



CS 321: Object Oriented Programming [2] 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:

- 1st Milestone (Project Proposal):** delivers your chosen topic of the target application (*refer to the proposal template to submit*).
- 2nd Milestone (View and Database Design):**
 - Application's GUI Design:** deliver the interfaces & structure of your application's form flow.
 - Database & Queries:** design your application's ER model and schema of your database and mapped tables filled with data.
 - Classes Hierarchy:** Add your required classes
- 3rd Milestone (Complete Submission of application):** submission of the complete implementation of your project's work, presentation, 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 (1 st): Project Proposal	-	Sunday 20 th Jan 19	Thursday 24 th Jan 19
Milestone (2 nd): <ul style="list-style-type: none">Application's Interfaces DesignApplication's Structure (Forms' Organization)Classes hierarchyER & Mapped Tables Filled with Data	4%	Sunday 3 rd March 19	Thursday 7 th March 19
Milestone (3 rd Final): COMPLETE Project Implementation	11%	Sunday 7 th April 19	Thursday 11 th April 19



Designing Guide:

Your project should show an evidence of applying the following concepts of OOP2 development as discussed in the chapters of this course:

1. You must ensure that your database is well-designed in matter of starting from designing your ER model, mapping ER-into-Tables, and ending by creating: fields, tables and relationships.
2. **Queries:** Your queries should reflect all available data through the user's interface and manage the system workflow through records manipulation and data analysis.
3. There is no one correct Solution! The whole project phases may defer from one group to another. So, the more you analyze your requirements and submit your milestones on time, the more you'll ensure you are on the correct track.
4. 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			Total Rubric Mark	Rubric Marks breakdown	
Criterion	Description			MS#2	MS#3
1	Classes Management	Creation of superclass(s)/subclasses (e.g. products) are stored in a dynamic and editable hierarchy, which can easily be browsed and searched.	3	1	2
2	Data Export/Import	Export / import data from other files	2	-	2
3	Professional Appearance	Multi-part forms, logo, appropriate navigation, login status/control. Rich Content: User generated and manipulated rich text and multimedia such as images, videos, or sound files	2	1.5	0.5
4	Data Access Tools and Techniques	<ul style="list-style-type: none"> DB Design, Constraints, DDL, DML, and read Queries, Semantic Integrity Control of Data. Login Facility : multiple users (and roles) and login control 	2	1.5	1.5
		Implementing correct DB connections	1		
5	Error Handling	Expected users' errors should be handled well through: <ul style="list-style-type: none"> Using a proper GUI to limit the user's invalid entry. Using try-Catch exception handling; throws as well for both checked and unchecked exceptions. Limiting the user's entry mistakes to the least. 	3	-	3



6	Working Demo, Evaluation, Delivery , & Justification	<ul style="list-style-type: none"> • Successful live demonstration of your working application (presentation). • 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. 	2	-	2
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3. Open the horizon to your imagination and be CREATIVE ☺

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: Stock Market

Description: Our system will be handling ‘Tadawul’ stock market in Saudi Arabia. This includes Tadawul’s application. The application will view the stock market prices classified in categories (e.g. banks, industry, .. etc) and offers customers to buy, sell shares, and add conditional orders on sell\buy requests.

Logical analysis & Business: The user will be able to view statistics about his performance such as: how many log-in(s), total profits\loss, ..). In addition, it will show statistics about the market in general.

Matching System Functions to the Application Goals:

This is an example of what you should present..

Function / Application Aspect	Classes Management	Data Export/Import	Professional Appearance	Error Handling	Data Access Tools and Techniques
User’s Log-in (different types of users: Company, Investor, & Admin)			✓	✓	✓
User’s Buy\Sell Orders			✓	✓	✓
Request stock prices			✓		✓
User’s Statistics	✓				
Stock Market Statistics	✓				
Export the shares of a single user (Company / Investor)		✓		✓	
Comment and rate the performance of a company			✓		✓
Currency Converter	✓				

* YOU NEED TO ENSURE THAT YOU’VE SATISFIED WHOLE CRITERIA OF APPLICATION REQUIREMENTS AT LEAST ONCE



MILESTONE (2ND): DATABASES, INTERFACES DESIGN.

- **Mapped Tables Filled with Data:** You should submit a COMPREHNSIVE ER Design and MAPPING of the databases' tables (hardcopy) + (Softcopy through BlackBoard) associated with enough description of your data's structure such as: relationships, constraints, and keys. Print out a print screen of filled data.
- **Application's Interfaces Design:** you should submit screenshots of your application's interfaces design (GUI).
- **Application's Structure (Forms' Organization):** show how you are going to structure your application's forms and how the workflow will be.
- **Classes' hierarchy:** you need to have at least a single superclass and one subclass per each student.

MILESTONE (3RD): COMPLETE PROJECT SUBMISSION

You should submit your complete project work *compressed through* Blackboard + present your work as a team for a 25-minutes 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 table in the database to apply her/his own (DML + read) query through the correct usage of the database connection.*
3. *All subclasses should have a meaningful relationship in between.*
4. *All database tables should have a relationship in-between.*
5. *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, Group 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.*



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Final Project Report

GROUP NAME:

MEMBERS:

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

DIFFICULTIES & HOW PROBLEMS WERE SOLVED:

CHECKLIST OF REQUIREMENTS FULFILLED IN THE PROJECT:

HOW WERE THE TASKS DISTRIBUTED EQUALLY BETWEEN MEMBERS?

GENERAL COMMENTS: