



Department of Computer Science & Engineering

LAB MANUAL

22CS025 - Algorithm Design & Implementation-5Sem-2022

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| Course Name | 22CS025 - Algorithm Design & Implementation-5Sem-2022 |



Faculty Incharge

Aim: Count number of ways to cover a distance

Mr. Amit has a puzzle to solve. He needs your help. The puzzle is to find total number of ways to cover a distance of D steps where he can take on only 1,2,...,K steps in one go. For example, if D=3 & K=3, he can do it in 4 ways: {1+1+1, 1+2, 2+1, 3}, total 4 ways to complete 3 steps.

Input Format

First Line will contain an integer D denoting the distance to be covered.

Second Line will contain an integer K denoting the steps can be taken at most in one go.

Output Format

Print the total number of ways.

Sample Input

3

3

Sample Output

4

Solution:

```
class Result
{
    static int totalWaysToDistance(int d, int k){
        // Write your code here
        int [] dp = new int[d+1];
        dp[0] = 1;
        for (int i = 1; i <= d; i++) {
            dp[i] = 0;
            for (int j = 1; j <= k; j++) {
                if (i - j >= 0) {
                    dp[i] += dp[i - j];
                }
            }
        }
        return dp[d];
    }
}
```



CodeQuotient