CMPSC 102
Discrete Structures
Fall 2019

Lab 5 Assignment:
Mini-Writing Assignment, Building on Project Ideas From the Literature.

Objectives

To learn how to locate articles and discover ideas which you may want to use for a potential group project (research project) in this course. Discuss potential ideas with your group to determine group interest levels for a combined approach to the study.

GitHub Starter Link for Groups

STOP! STOP!
Not everyone will be clicking this link at this time!
Only the team leader will be clicking the link to create the repository!!
`https://classroom.github.com/g/zaPdKzEC`

Creating your repository

Please work in groups: Unless you provide the instructor with documentation of the extenuating circumstances that you are facing, not working in a team and not accepting the assignment means that you automatically receive a failing grade for this work.

We will use a group assignment functionality of GitHub Classroom for this assignment. For group assignments **only one person will be creating the team while the other team members will join that team.** Please form a team of **no more than four people** and select one person to create the repository.

The selected person of the team should go into the link to the lab in the assignment sheet. Copy this link and paste it into your web browser. Now, you should accept the laboratory assignment and create a new team with a unique and descriptive team name (under "Or Create a new team").

Now the other members of the team can click on the assignment link and select their team from the list under "Join an Existing Team". When other team members join their group in GitHub Classroom, a team is created in our GitHub organization. Every team member will be able to push and pull to their teams repository.

To push your changes, you can use the following commands to add a single file, you must be in the directory where the file is located (or add the path to the file in the command):

- `git commit <nameOfFile> -m ''Your notes about commit here''`

- `git push`

Alternatively, you can use the following commands to add multiple files from your repository:

- `git add -A`
- `git commit -m ‘‘Your notes about commit here’’`
- `git push`

The Main Project

For your deliverable for this assignment, you and your group are to determine an amazing project for Discrete Structures that demonstrates programming, analysis, thinking and some of the other skills that you have gained in this class. You are to discuss this idea in writing after you and your group have brain-stormed an idea that you will all enjoy working on. Discuss the feasibility of the project with your group; do you have enough time, data or something else necessary to be able to complete the project before the class finishes?

Your project may be about anything, as long as it demonstrates Python3 programming skill, has a running theme of something that you have studied in this Discrete Structures or has a similar theme of something that could fit into our class. **In about 700 words, explain your project, its motivation and other elements so that your idea is clear to the instructor.** This writing will also help the instructor to see what you are planning to do and to save you and your group if the project appears to be infeasible.

Some of the questions -in-blue about your work are listed below.

1. Explain your idea for a class project.
2. What motivation is there for your project to be done?
3. How is the idea connected to computer science (in particular, Discrete Structures)?
4. What do you and your group expect to learn from the completion of your work?

Five Supporting and Factual Articles

Once you have chosen your project, you are to develop it further using ideas taken from articles. You will choose five peer-reviewed, academic and factual articles will be helpful to your project *in some way*. By being *helpful* to your project, it is understood that your articles have something necessary to offer your work. These articles may have parts of the method that you intend to borrow for use in your project (while citing the original authors.)

For example, if your group chose a project to demonstrate the inefficiency of calculating Fibonacci terms using recursion algorithms, as compared to using other types of algorithms to calculate the sequence, your group may choose articles that discuss what an inefficient algorithm is and

how to detect this inefficiency. There may be several other articles that you involve in your work where you borrow ideas to cite that you could apply to your own work and written discussion of your idea.

Remember, these articles will *set the stage* and support the work that you will be doing for your work and so they must be explained in this context – as supporting ideas for your project idea.

In the discussion of each article, please respond to the below types of questions-in-blue.

1. What is the central thesis to the article?
2. How will this article improve your project?
3. How will this article contribute theory, structure, data, or programming skill, usage of Python3 libraries, etc.
4. How will this article contribute a mechanism or algorithm (in sets, graph theory, programming, etc.)
5. How will this article contribute a concept of interest that combines mathematics and computer science
6. How will this article provide some insight into an important phenomenon in computer science and programming
7. How will this article demonstrate a method or technique in terms of course topics

It is expected that by writing about your selected articles, your own idea for a project will develop further and become improved as a result of the knowledge from the articles. Remember that you will be to citing these articles in your own work's bibliography and so you can borrow seemingly any part of a method that has components which are valuable to your own work.

Finding Articles

Please use the Google Scholar search engine, inter-library loan service, databases or other online resources to help you find these articles. Blogs and most news articles do not count here. We note that the academic articles (i.e., IEEE, ACM and similar quality publications) will provide your group with ideas and that you can cite in your own work. Please do not use blogs or news articles as your main documents to supply your work with its facts; instead, your factual sources are to come from peer-reviewed articles (from credible sources) that can be referenced in your work.

Writing

The discussion of the main idea is about 700 words and the discussion of each article will be similar. **Please use clear and meaningful language** as you write. Please also use Markdown to complete your work. For help, see *Mastering Markdown* `https://guides.github.com/features/mastering-markdown/` for more details about Markdown. Another good reference for writing in Markdown may be found at: `https://markdown-it.github.io/`.

Required Deliverables

Submit deliverables through your assignment GitHib repository bearing your name, as well as all names in your group for your group work. Place ideas and justified citations in the file `writing/ideas.md`. Your submitted document will be about a page in length. Please keep your discussion concise.

1. **Work in Groups with a Team Leader**: You are to work in groups no larger than four (4) people to complete this idea-lab. Give your group a name. Each member is to work collaboratively with group members.

2. File: `writing/report.md`. In this document, you will outline the main idea and then cite and discuss each of the supporting articles that you have selected to develop your project. For each **Please be sure that you justify why your project idea will be of interest to your Discrete Structures course.**

Please let the instructor know of any questions that you or your group may have. Please use email or make office-hour appointment slots if you would like to discuss an issue.