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**題組：基礎48題**

**題號：Q12461: Airplane**

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**使用語言:C++**

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**題目:**

n people board an airplane with n seats. The first passenger has lost his boarding pass, so he sits in a random seat. Each subsequent passenger sits in his own seat if it’s available or takes a random unoccupied seat if it’s not. What’s the probability that the nth passenger finds his seat occupied?

**Input**

The input file contains several test cases. Each test case is described with one integer n on a single line (2 ≤ n ≤ 1000). The last line contains a single ‘0’ and should not be processed.

**Output**

For each test case, output the probability that the n-th passenger finds his seat occupied on a single line. If the probability is 0, output ‘0/1’. Otherwise, the probability should be expressed as an irreducible fraction a/b, where a and b are positive integers and a and b be are relatively prime. Do not print any spaces between the numbers or the division sign.

**Sample Input**

2

0

**Sample Output**

1/2

**問題描述：**

有 n 個人要登上一架有 n 個位子的飛機。第一個人遺失了他的登機證，所以他上機後隨機（random）挑一個位子坐。接下來的乘客登機後，如果他原來的位子沒有人坐，則他會坐在自己的位子上。如果他的位子已經有人坐了，則他也隨機挑一個座位坐。

請問第 n 個乘客登機後發現他的位子已經有人坐的機率是多少？

**Input**

輸入包含多組測試資料。

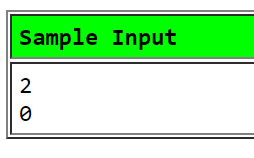
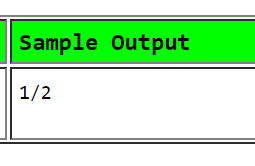
每組測試資料 一列，含有一個整數 n（2 <= n <= 1000）。

當 n=0 時，代表輸入結束。

**Output**

對每組測試資料輸出一列，輸出第 n 個乘客登機後發現他的位子已經有人坐的機率是多少。如果機率是0 ,請輸出 0/1。否則機率應該以最簡分數 a/b 來表達。

請參考Sample Output。

**解法:**

此題考的是數學能力

分析:

* 2個人

|  |  |
| --- | --- |
| 1 | 2 |
| 2 | 1 |

* 3個人

|  |  |  |
| --- | --- | --- |
| 1 | 2 | 3 |
| 2 | 1 | 3 |
| 3 | 1 | 2 |
| 3 | 2 | 1 |

* 4個人

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | 2 | 3 | 4 |
| 4 | 1 | 2 | 3 |
| 3 | 1 | 2 | 4 |
| 2 | 1 | 3 | 4 |
| 4 | 1 | 3 | 2 |
| 3 | 2 | 1 | 4 |
| 4 | 2 | 1 | 3 |
| 4 | 2 | 3 | 1 |

結論:不管有幾個人，機率皆為1/2

**解法範例：**

#include <stdio.h>

#include <iostream>

using namespace std;

int main()

{

int n;

while(cin>>n)

{

if(n==0)

break;

else

printf("1/2\n");

}

}