**CMPSC 462 (Fall 2024)**

**Software Development**

**Goal:** The goal of this project is to Design and Develop your own Software of Interest implementing a Tree and/or Graph data structures (you can also use other data structures) using Python. You can identify any domain of interest except games and develop a functioning software. You should also implement one new thing you haven’t learnt in class.

**Report:** The project report (elaborate report – around 7 to 10 pages excluding title and outline pages) should contain the following:

1st page: Project Title, course name, student’s name, instructor name and date

2nd page: Outline of the report with corresponding page numbers.

1. Introduction
2. Background / Theory (optional)
3. Design and Implementation

* Design should also include a block diagram or class diagram or any UML diagram.
* Choose a proper data structure and justify why are you using this data structure by comparing the pro and cons with other data structures.
* Discuss user and functional requirements of the software.
* Explain the development of the software and also explain the functionalities with help of appropriate code snippets.
* Perform time complexity analysis for few of the main functions.

1. Results/Sample Outputs

Note: If you use a large set of data, you can show a sample result as a screenshot. You need not show all the data entries in the sample.

1. Conclusion

Have a brief conclusion. Also list out each individual’s contribution towards the completion of this project.

1. Contribution

Briefly discuss each of the member’s contribution here.

1. References

**Due Dates:**

**10/20/2024 @ 11:59 pm** - Proposal slide (you should submit 1 slide expressing your project idea in canvas). (2.5 points)

**10/22/2024 @ 9:05 am** - Each student will be given 90 seconds to talk about their proposal and teams will be formed on the same day. (2.5 points)

**11/05/2024 @ 9:05 am** for submitting Abstract, Goal, Objectives, Class/Block/Design diagram (10 points) - report has to be uploaded in CANVAS

**12/03/2024 - peer review report** (5 points) - report must be uploaded in CANVAS by end of the day.

**12/16/2024 @ 6:00 pm** – Presentation slides, demo video, Final report, data and codes submission in CANVAS (80 points including presentation)

**Final presentation – 12/17/2024 at 8 am – 9:50 am.**

Each team will have 7 - 12 minutes to perform project presentation.

**Deliverables in CANVAS:**

* Presentation slides, demo video, Final report, data and codes as a zip file – 1 member can submit the zip file.

**No other opportunity would be provided for project demonstration unless there is an unavoidable circumstance** and reported to the instructor prior to the presentation date.

**Total Points for the Project: 100 points**

/\* All students are expected to use appropriate amount of comments to explain their program. \*/

Students should perform a formal presentation to demonstrate their software design.

You can use the sample report format attached here for the full report submission.



CMPSC 462 (Fall 2024)

Data Structures

Final Project:

Your Project Title

Team Member’s Name here

Instructor:

Submitted On: Date here

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1. **INTRODUCTION**

Introduction for the project

// Insert page numbers in all page and so you can refer it in the Outline.

1. **BACKGROUND**

You can discuss the theory behind any specific functions being used in the software

1. **DESIGN & IMPLEMENTATION**

* Design should also include a block diagram or class diagram or any UML diagram.
* Choose a proper data structure and justify why are you using this data structure by comparing the pro and cons with other data structures.
* Discuss user and functional requirements of the software.
* Explain the development of the software and also explain the functionalities with help of appropriate code snippets.
* Perform time complexity analysis for all the important functions.

1. **RESULTS / SAMPLE OUTPUTS**

Note: If you use a large set of data, you can show a part of the screenshot for your sample result.

1. **CONCLUSION**

Include each team member’s contribution too.

1. **CONTRIBUTION**
2. **REFERENCES**

Cite your source of reference here