IIIT Vadodara
CS263: Assignment #6

November 1, 2021

1 Problem 1

Given weights and cost of n items, put these items in a knapsack of capacity W to get the maximum total cost of the knapsack.

You cannot break an item, either pick the complete item or don't pick it.
Case:1 (pick only one time)
For example:- $W = \{10, 20, 30\}$ and $C = \{60, 100, 120\}$.
Capacity of Knapsack, W= 50; Total Cost= 220 (after picking W2 and W3 of Cost 100 and 120, respectively.)

Case:-2 (pick unbounded time)
For example:- $W = \{1, 50\}$ and $V = \{1, 30\}$.
Capacity of Knapsack, W= 100; Total Cost= 100 (pick W1 100 times)

Write both the brute force and Dynamic programming algorithm with a complete analysis to solve this problem.

2 Problem 2

Write and analyze the complexity of coin selection problem using dynamic programming (Optional for submission)

Important Points:-

- Implement it using any language.
- Save your file as CourseName_Roll_no.pdf.
- Save your source file as *CourseName_roll_no*(.c, .java, .cpp, .python)
- Submit a pdf file which will consist of the problem statement, algorithm, Time complexity (with explanation), your code, results, and analysis (Run at least 5 times for different inputs.)
  - Screen sort of you code
  - screenshot of all your output
- If it is a single file then submit only one file otherwise make a zip file and submit as *courseName_Roll_No*.zip for the code.