**Guidelines for OOP in JAVA Project (CS 252)**

You will work in groups **(3 Members max)** to design and implement a solution for real world Problem of your choice. Real world problem can be anything you see in business process running in real world scenario e.g.

1. Supermarket (On campus or off campus)
2. Library (Decorah public library or Luther College)
3. Registartion system (Luther College)
4. Recreation center (Regent center)
5. Career center (Luther College) or job portal etc

**Phase 1:**

For Phase 1 of the project you will focus on OOAD where you will build a problem statement by relying on different methdoologies we discuss e.g. Interview, Survey, Questionare or Observation. From probem statement you will extract list of possible classes by following all the steps we discussed. You create a class diagram in which class attributes and operations, associations, and inheritance relationships are shown. You will create sequence diagrams to model several use cases.

**Phase 2:**

Phase 2 will mainly focus on writing Java code where you will design a usable user interface to support the required functionality of the system. And you will implement your designs in Java, using JavaFX or Swing for the user interface. For this particular project, it will entirely depend on you to use database or not; to facilitate data reads and writes.

**Project guidleines for pahse 1 (Step by step):**

1. **Methodologies used for requirement gathering and detail of any meeting sessions**
2. **Problem statement**
3. **Use cases (Atleast 7)**
4. **List of potential classes**
5. **List of domain classes (Atleast 10)**
6. **Class diagram**

**Development steps for Class diagram**

1. Create the class diagram **(Version 1.0)** , at first *without* operations [see design workshop notes]
   1. Isolate the *concepts* or *candidate classes* as described earlier in the course, by examining and filtering nouns and noun phrases in the problem statement.
   2. Decide on a set of classes
   3. Add appropriate attributes to the classes
   4. Identify inheritance relationships
   5. Create a more complete class diagram **(Version 2.0)** that includes the above as well as associations between your classes. Add names and/or roles to your associations as well as multiplicities. Check if there are any relationships that should be modeled with an association class. Decide if some associations should be changed to dependencies and make the changes in your class diagram.
2. To help identify operations in your classes, create sequence diagram for important use cases. The actor in each case who will be using the system. **(Atleast 5 sequence diagrams)**
3. Use your sequence diagrams to help identify operations in your classes, and add these to your final class diagram **(Version 3.0).**

**Presentations (Phase 1):**

Each group will be given 10 minutes to present where you need to briefly introduce target business and focused areas, problem statement, First class diagram, important use cases, Second class diagram with more detailed relationships and attributes, important sequence diagrams and final version of your class diagram. There will 5 minutes for Question Answers.

**Submission (Phase 1):**

1. You need to submit a project proposal (Which will contain your group members name, business or project title, Short description of problem or project, Key business areas you want to focus, Time lines). There will be 5 minute project oral proposal presentation session for each group. Date will be announced in class for submission of proposals.
2. Complete project documentation ( as described under **Project guidleines for pahse 1**). Date will be announced in class for project timelines, presentation and documentation submission.

**Evaluations (Phase 1) 20 marks**

1. Attendance and communcitaion: 2 Marks
2. Requirement gathering methodologies: 2 Marks
3. Problem statement: 2 Marks
4. Intial list of classes: 2 marks
5. Version 1 of class diagram: 2 marks
6. Use cases: 2 marks
7. Version 2 of class diagram: 2 marks
8. Sequence diagram: 2 Marks
9. Version 3.0 of class diagram (Final diagram)
10. Documentation submission: 2 marks

\*Oral presentation is mandatory for evaluation