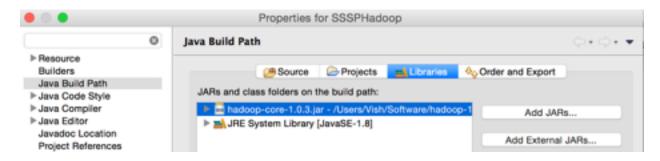
Single Source Shortest Path using Hadoop by Vishal Doshi vdoshi3@uic.edu Spring 2015

NOTE: The programs have inline comments for easy understanding. I have also included the sssphadoop.jar file for easy

Step 1: Import the project in Eclipse. (659391383_ASSIGN1.zip has the project)

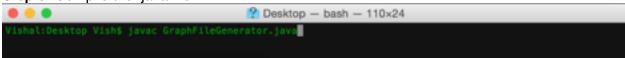
Step 2: Make sure Project Properties> BuildPath > Libraries have hadoop-1.0.3.jar as an imported external library



Step 3: Export the project as .jar

Step 4: Paste GraphFileGenerator.java on you desktop. found in Folder name GraphFileGenerator

Step 5: Compile the .java file

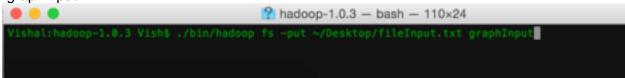


Step6: Run the class file

Specify the number of node (Default is 100) Specify the approx percent of neighbors (Default is 10)

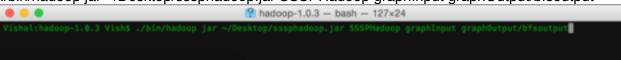
```
Vishal:Desktop Vish$ java GraphFileGenerator
Graph File Generator:
Enter number of modes in the graph
Default Size is 180 (Press return to continue)
18
Enter approx percent of neighbours to the number of modes.
Default is 10 percent (Press return to continue)
15
1 2,7,8|0|GRAY|source
2 1|Integer.MAX_VALUE|MMITE|mult
3 4|Integer.MAX_VALUE|MMITE|mult
4 3,7|Integer.MAX_VALUE|MMITE|mult
5 6|Integer.MAX_VALUE|MMITE|mult
6 5|Integer.MAX_VALUE|MMITE|mult
7 1,4|Integer.MAX_VALUE|MMITE|mult
8 1,10|Integer.MAX_VALUE|MMITE|mult
9 |Integer.MAX_VALUE|MMITE|mult
10 8|Integer.MAX_VALUE|MMITE|mult
Vishal:Desktop Vish$
```

Step 8: Move the fileInput.txt generated on Desktop by GraphFileGenerator to "graphInput"



Step 9: Run the Hadoop job:

./bin/hadoop jar ~/Desktop/sssphadoop.jar SSSPHadoop graphInput graphOutput/bfsoutput



Step 10: Check the output files generated in graphOutput Directory in Hadoop FS

Implementation details:

Mapper: Will get text and pass it to Node class constructor to create Node. Then it will process it by exploring its neighbors and creating them as nodes too.

Partitioner: Will pass the K,V pair to appropriate Reducer [no. of reducers is set to 5]

Reducer: Will club the node with same id into one single node with the darkest col, minimum distance from source and it's predecessor.

Node: node class is used to create nodes.

GraphFileGenerator: is a java program that creates a input file the location where the class is.