

Game AI (Battleship)

'Game AI' was a 'Summer Project' under the Pclub with an aim to get familiar with python and pygame. So, the basic theme was to use the probabilistic approach to find the best move for computer for detecting the ships. It works on the principle of Monte Carlo Algorithm which is used to calculate probability.

The rules of game can be found on the following link:

[https://en.wikipedia.org/wiki/Battleship_\(game\)](https://en.wikipedia.org/wiki/Battleship_(game))

How to build the game from scratch:

- First you have to get handy with python language.
So, you can refer "LEARN PYTHON THE HARD WAY "and solve the tasks. The link for it is,
<https://learnpythonthehardway.org/book/>. You do not need to learn the classes for this project unless you yourself want to learn.
Compile and write the codes in the tutorial exercise by yourself and just don't skip the exercises.
- After writing the few basic codes of python, start learning pygame which is an easy way to provide graphics to your game. The pyame tutorials are available in youtube videos of 'Pygame

game Development'

<https://www.youtube.com/watch?v=K5F-aGDIYaM>

Again implement the code side by side like first write the small code on how to draw a rectangle, how to colour, how to provide sound, etc.

- Next, for the main algorithm you have to study the Monte Carlo Algorithm. You can follow this link to learn

<http://www.cs.huji.ac.il/~ai/projects/2015/Battleships/files/report.1>

This is a simple algorithm to implement and remember your game should not have some pattern while finding the ships. So add 'random' function to hit the ships random shots during the game.

In this game:

- You can watch computer playing against itself on a randomly designed board.
- You can place the ships on the board for computer to try out to destroy in minimum shots.
- Computer will place the ship for you to find out and destroy them.

What will you learn:

- Well, after the project you will be able to write a code in python very easily.
- You will be able to learn pygame through which you can

provide graphics, create moving objects.

- It will provide you the base to proceed further for designing other games connect4 game, minesweeper.
- Well, you will become a good player in the battleship game :) .

Github Repository for the game:

<https://github.com/ankitkr1606/Battleship>