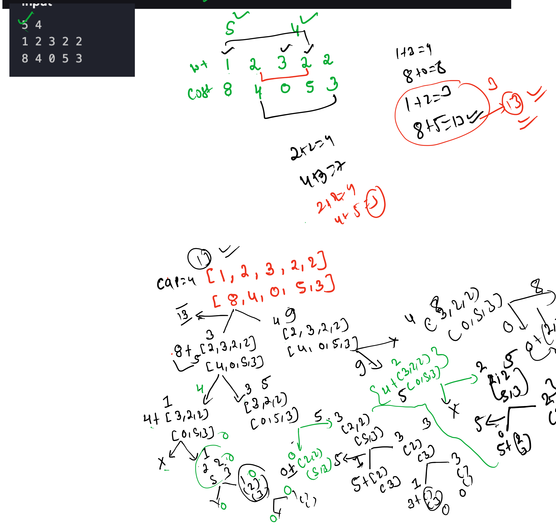
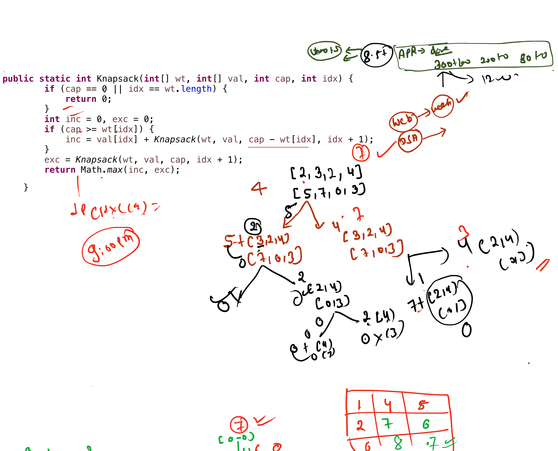
0-1 Knapsack

You are packing for a vacation on the sea side and you are going to carry only one bag with capacity S (1 <= S <= 1000).
You also have N (1<= N <= 1000) items that you might want to take with you to the sea side.
Unfortunately you can not fit all of them in the knapsack so you will have to choose.
For each item you are given its size and its value.
You want to maximize the total value of all the items you are going to bring.
What is this maximum total value?

Input
```
5 4
1 2 3 2 2
8 4 0 5 3
```





```java
public static int Knapsack(int[] wt, int[] val, int cap, int idx) {
        if (cap == 0 || idx == wt.length) {
            return 0;
        }
        int inc = 0, exc = 0;
        if (cap >= wt[idx]) {
            inc = val[idx] + Knapsack(wt, val, cap - wt[idx], idx + 1);
        }
        exc = Knapsack(wt, val, cap, idx + 1);
        return Math.max(inc, exc);
    }
```