PRACTICE

CERTIFICATION

COMPETE

IOBS LEADERBOARD

Q Search

swatantragoswam1

All Contests > PRP_code > Mobile Keypad(DPP31)

Mobile Keypad(DPP31)

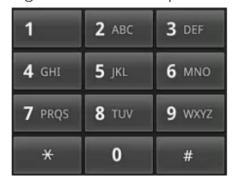
Problem

Submissions

Leaderboard

Discussions

Program to count total possible combinations of N-digits numbers in a mobile keypad



f ⊌ in

Submissions: 1

Max Score: 40

Difficulty: Medium

Rate This Challenge:



More

For example, for N = 2 the combinations are -

00, 08, 11, 12, 14, 21, 22, 23, 25, 32, 33, 36, 41, 44, 45, 47, . . . 96, 98, 99

Input Format

1. Take number from the user

Constraints

1. 0 <= num <= 1000

Output Format

1. It should count total possible combinations of N-digits numbers in a mobile keypad

Sample Input 0

2

Sample Output 0

36

Sample Input 1

5

Sample Output 1

2062



```
2 #include <map>
   using namespace std;
   #define N 8
 7 √int lookup[10][N];
 9 \forall int row[] = \{ 0, -1, 0, 1 \};
10 \forall int col[] = { -1, 0, 1, 0 };
11
12 int isValid(int i, int j)
13 ▼ {
14
       if (i == 3 && (j == 0 || j == 2))
15
16
            return 0;
17
        return (i \ge 0 \&\& i \le 3 \&\& j \ge 0 \&\& j \le 2);
18
19 }
20
21 void fillMap(multimap<int, int>& mp)
22 ▼{
23
        char key[4][3] =
24 ▼
25 ▼
26 ▼
            { '1', '2', '3' },
        { '4', '5', '6' },
27 ▼
            { '7', '8', '9' },
28 ▼
            { '*', '0', '#' }
29 ₹
30
        };
31
32
33
        for (int i = 0; i < 4; i++)
34 ▼
35
36
            for (int j = 0; j < 3; j++)
37 ▼
```

```
38
                for (int k = 0; k < 4; k++)
39
40 ▼
                    int r = i + row[k];
41 ▼
                    int c = j + col[k];
42 ▼
43
44
                    if (isValid(i, j) && isValid(r, c))
                        mp.insert(make_pair(key[i][j] - '0', key[r][c] - '0'));
45 ₹
46
47
48
49
50
51
    int getCount(multimap<int, int> keypad, int i, int n)
53 ▼{
       if (n == 1)
54
55
            return 1;
56
57
       if (lookup[i][n] == 0)
58 ▼
59 ₹
            lookup[i][n] = getCount(keypad, i, n - 1);
60 ₹
61
62
63
            for (auto it = keypad.find(i);
                (it != keypad.end() && it->first == i); it++)
64
65 ₹
                lookup[i][n] += getCount(keypad, it->second, n - 1);
        }
66
67
       return lookup[i][n];
68 ▼
69 }
70
71
   int main()
72 ▼{
73
       int n;
```

```
74
        cin>>n;
75
76
77
        multimap<int, int> keypad;
78
        fillMap(keypad);
79
80
        int count = 0;
81
        for (int i = 0; i <= 9; i++)
82
            count += getCount(keypad, i, n);
83
84
85
        cout << count;</pre>
86
87
        return 0;
88 }
                                                                                                          Line: 1 Col: 1
```

Run Code

Submit Code

Testcase 0 ✓ Testcase 1 ✓

Congratulations, you passed the sample test case.

Click the **Submit Code** button to run your code against all the test cases.

Input (stdin)

2

Your Output (stdout)

36

	Expected Output
	36

Contest Calendar | Interview Prep | Blog | Scoring | Environment | FAQ | About Us | Support | Careers | Terms Of Service | Privacy Policy | Request a Feature