

210. Course Schedule II

Description

There are a total of `numCourses` courses you have to take, labeled from `0` to `numCourses - 1`. You are given an array `prerequisites` where `prerequisites[i] = [ai, bi]` indicates that you **must** take course `bi` first if you want to take course `ai`.

- For example, the pair `[0, 1]`, indicates that to take course `0` you have to first take course `1`.

Return *the ordering of courses you should take to finish all courses*. If there are many valid answers, return **any** of them. If it is impossible to finish all courses, return **an empty array**.

Example 1:

Input: `numCourses = 2, prerequisites = [[1,0]]`

Output: `[0,1]`

Explanation: There are a total of 2 courses to take. To take course 1 you should have finished course 0. So the correct course order is `[0,1]`.

Example 2:

Input: `numCourses = 4, prerequisites = [[1,0],[2,0],[3,1],[3,2]]`

Output: `[0,2,1,3]`

Explanation: There are a total of 4 courses to take. To take course 3 you should have finished both courses 1 and 2. Both courses 1 and 2 should be taken after you finished course 0.

So one correct course order is `[0,1,2,3]`. Another correct ordering is `[0,2,1,3]`.

Example 3:

Input: `numCourses = 1, prerequisites = []`

Output: `[0]`

Constraints:

- `1 <= numCourses <= 2000`
- `0 <= prerequisites.length <= numCourses * (numCourses - 1)`
- `prerequisites[i].length == 2`
- `0 <= ai, bi < numCourses`
- `ai != bi`
- All the pairs `[ai, bi]` are **distinct**.

