DEPARTMENT OF
COMPUTER SCIENCE & ENGINEERING

Experiment-10

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Semester: 6th **Subject Name: Competitive Coding-II**
Subject Code: 20CSP-351

AIM: To demonstrate the concept of Dynamic Programming.

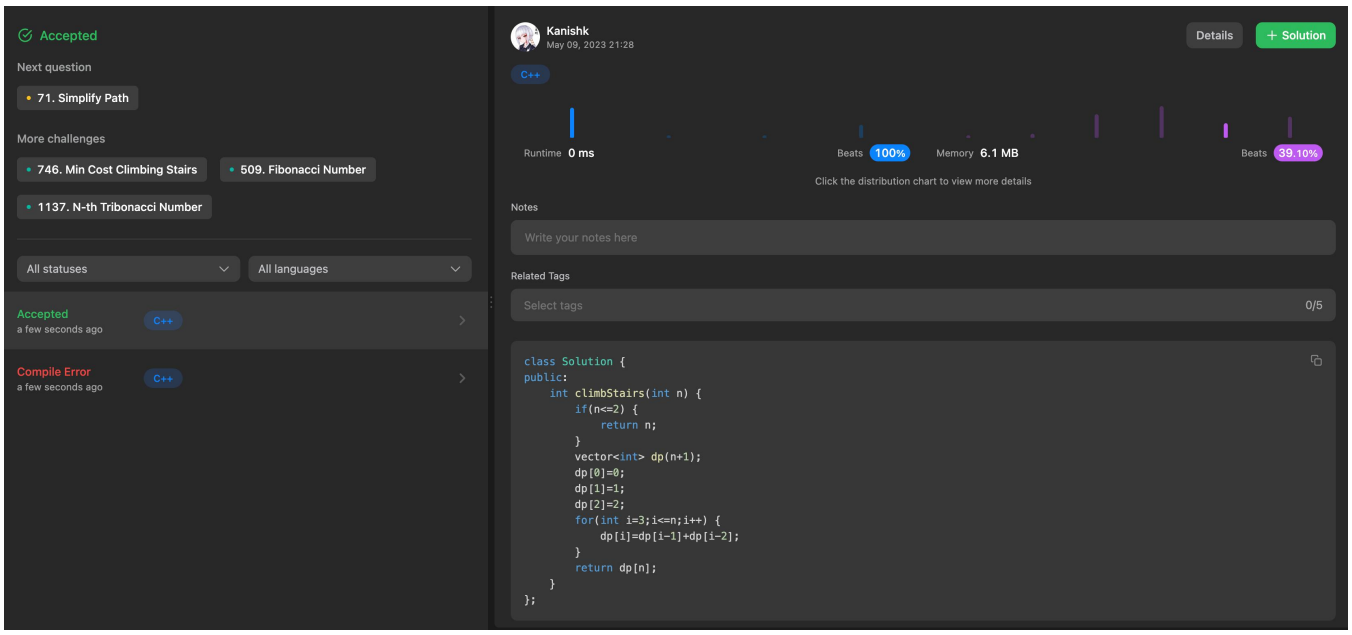
Problem1: Climbing Stairs
https://leetcode.com/problems/climbimg-stairs/

Program Code:

```
class Solution {
public:
    int climbStairs(int n) {
        if(n<=2) {
            return n;
        }
        vector<int> dp(n+1);
        dp[0]=0;
        dp[1]=1;
        dp[2]=2;
        for(int i=3;i<=n;i++) {
            dp[i]=dp[i-1]+dp[i-2];
        }
        return dp[n];
    }
```

};

Output:



Probem2: Longest Palindromic Substring
https://leetcode.com/problems/longest-palindromic-substring/

Program Code:

```
class Solution {
public:
    void chk(int l,int r,string &s,int &max,string &ans){
        while(l>=0 && r<s.size() && s[l]==s[r]){
            l--;
            r++;
        }
        l++;
        r--;
        int a=r-l+1;
        if(a>max){
```

```
            ans=s.substr(l,a);
            max=a;
        }
    }
    string longestPalindrome(string s) {
        int n=s.size();
        int max=0;
        string ans = "";
        for(int i=0;i<n;i++){
            chk(i,i,s,max,ans);
            if(i==n-1){
                break;
            }
            chk(i,i+1,s,max,ans);
            if(max==n){
                return s;
            }
        }
        return ans;
    }
};
```

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Output: