Quiz - 2

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Pre-Processing:

The weight taken is input is changed to

N = N*1000 to convert it to gram

Sub-problem:

The sub-problem x(i) will store the number of ways ‘i’ can be formed.

Relate:

For the problem, we need to update x(i) with each iteration as it gets closer to our solution.

To relate it to our solution we need to need at every ways we can achieve x[i] by looking at the coins the can be used to make it.

x (i) = x(i)+ x(i-coin[j]) where j = (1….N) if (i-coin[j] > 0)

Here the graph depends on the previous values of ‘i’ since coin[j] is subtracted and hence, the dependency graph is acyclic and dynamic programming can hence be performed.

Base:

If N = 0, then there is **only one way** to solve the problem which is by taking nothing at all.

So, x(0) = 1

Solution:

X(N) will be the solution to our problem.

Runtime:

O(number of coins * size) = O(nt) ie pseudopolynomial