

राश्मिCTF

CHALLENGE NAME: NATURE'S CLIMB

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CATEGORY: MISCELLANIOUS

LEVEL: MEDIUM



2024

PROBLEM STATEMENT: -

Nature's beauty is like a magical dance with an invisible partner—mathematics. Look at a flower or a sunflower, and you'll notice a special way the seed, leaves or petals arrange themselves. It's like they're following a secret math code, creating a stunning design. Nature's beauty is not just random; it's a subtle, mysterious pattern, like a hidden dance choreographed by an unseen mathematician.

"Nature is Dynamic" says our unseen mathematician. Also, with this he imagines and states "Seeing this beautifully created world from the top by Climbing Stairs to Reach at the Top could be a wholesome thing! I wished it was as simple as playing with the numbers 12, 2, 7, 8, 10, 17, 18, 14, 9, 8, 5, 2, 4."

Our mathematician is also a good "Programmer", so he has already made a program for you to help with the post task. He needs your help to do the mid task for reaching the top and achieving his dream.

Remember you are also a good programmer as you have practised many DSA questions. Have confidence in yourself!

REQUIREMENTS TO SOLVE THIS CHALLENGE: -

- 1) DSA knowledge.
- 2) C++ compiler.

SOLUTION: -

- 1) From the description we are referring to a DSA standard dynamic problem question named "Climbing stairs to reach the top" based on Fibonacci series.
- 2) The problem states that you can climb 1 or 2 stairs at a time then find the number of ways in which nth stair can be reached.
- 3) In the description words like "dynamic", "programmer" is stated, also mentioned the problem name "Climbing stairs to reach at the top", mentioned DSA for more hint. With all this hints one can easily get to that DSA problem.
- 4) Search for the solution for this problem on google. There are many solutions available, we can use any of them.
- 5) For reference - <https://www.geeksforgeeks.org/count-ways-reach-nth-stair/>
- 6) Customize the code in such a way that it asks user for input, and we can put many inputs at a time in it, or put the inputs provided in description one by one in the solution and note the output.
- 7) After this process the outputs we get are [233 2 21 34 89 2584 4181 610 55 34 8 2 5].
- 8) After this we are done with first part, Now proceeding to second part run the C++ source file provided with the question, the key is the word "fibonacci". It's the beautiful series we are mentioning here.
- 9) Now paste the outputs we got in first part, After this process we get the flag - VishwaCTF{Re@ch3d_T0p}

SCREENSHOTS

PART 1

main.cpp	Run	Output
<pre>1 // C++ program to count number of 2 // ways to reach Nth stair 3 #include <bits/stdc++.h> 4 using namespace std; 5 6 // A simple recursive program to 7 // find N'th fibonacci number 8 int fib(int n) 9 { 10 if (n <= 1) 11 return n; 12 return fib(n - 1) + fib(n - 2); 13 } 14 15 // Returns number of ways to 16 // reach s'th stair 17 int countWays(int s) { return fib(s + 1); } 18 19 // Driver Code 20 int main() 21 { 22 while(true){ 23 int s; 24 cin >> s; 25 26 cout << countWays(s) << " "; 27 } 28 return 0; 29 }</pre>		<pre>/tmp/6czaFxuli3.o 12 2 7 8 10 17 18 14 9 8 5 2 4 233 2 21 34 89 2584 4181 610 55 34 8 2 5</pre>

PART 2

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PS C:\Users\adity\OneDrive\Desktop\CTF\Nature's Climb> ./a
Key is the name of the beautiful series used! NETFLIX AND CHILL!
TIP --> THIS PROGRAM IS USELESS IF YOU HAVE NOT FINISHED MID TASK!
If the key is correct, You will get a flag of meaningfull words!
Enter the key(lowercase): fibonacci
Enter all the outputs separated by space: 233 2 21 34 89 2584 4181 610 55 34 8 2 5
VishwaCTF{Re@ch3d_T0p}
PS C:\Users\adity\OneDrive\Desktop\CTF\Nature's Climb>
```