Informed Search

THE PANCAKE PROBLEM (100 Points)

A messy cook has a disordered stack of 10 differently sized pancakes [size from 1 to 10] and a spatula that can be inserted at any point in the stack and used to flip all pancakes above it. The goal is for the cook to have them in the "correct" order for the customer, that is, the large on the bottom up to the smallest on top ([10, 9, 8, 7, 6, 5, 4, 3, 2, 1]):

1. Define the problem as a searching problem.
2. Define a possible cost function (backward cost).
3. Define a possible heuristic function (forward cost).
4. Implement an algorithm in Python that can behave as A* and UCS as the user requests.

SUBMISSION

Python or C++ are the preferred implementation languages. If you are writing in C++, please include a Makefile as well as any other instructions for compilation. For Python, provide a plain PY file (no Jupyter notebook).

Your solution may use any numerical libraries for pre-processing, fundamental calculations (i.e., linear algebra), and visualization. However, the core portion of your solution must be implemented from scratch.

Submit your solution via Canvas and include a README file that clearly explains its assumptions.