged to an unoccupiable space. Ex. A checker must not be able to be placed on a light-coloured space. Also, not be able to be placed between two squares. The checker should snap to the centre of the closest occupiable square when the mouse click is released.
16. Must be able to save the intermediate game and resume it or start over again according to need of user.
17. Providing users with different modes of game single player or multiplayer where in single player other player will be AI/Computer mode.
18. In Single player/Computer mode, when clicked on the checker piece there will be a prediction of Valid moves and highlighting those boxes.
19. Implementing a small pop up at the opposite of the current player turn that indicates the name of the player whose turn it is.

**Possible Extensions:**

1) Implement Chat bot feature that enables players to engage themselves in the game socially.

1. **External Interface specification**
2. Http
3. File formats
4. API (maybe flask)
5. **Technical Specifications**
   1. **Hardware requirements**
6. RAM >=2GB
   1. **Performance**
   2. **Database:** MySQL
   3. **Deployment:** Heroku