Spring 2020 CPSC 535-01 14111

ADVANCED ALGORITHMS

PROGRAMMING ASSIGNMENT 1

GROUP MEMBERS

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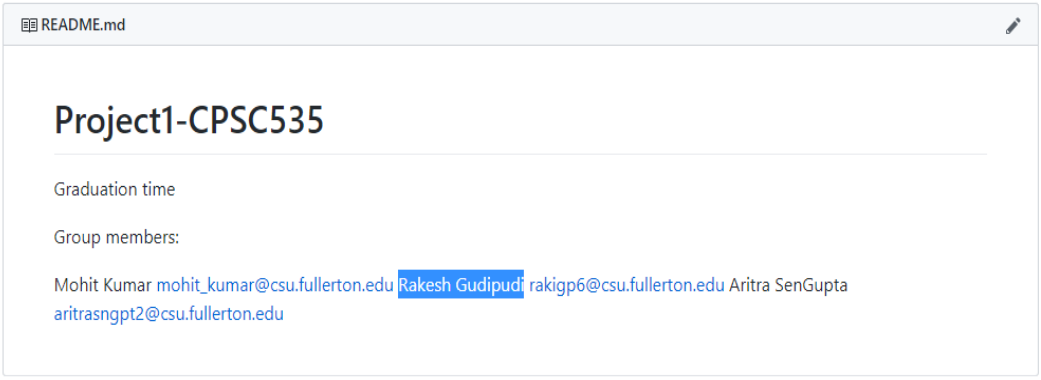
README.md

Project1-CPSC535

Graduation time

Group members:

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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.

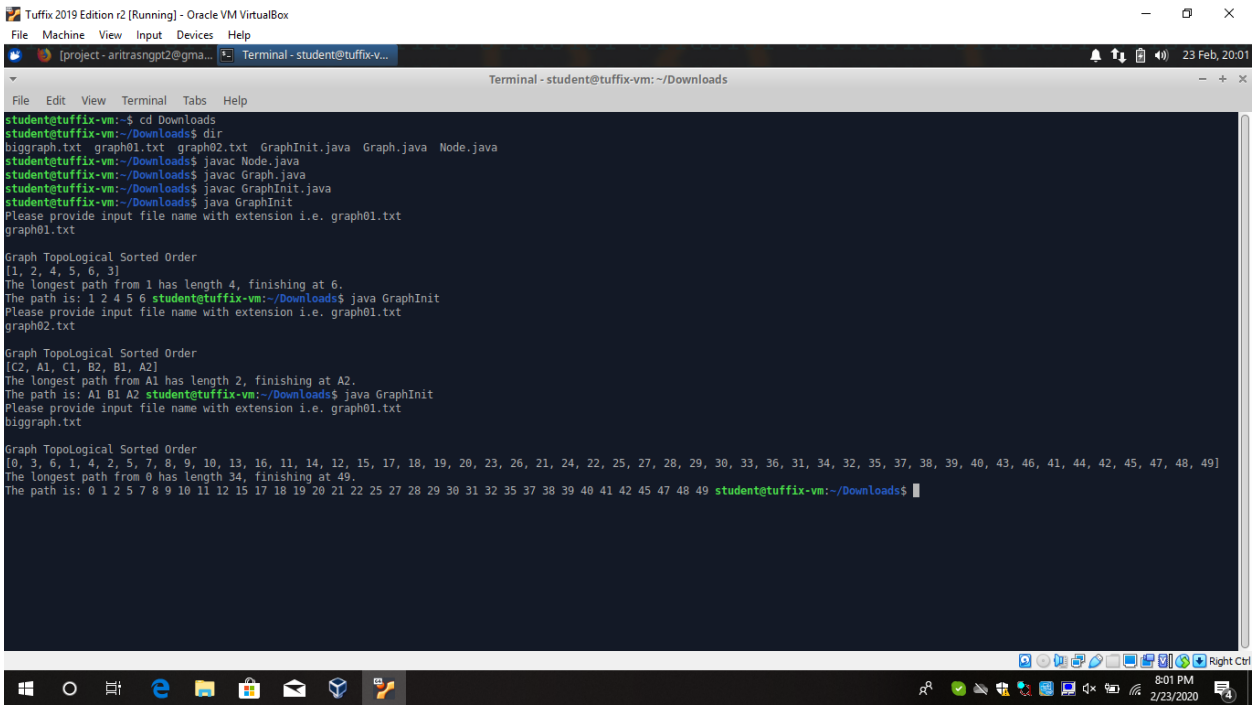
2)Pseudocode for finding the longest route in the graph

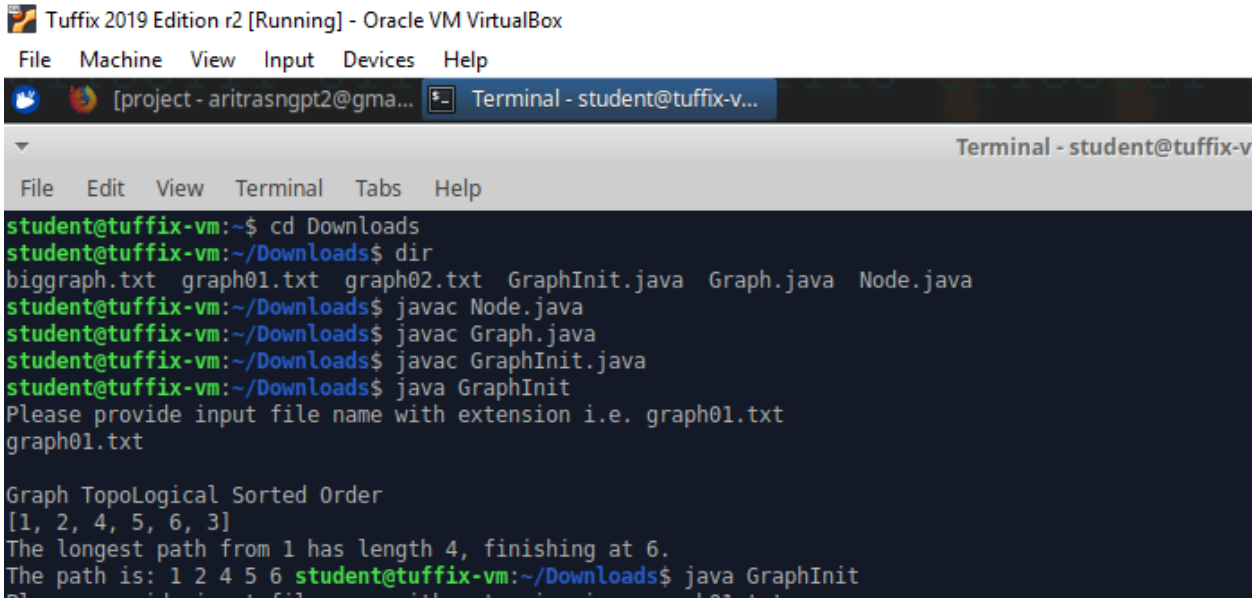
1)Input: Unweighted DAG G = (V, E)
2) Output: Largest path cost in G
3)Topologically sort G
4)for each vertex v ∈ V in linearized order
5)do dist(v) = max(u,v)∈E {dist(u) + 1}
6)return maxv∈V {dist(v)}

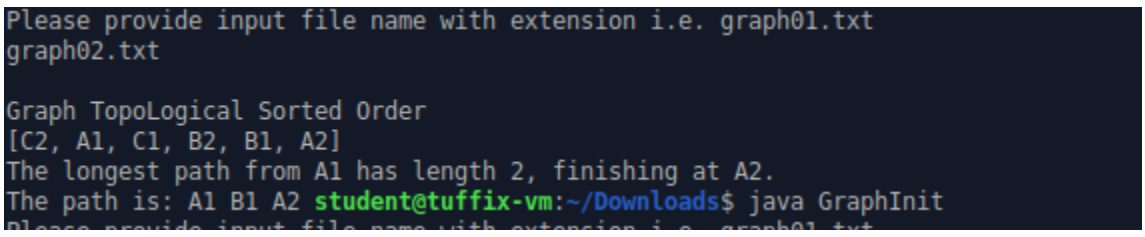
Procedures for running the code

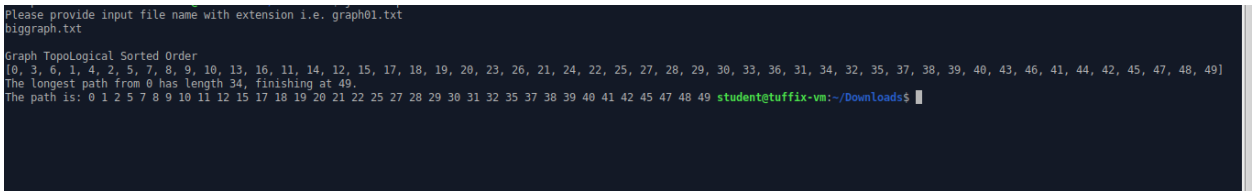
1)Download the files from github to downloads folder.
2)Put all the java files and input files in strictly in downloads folder.
3)Run the below command on cmd to compile the files
    -javac Node.java
    -javac Graph.java
    -javac GraphInit.java
4)Run the below command on cmd to run the file
java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








Please provide input file name with extension i.e. graph01.txt
biggraph.txt
Graph TopoLogical Sorted Order
[0, 3, 6, 1, 4, 2, 5, 7, 8, 9, 10, 13, 16, 11, 14, 12, 15, 17, 18, 19, 20, 23, 26, 21, 24, 22, 25, 27, 28, 29, 30, 33, 36, 31, 34, 32, 35, 37, 38, 39, 40, 43, 46, 41, 44, 42, 45, 47, 48, 49]
The longest path from 0 has length 34, finishing at 49.
The path is: 0 1 2 5 7 8 9 10 11 12 15 17 18 19 20 21 22 25 27 28 29 30 31 32 35 37 38 39 40 41 42 45 47 48 49 student@tuffix-vm:~/Downloads$