Software Requirements Specification

for

Auto Player Connect4

**Version 1.0 approved**

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# Introduction

## Purpose

This SRS document describes “Auto Player Connect4” game software which takes input from real world game. The aspects covered in this document is related to the functionality provided by the system, constraints on the system, performance of the system and the system interface.

## Intended Audience and Reading Suggestions

The intent of this document is to let end users and software developers get an insight in the abstract working of this system.

## Product Scope

There are three major goals of this system:

1. To train the auto player module to become undefeatable using Reinforcement Learning tactics.
2. Provide Two-player mode for two individuals.
3. To fetch the data of the state of the game through image processing after every move of the human player.

## References

*\*WILL UPDATE AS USED\**

# Overall Description

## Product Perspective

It is a stand alone application.

*<Describe the context and origin of the product being specified in this SRS. For example, state whether this product is a follow-on member of a product family, a replacement for certain existing systems, or a new, self-contained product. If the SRS defines a component of a larger system, relate the requirements of the larger system to the functionality of this software and identify interfaces between the two. A simple diagram that shows the major components of the overall system, subsystem interconnections, and external interfaces can be helpful.>*

## Product Functions

There are major two functions of this system:

1. Play in Auto Player Mode
2. Play in Two Player Mode

## User Classes and Characteristics

The user of this system should have a real life Connect4 game to play in the real world mode.

## Operating Environment

The system will need Python installed on the machine for it to be run.

The system will work offline.

# External Interface Requirements

## User Interfaces

The GUI of this system is build using Pygame Library.

## Hardware Interfaces

For input purpose the user will need a mouse, keyboard, webcam and output will be displayed on the screen.

## Software Interfaces

The system will require Python environment and Pygame library installed on the machine. It uses YOLO framework for image processing to get input for next move by the auto player.

# Functional Requirement

## Playing in Auto Player mode with GUI

Input : input through the keyboard using arrow and enter keys

Output : next move by auto player is updated on the board

Process : the auto player decides the next move as per its learning and checks for winning situation.

## Playing in Two Player mode

Input : one user inputs through keyboard using arrow and enter keys

Output : turn of the other user

Process : updates the move on the board and checks for winning situation.

* 1. **Playing in Auto player mode with real world interaction**

Input : user drops the coin in the column and snapshot of the state of the game is taken as input

Output : The column number will be displayed on the screen for autoplayer module.

Process : The auto player decides the next move as per its learning and checks for winning situation.

# Other Nonfunctional Requirements