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NOTE: DSU is different from graph, however it has so many application using graph as input data.

This case is made so student can learn application of DSU without knowing about graph theory.

This case is using the theory of Cycle in Graph

In graph theory, a cycle in a graph is a non-empty trail in which only the first and last vertices are equal.

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Problem: Efficient Trip Planning

A group of friends want to plan a trip in a foreign country and want to make sure to visit all the interesting place in

the most efficient manner. To do this, they start listing the road they will take to reach each places.

The important part here is that they don't wanna go to the place that they have visited

and take the same road (a cycle) for time and fuel efficiency.

Input:

C R (C is the number of place, R is the total number of the roads connecting the places that the group plans to take)

a b (a and b are the place id which have a road connecting them, and the group plans to take the road)

The program will ask R number of a b pairs.

Output:

Whether the planning have a cycle or not (Perfect plan/Cycle detected)

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Example 1:

Input:

6 5

0 1

1 2

2 5

5 4

4 3

Output: Perfect plan

Explanation:

The plan is perfect already, they dont take any road that they have taken and dont visit any visited places.

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Example 2:

Input:

4 3

1 2

2 0

0 1

Output: Cycle detected

Explanation:

Road 0 1 makes a cycle in the whole plan because they have visited 1 before.

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