# Critical Appraisal

## Introduction

This project will be critically evaluated on the chosen software and language as well as an evaluation of the chosen artificial intelligence techniques used in the project.

## Chosen Project

For this project it was decided that a game would be made to demonstrate an intelligent behaviour. The chosen game was naughts and crosses, a two player turn-based game played by marking an X or O on a 3x3 grid. The player who successfully marks three tiles with their allocated symbol in a row, column or diagonal wins. If neither player manages to mark their tiles then the game ends in a draw.

## Chosen Language

Now that the project was decided the language needed to be selected. Due to familiarity Java was chosen. Java is a popular object-oriented programming language that has a very extensive library and community resources. Java was chosen as the programming language as it contains a variety of libraries for the development of artificial intelligence projects that could have been useful for the projects development.

## Chosen IDE

After choosing Java as the development language then next thing to do was pick the integrated development environments’ (IDE). There are many different IDE’s to program in as well. Some examples of these IDE’s are Eclipse, NetBeans, BlueJ and JCreator. Each with its own use and benefits, for example BlueJ was designed for beginners of the Java language and NetBeans supports multiple languages and the development of applications. After researching into which IDE to choose the chosen software was NetBeans as it provides the best resources or results for the development of similar projects.

## Chosen Technique

The chosen Artificial Intelligence technique for this implementation was MinMax. The MinMax algorithm is an Artificial Intelligence technique that can be used when certain conditions are met. The game must be a two player, turn based game and has a finite amount of moves. It also must have no random aspects for example dice games and the players should have all the information about all possible moves for example Poker cannot use MinMax as player do not know the other player’s cards. If these conditions are met then MinMax can be applied. Examples of games that can use MinMax are naughts and crosses, chess and checkers.

## Conclusion

The aim of this project was to demonstrate an intelligent behaviour within the game naughts and crosses. With the chosen language, Java, and the chosen IDE, NetBeans, the game was able to created and played. By adding in the Artificial Intelligence technique MinMax it allowed for the Artificial Intelligence player to think and choose the move that would benefit it most depending on the movement choses the human player made. With this technique the Artificial Intelligence player is able to plan many moves ahead of the human player resulting in either a tie or a win. Therefore this project has successfully demonstrated an intelligent behaviour as the Artificial Intelligence player can plan and predict to the human player.