

DAY 24

INTERVIEW BIT PROBLEMS :

1. Sorted Permutation Rank

Given a string, find the rank of the string amongst its permutations sorted lexicographically.

Assume that no characters are repeated.

Example :

Input : 'acb'

Output : 2

The order permutations with letters 'a', 'c', and 'b' :

abc

acb

bac

bca

cab

cba

The answer might not fit in an integer, so **return your answer % 1000003**

CODE :

PYTHON

class Solution:

 # @param A : string

 # @return an integer

 def fact (self, n):

 if n <= 1:

 return 1

 else:

 return n * self.fact(n-1)

 def findRank(self, A):

 n=len(A)

 rank = 1

 for i in range(0,n-1):

 right_ele = 0

 for j in range(i+1,n):

 if A[i] > A[j]:

 right_ele += 1

 rank = (rank + right_ele * self.fact(n-i - 1))%1000003

 return rank

2. Given a **non negative integer A**, find all pair of integers (a, b) such that a and b are positive integers

a <= b, and

$a^2 + b^2 = A$.

$0 <= A <= 100000$

CODE :

PYTHON

class Solution:

@param A : integer

@return a list of list of integers

 def squareSum(self, A):

 ans = []

 a = 1

 while a * a < A:

 b = a

 while b * b < A:

 if a * a + b * b == A:

 newEntry = [a, b]

 ans.append(newEntry)

 b += 1

 a += 1

 return ans

C++

vector<vector<int> > Solution::squareSum(int A) {

 vector<vector<int> > ans;

 for (int a = 1; a * a < A; a++) {

 for (int b = a; b * b < A; b++) {

 if (a * a + b * b == A) {

 vector<int> newEntry;

 newEntry.push_back(a);

 newEntry.push_back(b);

 ans.push_back(newEntry);

 }

 }

 }

 return ans;

}