

Artificial Intelligence and Computer Graphics (AIG710S)

Second Group Assignment

Due on 12/06/2020

Problem 1.

Mark: 30

Write a program in `Julia` that uses the *hill-climbing* algorithm to solve the *knapsack* problem; a well-known problem in AI. It is generally defined as follows. Consider a set of items, each with a weight and a value, and a collection with a limit. The goal is to determine the number of each item to include in the collection so that the total weight is less or equal to the limit and the total value of the collection as large as possible.

Your program will accept the following input:

- number of items;
- weight and value of each item;
- limit of the collection.

The program will return the combination of items that represents your solution. It will also display the different steps from the initial configuration to the solution.

Problem 2.

Mark: 30

Write a program in `Julia` that accepts an adversarial game as an input and returns the solution using the *minimax* algorithm with the *alpha-beta* pruning strategy. The game should support multiple players with multiple turns for each player.

Submission Instructions

- This project is to be completed by groups of maximum three (3) students each.

- For each group, a repository should be created either on **Github**¹ or **Gitlab**². The URL of the repository should be communicated by Tuesday, June 2nd, 2020, with all group members set up as contributors.
- The submission date is Friday, June 12th, 2020, midnight.
- A submission will be assessed based on the clone of its repository at the deadline.
- Any group who fails to submit on time will be awarded the mark 0.
- There should be no assumption about the execution environment of your code. It could be run using a specific framework or simply on the command line.
- In the case of plagiarism (groups copying from each other or submissions copied from the Internet), all submissions involved will be awarded the mark 0, and each student will receive a warning.

¹<https://github.com>

²<https://about.gitlab.com/>