CSCI423 - Analysis of Algorithms
Rhode Island College **Spring 2019**
Mello-Stark

Assignment 5 - Bubbla Company

This project is due **Friday, April 26** at **11:59PM**. Upload a zipped file named `yourname_assignment5` to Blackboard. The file must include a(n):

1. Executive Summary Report in PDF format
2. Python (.py) file
3. readme.txt file with instructions on how to run your code

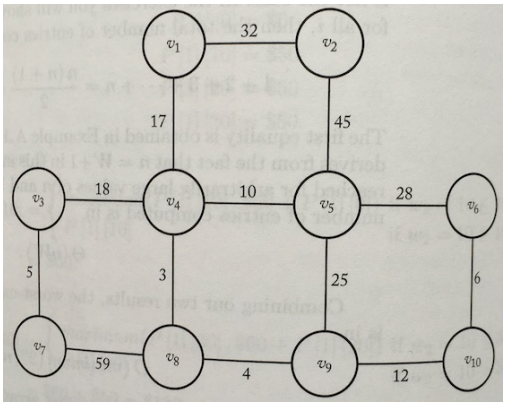

Figure 1: City Circuit (graph representation)

You are applying for a job as a consultant at the prestigious Bubbla Company. The lead Software Architect is a RIC CS graduate and her favorite class was Algorithms. She is interested in hiring a person that can write code to find minimum spanning tree(s) for her sales circuit. She also wants you to show the time and space efficiencies of your algorithms. She is interested to find out if Prims or Kruskals takes longer to execute for her circuit. She is also wondering if each algorithm finds a different tree. v_1 represents her home city of Providence.

1. Your code should print out the edges in the order they are added to the tree.
2. You can find and use Prims and Kruskals python code online if you wish. You may use the code you find but be sure to test that it works and to cite your sources and give the author's credit within the code and in your report. You can also create your own code if that is easier or funner for you.

   You can find a version of Prims here:
   http://interactivepython.org/courselib/static/pythonds/Graphs/PrimsSpanningTreeAlgorithm.html

3. You will need to write the code to create an adjacency list, time each algorithm and print out the results.

Before handing in your assignment, be sure to check the following:

1. Implementation

   (a) Execution. The code runs properly and is written in logical and understandable format.

   (b) Heavily Documented

      i. A header block that contains your name, assignment, brief description of the code

      ii. Comments throughout the code to help the grader understand your thought process

      iii. Your code comes with a readme file with instructions on how to run your code.

2. Executive Summary Report. Your report contains the following:

   (a) A summary of your findings

   (b) A summary of your time and space efficiency analysis

   (c) Pseudocode for your algorithms

   (d) Screenshots of the command-line of your algorithms being run

   (e) Form and Style. Grammatically correct with no spelling errors, easy to read and understand. Your list of references is included in ACM format.

   Here is a resource for ACM citing sources: https://www.cs.ucy.ac.cy/ chryssis/specs/ACM-refguide.pdf