CS 311: Object Oriented Programming [1] Coursework (Project)

Project Goal:

To design and implement software based on the principles of OOP and using *Java.*

Project Specification:

Design and build an application going through all of the following designing phases and fulfilling the project requirements:

1. **1st Milestone (Project Proposal)**: delivers your chosen topic of the target application (*refer to the proposal template to submit*).
2. **2nd Milestone (UML & Classes)**:
    a. **UML Diagram:** deliver the diagram & structure of your application's classes in hierarchy using UML diagrams.
    b. **Classes Declaration**: Provide the declaration of your classes' components (variables & functions).
3. **3rd Milestone (Complete Submission of application)**: submission of the complete implementation of your project's work, presentation, and final project report.

Team Size: Each team or group should consist of 6 students including the team leader.

Assessment & Milestone Due Dates (*for Late Submission refer to the Syllabus***):**

Milestone	Mark Weight	Due Date*	Feedback
Milestone (1st): Project Proposal	-	Monday 8th Oct 18	Monday 15th Oct 18
Milestone (2nd): • **UML Diagram** • **Classes Declaration**	2%	Monday 5th Nov 18	Monday 12th Nov 18
Milestone (3rd Final): COMPLETE Project Implementation	8%	Monday 3rd Dec 18	Sunday 9th Dec 18

Designing Guide:

Your project should show an evidence of applying the following concepts of OOP development as discussed during the lectures of this course:

1. You must ensure that your UML diagram is well-designed in matter of starting from analyzing your application's requirements and ending by creating a comprehensive well-structured program, constructed from classes that includes both variables and functions.
2. Do not hesitate to ask ☺ I'm here to share you the experience.

Project Requirements:

1. You can choose any topic (business/service) to be the main theme of your project.
2. Your application should fulfill the following requirements:

Total Rubric Mark= MS#2 mark + MS#3 mark

	Criterion	Description	Total Rubric Mark	Rubric Marks breakdown	
				MS# 2	MS# 3
1	UML Diagrams (SLO#4)	Your UML class diagrams should show your system classes, attributes and operations of each class and the relationship between each class [1].	**2**	1.5	0.5
2	Classes Management (SLO#2)	Effectively make use of classes in your program(s).	**1**		1
3	Inheritance & Polymorphism (SLO#5)	Your project should have one super class per each two students, and a subclass for each student. You should use: functions overloading, variables shadowing, extra properties and methods for subclasses.	**2**		2
4	Array of Objects (SLO#3)	Creation of superclass(s)/subclasses (e.g. products) are stored in a dynamic and editable hierarchy, which can easily be browsed and searched.	**1**		1
5	Program Structure (SLO#1)	Comprehensible, well-documented and well-structured programs. Organization of code delivery and quality of code.	**1**		1
6	Error Handling (SLO#1)	Expected users' errors should be handled well through: • Using a proper in-depth analysis of all users' input and limiting all users' invalid entry. • Handling all expected run-time errors.	**1**	-	1
7	Professional Appearance (SLO#1)	• Multi-part documentation, logo, Title(s), appropriate structure of reports/presentation.	**1**	0.5	0.5
8	Working Demo, Evaluation, Delivery , & Justification (SLO#3)	• Successful live demonstration of your working application (presentation & Poster). • Clear separation of objects; maintainable code; validation • Evaluation of the effectiveness of your approach, technologies, and tools • Confident, well-rehearsed and professional; rational explanation for your chosen stories • Justification of your approach, design, implementation and testing.	**1**	-	1
		Total=	**10**	2	8

3. Open the horizon to your imagination and be CREATIVE ☺

[1] https://en.wikipedia.org/wiki/Class_diagram

Milestones Specifications:

MILESTONE (1ST): PROPOSAL (APPROXIMATELY 1 PAGE + COVER PAGE)

You should submit a COMPREHNSIVE proposal of (hardcopy) + (Softcopy through BlackBoard) with full clarification of your system's idea about your application's goals. In addition, illustrate what's the business logic of your system. *Justify any special decisions by small comments*. After proposal submission, each team will receive their own feedback showing if it suits the requirements of this course's coursework or not. Your proposal should illustrate clearly how you will be designing your system to accomplish the coursework goals as following:

Example of a Proposal

Proposal of Application is: Grocery System

Description: Our system will allow customers to browse different products in a grocery from various categories. And will allow admin staff to manage those products.

Logical analysis & Business: The admin user will be able to add, delete, and update products. The customers will be able to search and buy products.

Matching System Functions to the Application Goals:

This is an example of what you should present..

Function / Application Aspect	UML Diagrams	Classes Management	Inheritance & Polymorphism	Array of Objects	Program Structure	Error Handling	Analysis
• User *superclass*: Customer and Admin *subclasses*. • Product *superclass*: ProductsWithExpiry and ProductsWithNoExpiry *subclasses*	✓	✓	✓	✓			
Customer search for a product				✓	✓		
Customer purchases products				✓	✓	✓	Cart (array)of products (copy array items)
Admin manages products(add, update, delete)				✓	✓	✓	Array of products (array operations such as shifting)
Grocery Statistics (e.g. best seller products)				✓	✓		

* YOU NEED TO ENSURE THAT YOU'VE SATISFIED AT LEAST ONCE EACH CRITERIA OF THE APPLICATION REQUIREMENTS

MILESTONE (2ND): UML & CLASSES

You should submit a COMPREHNSIVE UML Design of your classes (hardcopy) + (Softcopy through BlackBoard) associated with enough description of each class's structure such as: properties, and methods header.

- **Classes' hierarchy:** you need to show your classes hierarchy using UML diagrams.
- **Classes' Structure:** show how you are going to structure each class of your application including properties and methods.

Note: Use a diagram tool to create your UML (e.g. Visual-Paradigm, nclass , Creately). You can find more about how to draw your UML here in Tutorials Point.

MILESTONE (3RD): COMPLETE PROJECT SUBMISSION

You should submit your complete project work *compressed through* Blackboard + present your work as a team for a 25-miutes session for each group (to be scheduled in week 14). Also, each group leader must submit a report (hardcopy + PDF) specifying the work division between members, difficulties, and how problems were solved, what are the requirements that have been fulfilled, and print screen of each interface.

Grading Strategy:

1. *Each student should have her/his own subclass.*
2. *Each student should have her own implementation of her subclass's object(s).*
3. *All subclasses should have a meaningful relationship in between.*
4. *Each student will be responsible of her/his own individual part as well as her/his part of the group work.*

Notes:

1. ***Groups must be registered online through Blackboard***
2. *All e-documents submissions should be in PDF format.*
3. *All your submissions must include your academic information (Name, ID, Project Group Number & Name).*
4. ***No** submissions will be accepted through emails.*
5. *Each member of the team must participate equally in the project. Otherwise, if a student didn't participated well in its team's project marks will be deducted according to the inactive student's participation.*
6. *The team leader is responsible fully of dividing the work equally between members and reporting any inactive student.*
7. *In case of continuous low performance of certain inactive students in their groups, those students will be separated into new groups to finish the rest of their project by their own.*
8. *Your work should present the effort of 5 students and the experience of senior students. Wish you all the best ☺*
9. *Assessment will be reflected with the highly competitive projects to be expected!*
10. Finally, I do believe in all of you and your skills and talents. And for sure إن شاء الله you'll enjoy it and explore your creativity.

CS 311: Object Oriented Programming (1)
Final Project Report

GROUP NUMBER (AS IN BLACKBOARD) : **GROUP NAME :**

MEMBERS:

	Name	ID	Role Participated in	Sign
1	(Leader)			
2				
3				
4				
5				
6				

DIFFICULTIES & HOW PROBLEMS WERE SOLVED:

CHECKLIST OF REQUIREMENTS FULFILLED IN THE PROJECT:

HOW WERE THE TASKS DISTRIBUTED EQUALLY BETWEEN MEMBERS?

GENERAL COMMENTS: