

- Now after discussing a bunch of theory about the concept of dynamic programming we will be taking a look at how can we solve certain problems using it. The first model problem we solve/introduce here is the "0-1 knapsack problem". This problem and the understanding of it will provide us a great insight into the solutions of the following problems too: (6)

- 1) Subset Sum
- 2) Equal Sum Partition
- 3) Count of Subset Sum
- 4) Minimum subset sum difference
- 5) Target Sum.
- 6) Number of Subsets with given difference.

all of these problems are "minor variations" of the parent knapsack problem.

↳ our job here is to learn how to identify those minor variations as that will be helpful for us in solving several other problems as well.

- 0/1 Knapsack Problem.

Problem Definition: The 0-1 knapsack problem can be described and visualized as follows:

1) Imagine you are given a bag whose capacity is "W" kg, what this means is that the bag could only hold a weight of "W" kg and if someone even tries to put 0.1 kg inside the bag, the bag will burst and its contents will spill.

