



SWE-I COURSE PROJECT INSTRUCTIONS

Instructions to Students:

- This is a group work project. Each group consists of **FIVE to SEVEN students** (group members must be approved by the module leader through registration). Each group must develop the idea assigned to them using object oriented technologies.
- **Project Objectives:** The objectives of this project can be summarized in the following:
 - Using Software Engineering Processes and approaches, & UML diagrams in developing an object-oriented application.
 - Applying design patterns.
 - Testing.
- **Submission:** Submission is done according to the following schedule:
 - **Week 4:** During the Weekly Labs.
 - *A report of 200 -500 word indicating the following: (1) Project idea in details, (2) Main functionalities, (3) Similar applications in the market, and (4) Development platform.*
 - **Week 6:** Phase 1 Discussion (Thursday 15th of March).
 - **Week 12:** Phase 2 Discussion (Thursday 26th of April).
- **Assessment:** Assessment will be on the reports and code submitted, in addition to discussions with team members. All the team members must contribute to all the phases, and the role of each member must be clearly stated in each report.
 - The Project as a whole will be assessed based on the following criteria:
 - The complexity determined by the number of functionalities covered by your project.
 - The quality of your documentation.
 - The correctness of your analysis and design diagrams.
 - Design Quality: using patterns, levels of abstractions, etc.
 - Implementation correctness.
- **Feedback:** Feedback, for each group, will be given by the teaching assistants during the submission of each phase. Further details could be provided through discussion during office hours with the teaching assistants.
- You can only submit your own work. Any student suspected of plagiarism will be subject to the procedures set out in by the Faculty (including failing the course entirely).
 - **Academic Integrity:** Helwan University's policies on academic integrity will be enforced on students who violate University standards of academic integrity. Examples of behaviour that is not allowed are:
 - Copying all or part of someone else's work and submitting it as your own;
 - Giving another student in the class a copy of your work; and
 - Copying parts from the internet, text books, etc.
 - If you have any questions concerning what is allowed, please don't hesitate to discuss with me.



SWE - I COURSE PROJECT DESCRIPTION (10 IDEAS)

Projects description:

1. Online Auction System

The online auction system may work as follows: Each participant should register with the system so he can subscribe to any auction session. During any auction session, an item is open for bids placed by the session participants, for simplicity assume only one auctioned item per session. The system notifies the bidders with the starting of the auction session; bidders can obtain the latest status and submit their bids. At the end of the session the system notifies the winner and announces the result to the other participant bidders.

All in all, the system may include the following functionality:

1. Membership management.
2. Bid management.
3. Inventory management.
4. Billing and invoices.

2. Online Shopping System

The Online Shopping System may work as follows: the system should have customers who have only one shopping cart and every customer should be able to do shopping by selecting multiple products from the inventory to be added into his shopping cart and the system should have multiple product types each product may contain different attributes, then after finishing the shopping he have to check out the products from the shopping cart to make an order then pay order's invoice.

All in all, the system may include the following functionality:

1. Membership management.
2. Order management.
3. Inventory management.
4. Billing and invoices.

3. Library Management System

The Library Management System may work as follows: The system should serve its registered customers by introducing as many books as it can, these books classified into sections, each section may have subsections and each subsection may also subsections and so on. The library should have a borrowing system that allow each customer to borrow a free number of books per month as per his account type (classic: 2 books, gold: 5 books, platinum: 10 books), and his monthly fees specified based on his account type fees + any additional books borrowed fees.

All in all, the system may include the following functionality:

1. Membership management.
2. Order management.
3. Inventory management.
4. Billing and invoices.



4. Hotel Reservation System

The Hotel Reservation System may work as follows: from that reservation system, the customer should use his account to make multiple bookings, each one may contain one or more room from same or different room types. The room types are classified into single, double and triple rooms. And for each room he should specify the meal plan from bed only, bed and breakfast, half board, full board and all inclusive. Also, the customer may attach any extra comments to be applied by the hotel if applicable.

All in all, the system may include the following functionality:

1. Membership management.
2. Booking management.
3. Rooms management.
4. Billing and invoices.

5. Hospital Medicine Supply System

The Hospital Medicine Supply System may work as follows: the system should be accessed by admins only who manage the list of medicines stock currently owned by the hospital. Also, there should be accounts for medicine vendors to be able to specify which medicine stock is supplied by which vendor. The system should do some reports like the vendor with lowest price for a specific medicine, the currently available stock from all medicines, the usage per month for a list of medicines and so on, also the admins should be able to manage insert a new order supplied by specified vendor, return an existing order to the vendor for any specified reason.

All in all, the system may include the following functionality:

1. Vendors account management.
2. Order management.
3. Inventory management.
4. Report management.
5. Billing and invoices.

6. Supermarket Sales System

The Supermarket Sales System may work as follows: this system is for logging customers' orders by supermarket's employee. The system should have the ability of defining multiple employee roles, each role should have different privileges so the cashier should be able to make orders and generate invoices but can't cancel any item after adding it to the order, another role is the supervisor who can do all the cashier functionalities but also can admin the orders by making any modification on the order finally the branch admin should be able to fill the inventory by the products requested by the supermarket and also generate reports to specify how many orders created on a date by every cashier, who is the fastest cashier on finalizing his orders, generate a report of the currently stock for every product in the system and make alerts for the products that its stock is about to finish and so on.

All in all, the system may include the following functionality:

1. Account Roles management.
2. Order management by cashier.
3. Inventory management by branch admin.
4. Report management by branch admin.
5. Billing and invoices.



7. Freelancing Management System

The Freelancing Management System may work as follows: the system should have two types of accounts, the freelancer employee and the employer. The employer introduces list of tasks on the system and mention the expected number of hours needed on that task, the freelancer employee should be able to create a profile that contains his abilities and experiences in different fields then he can apply for the tasks introduced by the employer and specify the cost per hour for that task. The employer will get all these requests and review the freelancer profiles and also the cost per hour for each profile then will decide for which profile he will assign that task. When the employer accepts any profile offer, this profile should receive a notification to be able to start working on that task, and the system should introduce a built-in counter to count the number of hours consumed from the freelancer to do that task. And at the end of the task when the freelancer states that he finished his task, the employer got an invoice to pay the freelancer his cost then should rate this profile and give a feedback on his work so he can help other employers with his feedback on that freelancer.

All in all, the system may include the following functionality:

1. Membership management.
2. Tasks management.
3. Profile management.
4. Billing and invoices.

8. Academic Journal Management System

Academic Journals are peer reviewed, which means the articles are written by experts and are reviewed by several other experts in the field before the article is published in the journal in order to insure the its quality. These journals are periodicals issued by an institution, corporation or a professional or scholarly society in which researchers publish current news or reports in the form articles of their research work. All in all, the system may include the following functionality:

1. The system should allow registered researchers to post their articles.
2. Articles must be reviewed by a set of experts (Academic Professors), each of them has a form to
3. evaluate and accept/reject an article.
4. Some articles could be rejected, others could be accepted with minor changes, or accepted directly.
5. If the paper is accepted, the authors must be notified by changes needed and reviewer comments.
6. There is deadline for each stage of the reviewing process.
7. Authors have to pay money for the Academic Journal publisher and receive an invoice.
8. The system should determine the most viewed articles.
9. The system should allow the user to browse the journals by either the journal title or by subject.
10. The system should show the number of readers for each article.



9. **Vaccination Scheduling/Notification Management System**

Vaccination in Egypt can be done by Ministry of Health's vaccination units, or by some private entities. However, the main drawback of such systems is the long waiting queues in order for a child to receive his vaccine. Another problem is that parents do frequently forget when exactly should they vaccinate their child (and thus they need to be notified/reminded). All in all, the system may include the following functionality:

1. Allow parents to follow up vaccination times and doses.
2. The system must send alarms to parents.
3. Parents can reserve appointments from the system, and reschedule their appointments.
4. Nurses can re-schedule all reservations.
5. The system generates reports concerning the number of cases that have been vaccinated.
6. The system includes a financial section for generating invoices and reports.

10. **Real-Estate Management System**

A Real-Estate company has many tasks to do, both for its clients and for its generic announcements. Such companies now handle their customers manually, by phone or face-to-face. Another smart solution for such a company is to develop a system that handles all its tasks. All in all, the system may include the following functionality:

1. The system should allow someone (who would like to sell a flat/house ... etc.) to register, and then to create a new request including all his flat's details.
2. Allow the admin to create new advertisement on the company's webpage.
3. Allow clients to follow-up on and/or search for new flats announcements.
4. The system should save a client's area of interest (if the client is looking for a property to buy), so that he/she will be notified when a new advertisement is published for a house/flat within his/her area of interest.
5. A client can reserve an appointment to inspect a flat/house, and he also may reschedule those appointments.
6. The system should generate reports on flats/houses sold through out the company in a period of time (e.g., for each month).
7. The system should include a financial section that calculates – for example – the company's commission after selling a flat/house, and generates invoices.