CS5205: Advanced Artificial Intelligence Lab

Assignment - 3

30/01/2026

This assignment is in continuation with previous assignments with minor variations. The format of the input file will remain the same and you need to ignore N and K. Now we will assume that there are two LLMs – ChatGPT and Gemini. All even indexed assignments are to be solved by ChatGPT and all odd indexed assignments by Gemini. The cost of each prompt for ChatGPT and Gemini are c_1 and c_2 respectively. Such values need to be provided in the command line. In this assignment we will assume group-wise subscription for the LLMs. For example, a group of 3 students can subscribe to a total of 5 ChatGPT and 3 Gemini prompts per day. We will consider the following two scenarios:

Case-A: A student can do only one assignment per day.

Case-B: A student can solve multiple assignments in a day provided the group has sufficient prompts left and the solution of all predecessors are available. The student can share solution only on the next day.

You need to answer the following queries for both scenarios. You may need to take care of infeasible scenario as well, ie., the situation when no valid solution exists.

- Suppose you are provided a subscription ~~scheme~~ cost (to be provided in the command line), what is the earliest way to finish all assignments?

- Suppose you need to finish all assignments within m days. What is the best subscription scheme (ie. minimization of per day subscription cost)?

You need to do the following:

1. Develop good heuristics for the above.

2. Use those heuristics to implement DFBB, A* algorithms

3. Compare the number of nodes reached for DFS, DFBB, A* algorithms for each of the case for each objective.

You may download all test-cases (valid/invalid) from the website. Use the following command to extract the archive:
```
$> tar -xvzf AllTestcases.tgz
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