HackWithInfy 2022 - Problem Set

Question 1: Prime Squares Sum

Problem Statement:

You are given an integer N. Find if there exist two prime numbers (X, Y) such that:

$$X^2 + Y^2 = N$$

If such (X, Y) exist, output the minimum value of X + Y; otherwise, print -1.

Input Format:

- First line contains an integer N.

Constraints:

- $1 <= N <= 10^9$

Sample Inputs & Outputs:

Input: 7

Output: -1

Explanation: No primes satisfy $X^2 + Y^2 = 7$.

Input: 34

Output: 8

Explanation: X=5, Y=3 => $5^2 + 3^2 = 34$ and 5+3=8.

Input: 13

Output: 5

Explanation: X=2, Y=3 => $2^2 + 3^2 = 13$ and 2+3=5.

Question 2: Remove Characters to Break Subsequence

Problem Statement:

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Alice has a string S of length N, and Bob has a string C of length M.

Bob gave Alice an array A representing the cost of deleting each letter in S.

Find the minimum cost T to delete characters so that C does not appear as a subsequence of S.

Input Format:

- First line: Integer N.
- Second line: Integer M.
- Third line: String S.
- Fourth line: String C.
- Fifth line: Array A with N integers.

Sample Inputs & Outputs:

Input:

5

3

hallo

llo

1 2 3 4 5

Output: 5

Explanation: Delete 3rd character 'l'.

Input:

8

8

muhammad

muhammad

1 2 3 4 5 6 7 8

Output: 1

Explanation: Delete the first character.

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Input:

15

4

hallohallohallo

allo

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Output: 21

Explanation: Delete characters 2, 7, and 12.