CNT 5805 Final Project

There are two sections to this guidance. One is the <u>Final Report</u> in which you will upload into WebCourses by the posted due date and time (since this is a group project, only one of the team members needs to upload it) and the other is your <u>Classroom Presentation</u> which you will give on the date posted in the syllabus schedule. It too must be uploaded into WebCourses no later than the posted date and time (again only one of the team members needs to upload it). Out of the 30 possible points for your project, up to 15 points will be awarded for the final report and up to 15 points for the classroom presentation.

The rubric for the Final Project Report is:

1. **15% grammar, references, format, etc.**
2. **60% for covering the main points, content of your material, and conclusions**
3. **25% for logic flow of the ideas and understandability**

The rubric for the Final Project Classroom Presentation is:

1. **25% for logic flow of the ideas and understandability**
2. **60% for covering the main points, content of your material, and conclusions**
3. **15% slide quality, smoothness of team's presentation, equal distribution of material covered by each teammate.**

<u>I. Final Report</u>

Please answer all of the questions that are bullets under each numbered paragraph below. Your team name and number must appear on the first page of your report. Create corresponding numbered sections in your report and put page numbers in your report. You may use Gephi or any other network analysis software for this project.

1. You and your teammate(s) are to report on your real-world dataset and the network analysis you ran on it. (maximum of one page)
   - Summarize your project. Include such items as your motivation for selecting your topic. What was the source of your dataset (provide a link if it was obtained on-line)?
   - Explain your purpose (e.g., inform, persuade, educate, entertain, predict, etc.) for analyzing this network. Use at least one of the terms from the preceding sentence for your purpose.
   - List and explain the research questions of your project.

2. Now open your file using Gephi or any other network analysis software you used.
   - How many nodes and edges are in your graph, is it directed or undirected, weighed or unweighted?

- Run all of the **Statistics**, **Network Overview** in Gephi and show a screenshot of it.
- What can you ascertain from the initial graph you see? Include a diagram of the initial graph in your report.

3. Now run three to five layout algorithms.
   - Show a small screenshot of each one and briefly explain what changed and why?
   - At this point, which layout seems most useful and why?

4. Now add some emphasis to your diagram by sizing, node coloring, and naming the nodes.
   - Show a screenshot of this action.
   - What have you learned from your new diagram?

5. Now run some statistics about the network such as average degree, density, betweenness, Eigenvector centrality, clustering, etc. You decide which ones are most relevant.
   - Explain what statistical results you found. Show graphs, plots, and numbers generated by your software and explain what impact it had on your analysis.

6. Now run some filters on the network. You decide which ones are most relevant.
   - Explain what results you found. Show graphs, plots, and numbers generated by your software and explain what impact it had on your analysis.

7. Address what network features you found such as communities, giant clusters, homophily, robustness, spreading phenomena, etc.
   - Explain any features you found and what relevance they had in your study.

8. Results and contemplation.
   - What concrete results did you achieve in doing your project? Address this in terms of your research questions.
   - Address your contemplation about the project. Include, for example, other data that could have made your study more relevant, the difficulty in dividing the workload between team members, data preparation, what was unexpected, etc.

9. In submitting your project report: you must upload your paper into WebCourses Assignments in Project Assignments called **Final Project Report** in ***.pdf*** format. Your file name should follow this naming convention: you project number and name-CNT5805-final research project.pdf. For example, *5-JazzMusicians-CNT5805-final research project.pdf*

II. Classroom Presentation

Each team will be given 15 minutes to give their classroom presentation followed by a five minutes Question and Answers (Q&A) where you will provide answers to questions. In addition, each project team member is expected to present for an equal amount of time and participate in the Q&A. Should you not participate equally in your classroom presentation and Q&A, you may be deducted points.

Limit your presentation from 10 – 15 slides. If it is any larger, you probably will not have enough time to go through it. As a minimum:

- The first slide should be your cover slide stating your team number and name as well as the members on your team. Include your presentation date on it as well.
- The second slide should have a short summary of your project and the purpose of your analysis. Your purpose should be to inform, persuade, educate, entertain, or predict. Use one of the terms for your purpose from the preceding sentence. For example, the purpose may be to predict the robustness of your network.
- The next slide should address the research questions of your project.
- The next slides should contain information similar to the Gephi **Data Laboratory** view. Summarize the data to the extent that the audience becomes familiar with it. Indicate whether your graph is directed or undirected and if your data is weighted.
- The next slides should show the different layout algorithms that you tried with comments about how each one would be useful or not useful in your analysis.
- The next slides should show the statistics, filters, etc. that were run. Explain what significance each finding had on your analysis. Try to organize your thoughts and slides into a logical sequence so that you are telling the story of why and how you performed your analysis. For example, the first statistic we ran was to validate that the overall clustering coefficient of the network was high. We found that …
- The second to the last slide should state the overall results of your project. This should be tied back to the purpose and research questions contained in your initial slides.
- The final slide should be your contemplation about the project such as: other data that could have been added to make your study more relevant, the difficulty in dividing the workload between team members, data preparation, etc.
- In submitting your project presentation, you must upload it into WebCourses in **Assignments** called **Final Project Classroom Presentation** in ***.pptx*** format and your file name should follow this naming convention: you project number and name-CNT5805-final project presentation.pptx. For example, *5-JazzMusicians-CNT5805-final project presentation.pptx*

The date of your presentation is posted in the syllabus schedule found on our WebCourses homepage. Should any presenter not be present for the final presentation, he/she will need to give the entire presentation to me in order to receive any points.

It is essential that the most current version of your presentation is uploaded into WebCourses prior to the beginning of the class on the day of your presentation. The reason for this is that we are on a tight schedule and there would be too much delay if you try to run it from some other source.

As far as your presentation is concerned, try to keep the printed words on each slide to a bare minimum. Only list the main points you want to convey and address them in your own words. Make sure your presentation keeps moving along. Remember you only have 15 minutes to present your project. ~~Someone siting in back of the class will be designated to hold up a sign at certain intervals which will indicate how much time you have remaining.~~

I have always found that plenty of practice will help you deliver a good presentation. I recommend that you stand in front of a mirror, your teammate, or friends and go over it as many times as you can. Remember “repetition is the motherhood of learning”.