CS-430 Project

RUN Java Jar (Executable) File

1) It will ask for input file by opening browse file dialog box

2) Select Input file and it will generate two output files for Kruskal and Prim containing MST edges for connected graphs

3) Proper validation of input file is done and will generate respective error message box corresponding to each error and at end if program is successfully executed it will give message of successful execution

4) I have also kept my Java Files for code lookup, Krus.java contains main method and it will call Prim.java and both output files will be produced where jar (executable) file is kept.

RUN from IDE

1) Open IDE and using Import > General >Existing Projects into Workspace > Browse Zip file
2) Click Finish and Run project from IDE and Krus.java contains main method

RUN from Command Prompt

1) Unzip the files and Open the src folder
2) Using cmd in this directory and compile the java files which will generate class files
3) Run the program using Krus file which contains main method

Validation-

1) Input file name must be graph.in
2) First line should be numeric as it represents number of nodes
3) Second line should be comma separated characters and must be equal to number of nodes
4) Third line should be numeric as it represents number of edges
5) From fourth line to end of file it should have edges and its weight
6) Output's the list of edges obtained as per algorithm execution and nodes are lexicographically sorted.

Comparison -

Kruskal

Sorted edges in quick sort and implemented algorithm using union find data structure

Time Complexity - O (ElogV), it produces MST edges in scattered way like forest

Prim

It requires initial vertex to start algorithm so I have used first vertex as starting point and then implemented using min heap

Time Complexity - O (ElogV+VlogV), it produces MST edges in contour shape