

COMPUTER SCIENCE CLUB

Intro to Competitive Programming (Pt. 3)

Roy Zhang



Greedy Algorithms

- An optimal solution found by only considering the most optimal move in the current game state of a problem
- Doesn't always generate the optimal solution

Greedy Problem Example

Given a sum of money, make that sum of money using the least amount of bills.

Why is this problem greedy?

- You always want to pick the highest denomination bill regardless of your previous actions

When Greedy Doesn't Work

Given a sum of money, make that sum of money using the exactly 10 bills.

No longer greedy

- Can no longer just pick the highest denomination bill
- Must consider the number of bills used

Practice Problems:

Beginner: <https://dmoj.ca/problem/ccc13j4>

Intermediate: <https://dmoj.ca/problem/ccc16s2> or
<https://dmoj.ca/problem/ccc21j4>

Advanced: <https://dmoj.ca/problem/ccc22s3> or
<https://dmoj.ca/problem/ccc20s4>