Criterion A: Planning

**Tic Tac Toe Pygame**

**Defining the problem**

Basically, Tic Tac Toe is one of the most popular and the easiest chess game we’ve played in different kinds of situations before. Because the only devices we need are papers and pencils. We just need to draw four lines and start with a lucky guy. Also, every game will be finished in 30 seconds. However, nobody decided to install a Tic Tac Toe app on their cell phone even it is free and just takes up 3MB of storage space. So, people who doesn't learn CS in their lives will never considers to play with AI Tic Tac Toe one day. That’s where I start my curiosity.

One day, my classmate Hanbo asked me to play Tic Tac Toe. The reason why he asked me to play is that he believed he find a strategy that can always win the game. After several plays, he found that this strategy doesn’t work all the time. Surprisingly, he asked me to found out a Tic Tac Toe AI which could be as invincible in the field of the game of go as Alpha go. Just at that time I was learned about how to create python game on python and matrix, so I start with my IA Topic : Tic Tac Toe Pygame.

**Rationale for Proposed Solution**

To create a new program that allowing people play Tic Tac Toe on that is basically a way for people to relax. Also, it saves time on looking for a spare paper and waste a whole paper on 1-minute playing Tic Tac Toe. Actually, the main reason is that I can explore the algorithm of other, more advanced board game AI by studying its algorithm in the process of studying a "smart" Tic Tac Toe AI by myself. For example, it can be extended to the five chess algorithm through its basic algorithm.

According to these requirements, I decided to make my program in Python because (of):

* Practice my Python coding skill
* Improving the ability to think independently
* More efficient survey of information
* Strengthening my computational thinking
* Free for my friends to play and giving them chance to fight with a computer player in Tic Tac Toe

**Stating Success Criteria**

1. Program will give instructions to show how to play the game at the beginning
2. Program will show different levels and different symbols for player to choose
3. Program will automatically play chess with the selected difficulty and player step by step until one side wins/draws.
4. Program will ask player whether play again or not.