COSC 445 Project 2

Option Choice and Chosen Item(s) Due: March 24, 2016 at 5PM
Program and Documentation Due: April 7, 2016 at 11:59 PM

Description

There are two options for your project: 1) Graphical representation of Data Structures; 2) Graphical representation of Search algorithms.

Data Structures: For this option, your group will choose an interesting data structure not discussed in COSC201 and not included in your chosen language. You will implement the data structure as well as INSERT, DELETE, MINIMUM, and any other appropriate methods for using the data structure.

Search Algorithms: For this option your group will choose 2 interesting search algorithms not discussed in COSC201. You will implement the search algorithms and allow the user to observe the algorithms while running in order to compare them.

For both options, you must include a GUI that graphically shows the execution or representation of your project choice. You must do your implementation in Python, C++, or Java. If you use an external library of any kind (one that is not included by default in the language distribution) you must provide a link for installation of the library on OSX 10.10.

Analysis

For the run-time analysis, you will need to do best, worst and average case run-times of your algorithm. Your analysis should include theoretical values as well as implemented run times.

Documentation

In addition to the appropriate help files for the program, and installation and run instructions, you will need to write a paper which justifies the way you wrote the algorithm using the analysis above. The paper should be sufficient in length to provide a thorough justification. All sources used should be cited using AMS style. You should use at least 3 sources in the development of the program.

Due Dates

You must choose which option your group will go with, the assigned roles, and the algorithms or data structure you will be exploring by March 24th at 4PM. Note that some groups will have one additional team member - this team member should be designated as a "floating" developer, attached to both GUI and Algorithm development. This must be emailed to me by the due date or your group will lose 10 points per day until it is turned in (include list of the sources used).

Team Reviews: Each member of the group should give a numeric grade (out of 100) to all other members of the group with justification. This is due via email by April 7th at 11:59 PM. Late reviews or reviews that do not follow the instructions will result in a deduction.

Final Program and documentation due April 7th at 11:59 PM via Blackboard.

Roles:

1. Coordinator
2. GUI Developer
3. Algorithm Developer
4. Documentation Writer

Rubric:

1. Team Reviews: 20%
2. Data Structure or Algorithm implementations: 40%
3. GUI component, including graphical representation: 25%
4. Paper: 15%