Now let us apply the rule that we saw/studied earlier that to identify if a problem can be solved using DP it needs to obey 2 conditions:

1) There has to be some notion/intuition of choice in the problem i.e. for some input provided we would always need to make a choice to include/exclude something in the final output.

2) The problem would urge us to come up with a solution that is optimal (maximum or minimum)

Knapsack problem obeys both these rules:

1) For every item provided to us in the collection we have a choice to either include it in our final solution or exclude it.

2) The problem asks us to find the solution with maximum profit which in turn is the optimal solution.

Now that we have identified that the problem can be solved using DP we will again follow a 2 step approach to solve the problem:

1) Come up with the recursive function that provides us the way to solve the problem using the relationship of the original problem to its smaller sub-problems.

2) Once the recursive function is laid out we can perform "memoization/caching" or can solve the problem bottom up.