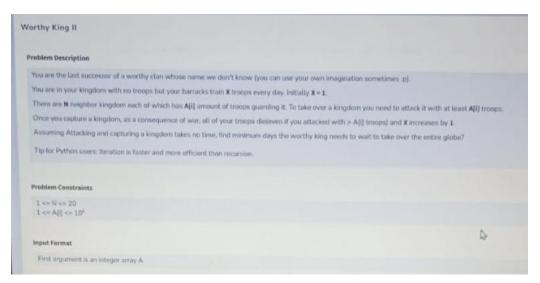
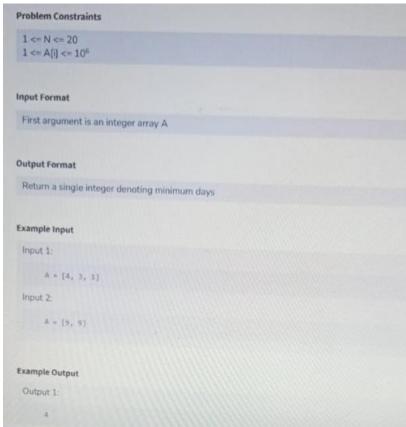
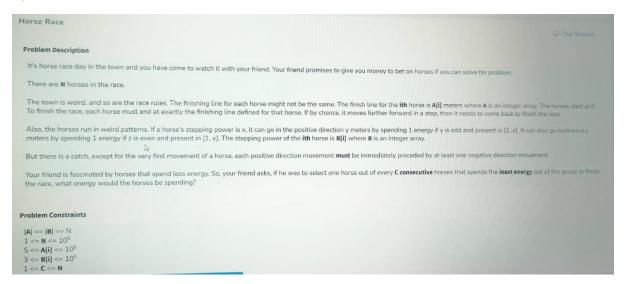
Trilogy Questions (diff college)

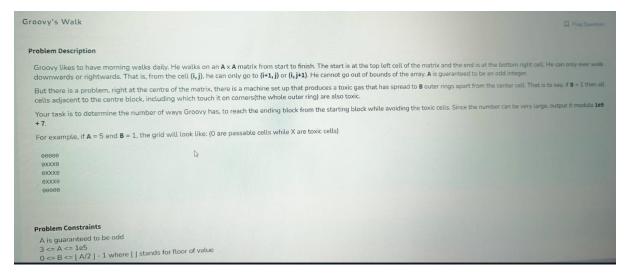
1)







3)



Problem Description You love strings a lot, so you decided to play the following game. You have a tree T of A nodes. The tree is represented by a matrix B of dimensions (A - 1) x 2, such that there exist an edge between node B[i][1] and B[i][2]. Each node is assigned a lowercase english character, which is represented by a string C of length A. Node is assigned rataracter at position i of string C. You are given Q queries in the form of a matrix D of dimensions Q x 2. For each you query you will perform the following steps: 1. You will move from node D[i][2] using the shortest possible path. 2. Let V[1], V[2]... V[K] be the nodes visited in the corresponding order. Create a string S such that length of S is equal to K and S[i] = C[V[i]]. 3. Store string S in your bag. Return the number of unique strings you would create. Problem Constraints 1 <= A <= 10⁵ B is a matrix of dimensions (A - 1) x 2 1 <= B[i][1]. B[i][2] <= A length(C) = A C only contains lowercase english alphabets 1 <= Q <= 10⁵ D is a matrix of dimensions Q x 2 1 <= D[i][1]. D[i][2] <= A

```
Output Format
 Return a single integer.
Example Input
 Input 1:
   A = 5
   B = [[1, 4], [5, 1], [2, 4], [3, 4]]
  C = "baaba"
   D = [[5, 2], [3, 5]]
  Input 2:
   8 = [[1, 2], [2, 3], [3, 4], [4, 5]]
   0 = [[1, 3], [3, 5], [2, 3], [2, 1]]
  Example Output
   Output 1:
   1
   Output 2:
    2
```

Problem Constraints

$$\begin{split} &1 <= A <= 10^5 \\ &B \text{ is a matrix of dimensions } (A-1) \times 2 \\ &1 <= B[j][1], B[j][2] <= A \\ &\text{ length}(C) = A \\ &C \text{ only contains lowercase english alphabets} \\ &1 <= Q <= 10^5 \\ &D \text{ is a matrix of dimensions } Q \times 2 \\ &1 <= D[j][1], D[j][2] <= A \end{split}$$

Input Format

First argument A is an integer.
Second argument B is a matrix of integers.
Third argument C is a string
Fourth argument D is a matrix of integers.

Output Format

Return a single integer.