CS Homework #25: Creating and playing a simple game against AI

Deadline: 5/2/2020, 9:00 pm.
*Save your code as lastname_homework25.py and submit on **GOOGLE CLASSROOM***

Task 1

Similar to what we did in class, create a game played between the User and computer (AI).

In this case, each player has two choices: Cooperate and Defect. The game payoffs are shown in the table below:

		AI	
		Cooperate	*Defect*
USER	*Cooperate*	User: $5, AI: $5	User: $0, AI: $7
	Defect	User: $7, AI: $0	User: $1, AI: $1

For example, if the User chooses to Cooperate and the AI chooses to defect, then the User gets $0 and the AI gets $7.

The goal of the game is NOT to defeat the other player but to get as much money (as many dollars) as possible. (In case you wonder, this game is known as 'The Prisoners' Dilemma').

Task 2

The game must be played for 5 rounds (ngames = 5). Implement the following decision making rule for AI: random choice between Cooperate and Defect.

If AI chooses this strategy what is the best strategy for the User? (that maximizes the amount of money that you win)

Task 3

Implement the following decision making rule for AI: Computer chooses to Cooperate in the first round, after that AI is copying the User's choice in the PREVIOUS round. If the User Cooperated in the previous round, AI will Cooperate. If the User Defected in the previous round, AI will Defect.

(Optional for CS 101)
If AI chooses this strategy what is the best strategy for the User? (that maximizes the amount of money that you win). Once, again, assume that the game is played 5 times (ngames = 5).