COM S 572
Principles of Artificial Intelligence
Lab 2

Name: Monoshi Kumar Roy **Email:** monoshi@iastate.edu
Student Id: 375360043

---

1. For the problem statements of 1-5, I have written the main function in the **Othello.py** file. To run this file, just use the command "**python Othello.py**". In this file, I have used the **games.py** module of (https://github.com/aimacode/aima-python) repository. I have also implemented the class **Othello** in this games.py module and used the already given alpha beta cut off search to generate next moves for agents. Additionally, I have suggested the moves for human players also using the alpha beta cut off search, however, it is completely up to the human which move he wants to give among the all valid available moves.

2. For problem statement 6, I have implemented the necessary codes in the **Othello_Comparision_6.py** file. As increasing cutoff depth results in running the game for a longer period of time, I wanted to compare the effect of increasing depth by letting **two AI agents play** the game using the **same evaluation function**(For different cut off values). You can run this file by the command "**python Othello_Comparision_6.py".** At first, it will ask the depth for each agent and after taking two depth values, two agents will play the game automatically. For convenience, I have also saved the detailed results for different depths in a text file named "**OutputFor6.txt**".

3. For the analysis of problem 7, the necessary codes have been implemented in the **Othello_Comparision_7.py** file**.** In this part, I wanted to compare the result of two different evaluation functions by letting **two AI agents play** the game using the **different evaluation functions**. If a specific agent wins everytime over the other agent for the same depth value, you can say that the winning agent's evaluation function is better. You can run this file by the command "**python Othello_Comparision_7.py".** Again, you will have to enter two depth values because I also wanted to analyze the effect of cutoff depth for two different evaluation functions. Detailed results have been provided in the "**OutputFor7.txt**" file.