## ***CS-242 – Fall 2020***

# Final Project Topics

*(150 Points)*

### **Objective:**

The objective of the Final Programming Project (in lieu of Exam3) in CS-242 Data Structures is to apply the concepts of Data Structures learnt during the course and implement real world application through Java Programming language. The students will develop a Java programming project that will not only incorporate the data structures concepts learned during the CS-242 course but also helps students explore and apply Programming skills and data structure concepts beyond that were learned during the course. This would entail looking up external resources for utilizing additional Java classes and interfaces, abstract data types, and their associated methods, that maybe required for the completion of the Project.

### **Important Instructions:**

The list of Project Topics provided below is tentative and students are encouraged to take up Programming Projects that are more specific to their respective domains of study. Students can also come up with some other topic or idea, and discuss the same with the instructor.

**A prior discussion and approval on the Project Topic is required from the instructor, before the students begin work on their Final Project.**

Students can work individually on the Final Project or with partners (Team of 2 students).

Final Project Deliverables and Rubric are provided in a separate document.

Students should decide and enter their final Project Topic in the Excel sheet on the shared Google drive by **Tuesday, December 1, End of Day.**

### **Suggested Topics:**

The Final Project can be based on either of following 2 categories:

* Menu driven (Like Programming Project#1, #3, #4)
* Non-menu driven (Like Programming Project#5)

**Important point to note is that the final Project should implement at least one data structure.**

### **Menu-driven (Like Programming Projects#1, #3, #4)**

In case of menu driven Final Project, students will create an interactive user-friendly menu to collect and generate the basic “node” (like Appointment class of Project#1 OR Student class of Project#3 and Project#4. Students can then generate a real-world application with the help of any suitable **data structure(s).** Some examples are:

* Create a hierarchy of perishable and non-perishable items and generation of order of grocery items
* Create a hierarchy of fiction and non-fiction books and generation of order of books in a library

Think of such similar class relationships and real-world applications and implement them:

* Ingredients and Recipes
* Employee, faculty, student
* Customer, order or Customer, order, product

And so on…

You may also have the data read from input files.

### **Non-menu driven (Like Programming Projects#5)**

In case of non-menu driven Final Project, students will create a user-friendly solution to some known Mathematical/Scientific/Gaming problem that encompasses the usage of **Data Structure(s).** **Care should be taken that the code is not copied/taken from internet and there are multiple ways in which the problem has been approached. This should be shown in the accompanying report.**