* **What You Will Practice**

You will work on several top graph-related algorithms for job interviews:

Detecting a cycle in a graph: [d](https://leetcode.com/problems/course-schedule-ii/discuss/293048/detecting-cycle-in-directed-graph-problem), [u](https://leetcode.com/problems/course-schedule/discuss/149177/Detecting-Cycles-in-Undirected-Graph-Union-Find/191600)

DFS (note that many problems can be solved using DFS. E.g., some listed [here](https://medium.com/@codingfreak/depth-first-search-dfs-interview-questions-and-practice-problems-3862d9cd26f))

[maximum clique](https://www.geeksforgeeks.org/maximal-clique-problem-recursive-solution/) problem

Finding a graph [bridge](https://en.wikipedia.org/wiki/Bridge_(graph_theory))

[Topological sort](https://leetcode.com/problems/course-schedule/discuss/304362/on-solution-object-oriented-topological-sort)

For the goals and motivation for the full-stack development (extra credit) parts of this lab please refer to the [full-stack module](https://blackboard.usc.edu/webapps/blackboard/content/listContentEditable.jsp?content_id=_6550446_1&course_id=_241636_1&content_id=_6550708_1).

**Lab 10 Guidelines**

Posted on 03/27/2020

Officially Assigned on: 03/27/2020

Due: Sunday, 04/12/20 at 11:59pm Pacific Time.

Late submissions will be accepted only in the first two days after deadline with a maximum penalty of 15% per day: For each day, submissions between 12 and 1am: 2%, 1 and 2am: 4%, 2 and 3am: 8% and after 3am: 15%.

1) Please check the  [General Lab Guidelines](https://blackboard.usc.edu/webapps/blackboard/content/listContentEditable.jsp?content_id=_6380500_1&course_id=_241636_1)  and [AI policies of](https://blackboard.usc.edu/webapps/blackboard/content/listContentEditable.jsp?content_id=_6380494_1&course_id=_241636_1) our course.  

2) Each lab has some mandatory parts. All the mandatory parts are directly discussed during lectures.

3) Each lab may include extra credit parts. Please make sure you understand the guidelines for the [Extra Credit](https://blackboard.usc.edu/webapps/blackboard/content/listContentEditable.jsp?content_id=_6380496_1&course_id=_241636_1)parts of this course. You are recommended to avoid doing the extra credit parts, if you don't have time for it, or your main intention of doing extra credit is the points assigned to those problems. The goal of extra credit is to assign some problem for you to practice for interviews, but not mandating them, to avoid overwhelming you. 

4) Each lab may have optional parts. That means you should not submit for them. It's optional for you to practice those parts on your own.

5) You can post your questions on the [Lab10 forum.](https://blackboard.usc.edu/webapps/discussionboard/do/forum?action=subscribeForum&course_id=_241636_1&nav=discussion_board_entry&conf_id=_312953_1&forum_id=_193220_1)

6) Please check the general notes regrading any [updates](https://blackboard.usc.edu/webapps/blackboard/content/listContentEditable.jsp?content_id=_6431774_1&course_id=_241636_1&content_id=_6431774_1)in our course.

**Main Supervisors for this lab**

Mandatory Parts: Although all our TAs and mentors are knowledgeable on algorithms, including graph, this part of lab10 is designed by the instructor. Please refer to the instructor (post on [Lab10 forum](https://blackboard.usc.edu/webapps/discussionboard/do/forum?action=subscribeForum&course_id=_241636_1&nav=discussion_board_entry&conf_id=_312953_1&forum_id=_193220_1)), text, etc.

Extra Credit Parts: The main mentors for this lab are Akshata and Emelia. Please post your questions on the Lab10 forum, but if you need a TA, please use the office hours of Akshata and Emelia. In case you need to email them, cc the instructor.

[**Mandatory: Graph**](https://blackboard.usc.edu/webapps/blackboard/content/listContent.jsp?course_id=_241636_1&content_id=_6549510_1)

[**Extra Credit: HTML and CSS**](https://blackboard.usc.edu/webapps/blackboard/content/listContent.jsp?course_id=_241636_1&content_id=_6545231_1)

35 Extra Credit Points. However depending on the quality of work, this can increase.

[**Extra Credit: Angular JS**](https://blackboard.usc.edu/webapps/blackboard/content/listContent.jsp?course_id=_241636_1&content_id=_6545445_1)

40 Extra Credit Points. However depending on the quality of work, this can increase.

[**Extra Credit: Power Verification of System-on-Chip Using ML**](https://blackboard.usc.edu/webapps/blackboard/content/listContent.jsp?course_id=_241636_1&content_id=_6551428_1)

200 Extra Credit Points Minimum, however depending on the quality of work this case increase.

**Videos**

Check at the [Graph Part II module](https://blackboard.usc.edu/webapps/blackboard/content/listContentEditable.jsp?content_id=_6552283_1&course_id=_241636_1&content_id=_6552283_1)

Check at [the full-stack module](https://blackboard.usc.edu/webapps/blackboard/content/listContentEditable.jsp?content_id=_6552272_1&course_id=_241636_1&content_id=_6552272_1)

**Github Assignment Link**

For this lab 9 assignment, please use github to submit your assignment. Click the link below and accept the assignment, then follow the instructions to push your work on the github repository we created for you.

Please remember to upload your readme file with at least **Name and Student ID** information in it.

<https://classroom.github.com/a/c6-Xfn6E>