**Very Cool Numbers**

Attempted by: **1437**

/

Accuracy: **64%**

/

Maximum Score: **20**

/

141 Votes

Tag(s):

Ad-Hoc, Easy

**PROBLEM**

**EDITORIAL**

**MY SUBMISSIONS**

**ANALYTICS**

For a number **X**, let its **"Coolness"** be defined as the number of "101"s occurring in its binary representation. For example, the number **21** has **Coolness** 2, since its binary representation is 101012, and the string "101" occurs twice in this representation.

A number is defined as **Very Cool** if its **Coolness** is greater than or equal to **K**. Please, output the number of **Very Cool** integers between **1** and **R**.

**Input:**   
The first line contains an integer **T**, the number of test cases.   
The next **T** lines contains two space-separated integers, **R** and **K**.   
**Output:**   
Output **T** lines, the answer for each test case.   
**Constraints:**   
1<=T<=100   
1<=R<=105   
1<=K<=100

**SAMPLE INPUT**

1

5 1

**SAMPLE OUTPUT**

1

**Time Limit:**5.0 sec(s) for each input file.

**Memory Limit:**256 MB

**Source Limit:**1024 KB

**Marking Scheme:**Marks are awarded when all the testcases pass.

**Allowed Languages:**C, C++, Clojure, C#, D, Erlang, F#, Go, Groovy, Haskell, Java, Java 8, JavaScript(Rhino), JavaScript(Node.js), Lisp, Lisp (SBCL), Lua, Objective-C, OCaml, Octave, Pascal, Perl, PHP, Python, Python 3, R(RScript), Racket, Ruby, Rust, Scala, Scala 2.11.8, Swift, Visual Basic

<https://www.hackerearth.com/practice/basic-programming/implementation/basics-of-implementation/practice-problems/algorithm/very-cool-numbers/>

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

namespace ConsoleApplication1

{

class Program

{

static int contar101(string s)

{

int cont = 0;

for (int i = 0; i < s.Length - 2; i++)

{

if (s.Substring(i, 3) == "101")

{

cont++;

}

}

return cont;

}

static void Main(string[] args)

{

int t = int.Parse(Console.ReadLine());

Dictionary<string, int> diccio = new Dictionary<string, int>();

while (t-- > 0)

{

// int R = 5, K = 1;

string[] RK = Console.ReadLine().Split(' ');

int R = int.Parse(RK[0].ToString());

int K = int.Parse(RK[1].ToString());

if (diccio.ContainsKey(R + " " + K))

{

Console.WriteLine(diccio[R + " " + K]);

}

else

{

int ans = 0;

for (int i = 1; i <= R; i++)

{

string bin = Convert.ToString(i, 2);

// Console.WriteLine(bin);

int cont101 = contar101(bin);

if (cont101 >= K)

{

ans++;

}

}

Console.WriteLine(ans);

if (!diccio.ContainsKey(R + " " + K))

{

diccio[R + " " + K] = ans;

}

}

}

Console.ReadLine();

}

}

}