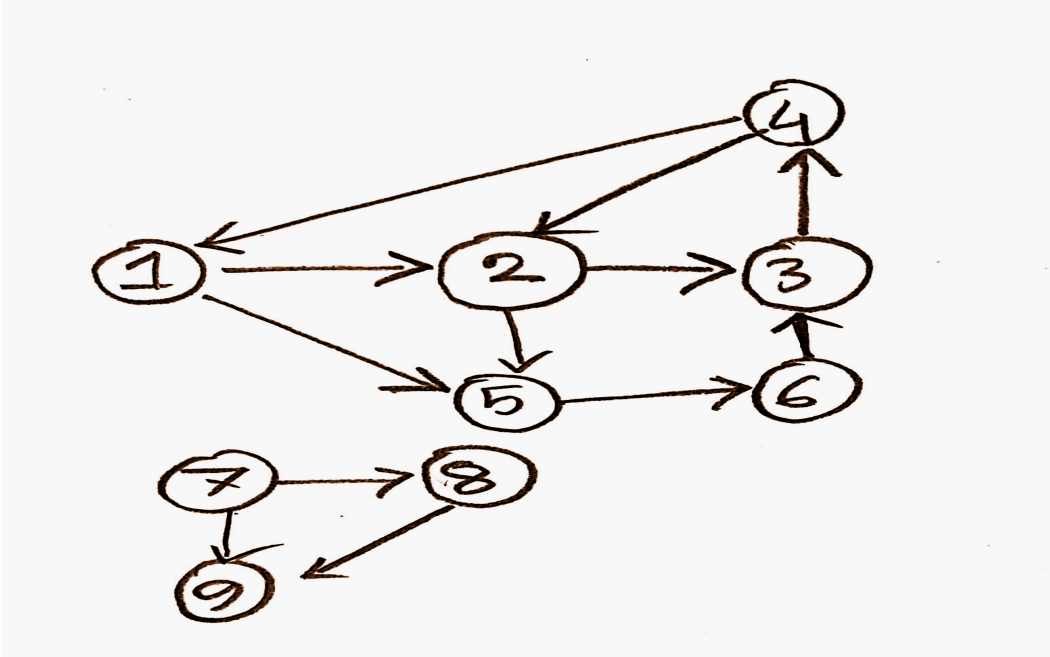
CSE 221 Quiz 02 B

Time:[7:00pm to 7.40pm] 40 minutes (including submission)

Suppose you are the Mayor of A city Called "Citadel" which has total of 9 central spots[numbering starts from 1 to 9]. Due to some massive break of infectious disease Algid-19 you are sensing the need to lock down the areas to stop the spread of the infection. To achieve that you now have a map of the whole city and how each central area is connected with each other. Keep in mind the connections are made with only 1 way bridge so you cant travel from both side of a bridge. You have to build wall to divide the city into certain areas/hubs where everybody can travel at any places within the hub.



a. Define whether it is a connected or disconnected graph ? [1]

b. Name the algorithm tailored for this situation. [1]

c. Identify the groups of areas/hubs you need to make the boundaries for in-order to contain the infection only within those hubs/areas and It cannot reach other hubs/areas resulting in an outbreak. [a hub can consists of one or more central points]. Give the central spots each hub will have. Show proper simulation of the task using the data structure you are implementing and draw the graph in your script to draw the boundaries which will enclose each hub. [8]

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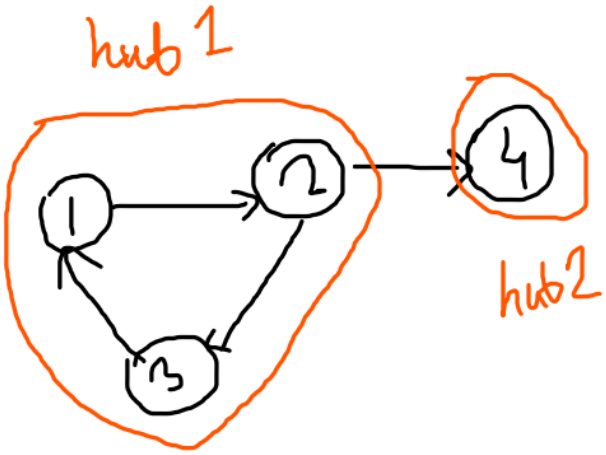
For example, 2 hubs can look like this in another city structure: [orange color border is denoted as boundary here just to clarify]



[BONUS] e. If a graph has less amount of adjacent nodes for each node [sparse graph], you are given a source point and a destination point. If the destination is very close from the source. meaning a very small number of hops away from source, which traversal algorithm will work poorly? [1 line answer] [1]

SUBMISSION FORMAT: SCAN YOUR HANDWRITTEN ANSWER, MAKE IT A PDF AND NAME IT IN THIS FOLLOWING FORMAT: SECTION_SETB_ID_NAME_Q2.pdf