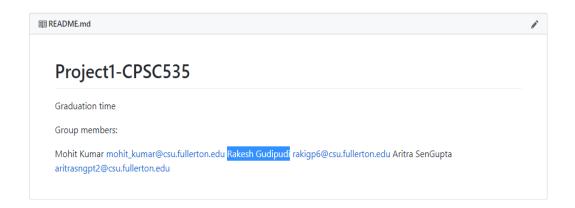
# Spring 2020 CPSC 535-01 14111 ADVANCED ALGORITHMS PROGRAMMING ASSIGNMENT 1

# **GROUP MEMBERS**

- 1)Mohit Kumar(mohit\_kumar@csu.fullerton.edu)
- 2)Rakesh Gudipudi(rakigp69@csu.fullerton.edu)
- 3)Aritra Sengupta(aritrasngpt2@csu.fullerton.edu)



## Pseudocodes for the two problems:

### 1)Pseudocode for topological sort:

- 1)Call DFS(G) to compute finishing times f[v] for each vertex v.
- 2)Put all the nodes into map<Node, Visited> with marked as visited False.
- 3)call DFS on each node not visited until all the vertexs are visited.
- 4)Add node into a list while visiting Node in DFS Mode
- 5)Reverse the list to get the correct order of topologically sorting.(This is because we are not using list instead of stack to store the sorted nodes)
- 6) Return the list with topological order.

### 2)Pseudocode for finding the longest route in the graph

- 1)Input: Unweighted DAG G = (V, E)
- 2) Output: Largest path cost in G
- 3)Topologically sort G
- 4) for each vertex  $v \in V$  in linearized order
- 5)do dist(v) =  $max(u,v) \in E \{dist(u) + 1\}$
- 6)return maxv∈V {dist(v)}

### Procedures for running the code

- 1)Download the files from github to downloads folder.
- 2) Put all the java files and input files in strictly in downloads folder.
- 3)Run the below command on cmd to compile the files
  - -javac Node.java
  - -javac Graph.java
  - -javac GraphInit.java
- 4)Run the below command on cmd to run the file

java GraphInit.

This will ask you to provide input file name with extension.

- 5)Type in the file name(ie,graph01.txt)
- 6)Result will pe displayed on the screen.

### **Snapshots of the results**

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student@tuffix-vm:~/Downloads$ javac Graph.java
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student@tuffix-vm:~/Downloads$ java GraphInit
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graph01.txt
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[1, 2, 4, 5, 6, 3]
The longest path from 1 has length 4, finishing at 6.
The path is: 1 2 4 5 6 student@tuffix-vm:~/Downloads$ java GraphInit
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graph02.txt
Graph TopoLogical Sorted Order
[C2, A1, C1, B2, B1, A2]
The longest path from Al has length 2, finishing at A2.
The path is: Al Bl A2 student@tuffix-vm:~/Downloads$ java GraphInit
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lease provide input file name with extension i.e. graph01.txt

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