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CSCI 406 Algorithms, Section A

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Project 3: Dynamic Programming

Describe the main idea of your approach including how you break the problem into smaller recursive problems

Our approach to this problem relies on two main points. First, there is a maximum amount of gas that is cheaper to store overnight than to order the next day. Second, maximizing the number of days where we store this maximum amount overnight reduces the overall cost of the solution. The trivial solution is having to order gas for one day; the overall cost is simply the cost of placing an order. This is also the base case for a recursive solution. The recursive case and nature of the problem is quite complicated.

For any input set greater than one day, the amount of gas that needs to be ordered for day gn depends on the amount stored overnight from gn-1.

Write pseudocode for your dynamic programming algorithm

Insert Text Here

Develop a traceback algorithm that returns the days on which to place orders and how much.

Insert Text Here

Theory: Derive the complexity of your algorithm in terms of n.

Insert Text Here

Implementation: Implement your algorithm and submit the print-out of your code. If you were unable to get your code to compile/run, please state this clearly.

Insert Text Here

Implementation: Demonstrate that your code works correctly by showing its results on the following instance.

Insert Text Here