**Tic-Tac-Toe with AI – Product Backlog**

Names: Demir Sicim (2252880), and Jorge Prado (2334690)

Project: Tic-Tac-Toe with minimax AI

High Priority Features:

* **Game board display;**

Run the application, a 3x3 grid with empty cells appears in the window, and the window has the title “Tic-Tac-Toe”.

* **Player can place “X” mark;**

Click an empty cell, a blue X appears on that cell, clicking again does nothing.

* **Win detection Columns/Rows;**

Place three “X”s in a row or a column, horizontally and vertically, message displays “Player Wins!”.

Check all rows and columns after each move.

* **Win detection Diagonals;**

Place three “X”s diagonally, message displays “Player Wins!”.

* **Draw detection;**

Fill all 9 cells without anyone winning, message displays “It’s a Draw!”.

* **Basic AI;**

After player places “X” in a desired cell, AI places “O” on a different empty cell.

* **Minimax Algorithm implementation;**

AI makes optimal moves, AI never loses (the player can only lose or draw). Also, AI blocks player to win immediately.

* **Turn indicator;**

Top of window shows “Your Turn” when it is player’s turn, shows “AI is thinking...” when it is AI’s turn.

* **New Game button;**

When the game ends, there should appear a New Game button below the window.

Medium Priority Features:

* **Visual feedback – colours;**

The “X” should appear in blue, and the “O” mark should appear in red. Winning line cells get highlighted.

* **Game status messages;**

Status label should change based on game’s state: “Your Turn”, “AI Wins”, “Draw”

* **Prevent invalid moves;**

Try clicking on an occupied cell, nothing happens. Try clicking on a cell after the game ends, nothing happens.

**Topics of Choice:**

* Algorithms: Using minimax algorithm
* Version Control: Github