South Pacific Competitive Programming Association

wisetech global

imc

Problem F
Garden Flowers

timelimit: 1 second

Thomas has decided to abandon his career as a computer scientist and has taken up gardening. Wiith great care, he has cultivated a garden in the shape of an n by n grid. Each plot in the garden contains several flowers of a single type, where the type is represented by an uppercase letter from 'A' to 'Z'. Thomas wants to take a daily stroll through the garden, starting from the top-left plot and ending at the bottom-right plot.

During each stroll, Thomas can only move to directly adjacent plots, either by moving down or to the right. At each plot he visits, he collects exactly one flower from the plot and adds it to a necklace. The flowers are collected in the order that Thomas visits the plots along his path. Thomas wonders if two different strolls (i.e. paths) can result in the same necklace, where the necklace is the sequence of flowers collected along the path. Your task is to determine whether there exist at least two different paths through the garden that produce the same necklace. Two paths are different if there is a plot that is visited in one of the paths but not the other.

The Problem: Given a grid of uppercase letters representing Thomas' garden, determine whether there exists two different strolls through the garden that produce the same necklace.

Input

The first line will contain a single integer, n ($2 \leq n \leq 100$), representing the width and height of the garden. The following n lines will each contain n uppercase letters ('A' to 'Z') representing the rows of the flower garden. The rows are given in order from top to the bottom; each row is given from left to right.

Output

Output a single line consisting of the string `unique` if no two paths through the flower garden produce the same necklace. Otherwise, output `duplicates` instead.

Sample Input 1	Sample Output 1
3 ROS OSE CKS	duplicates

Sample Input 2	Sample Output 2
2 HS PT	unique

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