# Assignment 2

Introduction to AI - CS 487, Fall 2022

## Assignment 2

**Deadline:** Sunday, 13/11/2021 on e-learn (`https://elearn.uoc.gr/`)

**Deliverables:** Submit a pdf file containing a report with the answers.

## Theoretical Exercises

### Exercise 1

Give the name of the algorithm that results from each of the following special cases:

1. Local beam search with k=1.
2. Local beam search with one initial state and no limit on the number of states retained.
3. Simulated annealing with T=0 at all times (and omitting the termination test).
4. Genetic algorithm with population size N=1.

### Exercise 2

Which of the following are true and which are false? Give brief explanations.

1. In a fully observable, turn-taking, zero-sum game between two perfectly rational players, it does not help the first player to know what strategy the second player is using—that is, what move the second player will make, given the first player's move.
2. A perfectly rational backgammon agent never loses.

### Exercise 3

Discuss how well the standard approach to game playing would apply to games such as tennis, pool, and croquet, which take place in a continuous physical state space.

## Exercise 4

1. Give the values calculated by minimax for all states in the tree. Do not use alpha-beta pruning.
2. Indicate which branches of the tree will be pruned by alpha-beta pruning