

1136. Parallel Courses

Premium

Medium

Topics

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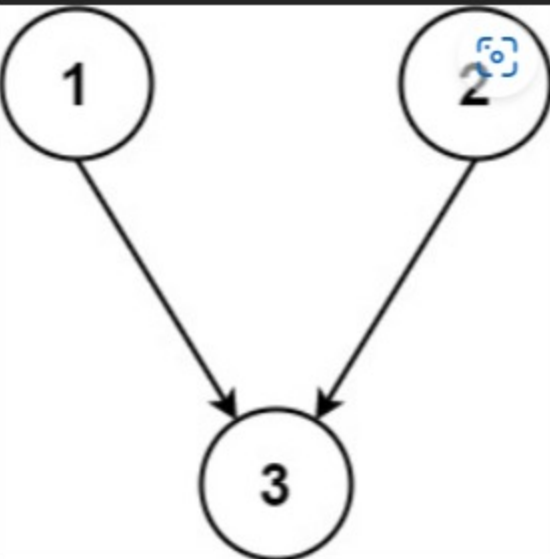
Hint

You are given an integer `n`, which indicates that there are `n` courses labeled from `1` to `n`. You are also given an array `relations` where `relations[i] = [prevCoursei, nextCoursei]`, representing a prerequisite relationship between course `prevCoursei` and course `nextCoursei`: course `prevCoursei` has to be taken before course `nextCoursei`.

In one semester, you can take **any number** of courses as long as you have taken all the prerequisites in the **previous** semester for the courses you are taking.

Return the ***minimum*** number of semesters needed to take all courses. If there is no way to take all the courses, return `-1`.

Example 1:

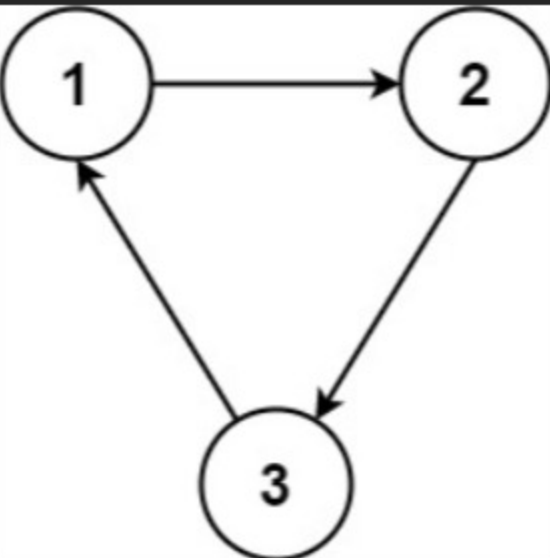


**Input:** `n = 3, relations = [[1,3],[2,3]]`

**Output:** `2`

**Explanation:** The figure above represents the given graph.  
In the first semester, you can take courses 1 and 2.  
In the second semester, you can take course 3.

Example 2:



**Input:** `n = 3, relations = [[1,2],[2,3],[3,1]]`

**Output:** `-1`

**Explanation:** No course can be studied because they are prerequisites of each other.

Constraints:

- `1 <= n <= 5000`
- `1 <= relations.length <= 5000`
- `relations[i].length == 2`
- `1 <= prevCoursei, nextCoursei <= n`
- `prevCoursei != nextCoursei`
- All the pairs `[prevCoursei, nextCoursei]` are **unique**.

Seen this question in a real interview before? 1/5

YesNo

Accepted 91.7K | Submissions 149K | Acceptance Rate 61.6%

Topics

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Companies

0 - 6 months

Google4Uber2

6 months ago

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Hint 1

Try to think of it as a graph problem. It will be impossible to study all the courses if the graph had a cycle.

Hint 2

The graph is a directed acyclic graph (DAG). The answer is the longest path in this DAG.

Hint 3

You can use DP to find the longest path in the DAG.

Similar Questions

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Discussion (19)