

Assignment 10 – Knapsack

Submission

Submit your code files under Assignment 10 by the due date specified in Blackboard. Plan to **demonstrate** your working program to the instructor in class after the due date.

Details

You should write a program to implement the 0-1 Knapsack problem we saw in class

- You should have a class called Knapsack which will contain the following methods
 - Solve Knapsack
 - Print Solution
 - Should print or graphically display the following
 - Number of items selected
 - Total Value of the items selected
 - List of the items or positions selected.
- You should have a main/driver/test class that can do the following
 - Receive knapsack Max Weight, i.e., W
 - Receive the number of selectable items
 - Receives the weights for each item
 - Receives the values for each item
 - Solves uses the knapsack class to solve and print/display the solution

Requirements

- I should be able to run your program either an interface to input the required values or allow me to point to a data file with the values in a specific format to read in.
- Be sure that if you use user input on a command line or in a GUI that you check that values being provided are in range and valid. Additionally, you may want to put limits on values being passed in such as a max capacity or max item list, etc.
- Please provide detailed instructions with your submission on which user input options are available and any basic usage instruction that is not evident when running your program, etc.

- I will have a master list of knapsack problems of varying item sizes, values and weights that will be used to test your code. Here is a sample that you can use like what I might use.

Max Weight of 7

id	weight	value
1	5	5
2	1	8
3	3	6
4	3	3
5	5	6
6	2	10
7	3	3
8	5	5
9	7	8
10	2	2
11	7	5
12	2	4
13	2	8
14	3	9
15	3	7