The Power Sum

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Submitted Code

Language: C++ Open in editor

```
#include <bits/stdc++.h>

using namespace std;

string ltrim(const string &);
string rtrim(const string &);

/*
 * Complete the 'powerSum' function below.
 *
 * The function is expected to return an INTEGER.
 * The function accepts following parameters:
 *  1. INTEGER X
 *  2. INTEGER N
 */

int powerSum(int X, int N, int i = 1) {
    // calculate the power of i
    int p = pow (i, N);
    // if power is greater than X we can't add more to the sum
    if (p > X) return 0;
    // if power is equal to X, it's a valid sum
    if (p == X) return 1;
    // recursively calculate the number of different ways
    // we have to consider the cases whether i is included or not
    return powerSum (X, N, i + 1) + powerSum (X - p, N, i + 1);
}


int main()
{
    ofstream fout(getenv("OUTPUT_PATH"));

    string X_temp;
    getline(cin, X_temp);
```

```
36
37      int X = stoi(ltrim(rtrim(X_temp)));
38
39      string N_temp;
40      getline(cin, N_temp);
41
42      int N = stoi(ltrim(rtrim(N_temp)));
43
44      int result = powerSum(X, N);
45
46      fout << result << "\n";
47
48      fout.close();
49
50      return 0;
51  }
52
53  string ltrim(const string &str) {
54      string s(str);
55
56      s.erase(
57          s.begin(),
58          find_if(s.begin(), s.end(), not1(ptr_fun<int, int>(isspace)))
59      );
60
61      return s;
62  }
63
64  string rtrim(const string &str) {
65      string s(str);
66
67      s.erase(
68          find_if(s.rbegin(), s.rend(), not1(ptr_fun<int, int>(isspace))).base(),
69          s.end()
70      );
71
72      return s;
73  }
74
```