Objective:

To implement TicTacToe game with Artificial Intelligence and make sure computer never lose a game. User will have option to choose between “X” or “O”.

Public Link: I uploaded app to Appstore using my personal development account. You can download app using beta testing public link and play the game. (Forgot and added )

<https://testflight.apple.com/join/Tm8HRzGt>

**User Interface:**

Mobile app has 2 screens , Initial screen will have welcome animation and 2 buttons to select. User can select either button “X” or button “O”. Once user selects any button screen will be navigated to game screen. In Game screen, we will see a board by default.

User can select any button to start the game. Once user clicks a button, computer will make another move. Game will continue till a user wins or all moves are complete in the game.

**Tech:**

Initial screen:

1. **Lottie** framework with **cocoapods** is used to display the welcome animation.
2. Buttons are animated by using custom **UI button animations**.
3. Auto Layout is used to make sure the elements are displayed in all sizes correctly.

Game screen:

1. Game board is designed by using **Stack View** and **auto layout** to have a feeling of board.
2. **Progress view** will be displayed when computer is making tis turn
3. Computers move is calculated by Artificial Intelligence using **MiniMax algorithm** along with **alpha beta** pruning.
4. Once game is won by any user, the fields will be highlighted showing the user has won.
5. Once game is complete, an alert with sound and vibration will trigger showing a message.
6. Refresh button will refresh the game board.

**App store**: Uploaded app to Appstore and completed beta review. Added beta testing link of app above.

Unit Test: Wrote few basic unit tests to test few functions.

**MiniMax algorithm:**

Minimax algorithm is used for deciding computers move. Alpha beta pruning is also used to reduce number of moves based on MinMax algorithm result.