



503111- JAVA TECHNOLOGY
FINAL PROJECT – SEMESTER 1/2023-2024
Deadline: 31November2023

I. OVERVIEW

Part 1 (7 pts): Develop a **Point-of-Sale website** to manage Agents' Retail store. Users are **salespeople (user role)** and a **manager (administrator role) of each retail store**. Buyers are not users of the Web-app. Basically, the Web-app needs to provide **functions** such as: *sales transactions, product management, employee management, viewing reports and statistics*. This type of application is commonly found in retail stores in Vietnam such as electronics, clothing, food and beverage stores, convenient store, and supermarket.

List of required features:

- **Account management:**
 - An administrator account is built-in from the start with the login credentials as **admin/admin**. The administrator can change the password if desired.
 - Salespeople cannot create their own accounts; their accounts will be created by a manager (administrator role). When creating an account for a salesperson, the manager needs to provide at least the following information: full name and Gmail address. Then an email will be sent to the mailbox of the salesperson, notifying them that an account has been created with a link to log in to the system.

- The link is only valid for 1 minute. After this time, the salesperson will need to ask the administrator's support to resend another email with another 1-minute link. New sales staff are required to use the link to log into the system for the first time. They can't access the login form directly and log in like other former employees, if they try to do so they will get an error message something like "Please login by clicking on the link in your email".
- To log into the system, every user must use their username - which is the front part of the email. For example, with **admin@gmail.com**, the username is **admin**. In the case of the new employee, the temporary password is also the username. You are required to do the same as this description, this is one of the requirements to ensure that you are the one doing the coding, not copying the source code from the internet. **Failure to comply with this requirement will result in no score in the account management section and your work will be examined more closely for plagiarism.**
- After logging into the system for the first time, the salesperson is forced to create a new password (no need to re-enter the old password). If they don't, they won't be able to access any other system functions except logging out.
- All employees (including admins) can view profile information including profile picture and full name. They can also update their new profile picture and change their password at any time.
- Administrators can perform employee-related functions such as: view a list of employees (the list must display information such as avatar, full name, inactivate status if any, locked status if any), view details of an employee. Perform actions on an employee: resend 1 minute login email, lock/unlock account, view sales information of an employee.
- **Product Catalog Management** (for admin only)
 - The Product Catalog Management feature allows administrators to perform basic operations on products including viewing product listings, adding a new product, updating a product's information, and deleting products. A product should have a minimum of information such as: barcode / QR Code, product name, import price, retail price, category, creation date.
 - A product can only be deleted when it is not in any order. If a product has been purchased, it cannot be deleted.
 - Sales staff are allowed to view the product list but cannot change any content. They cannot see the original price of the product.
 - Features that are not relevant to the salesperson are best hidden from them. For example, a salesperson can only view the product list, they cannot delete a product so you should not show the Delete button with the salesperson account.

- **Customer Management**

- When paying at the checkout counter, the salesperson will ask for the customer's phone number. The checkout feature will automatically display the name and address of the guest if the guest has purchased before. If it is the customer's first time buying, the staff will need to enter the full name and address of the customer, the system will automatically create a new account for the customer at the checkout feature. Customer accounts cannot be created manually.
- In the sales interface, employees can easily view customers' personal information (name, phone number, address) and their purchase history including information such as: total amount, amount of money given by customer, excess amount paid back, date of purchase, product quantity. If needed, employees can view the details of an order to see more specific information such as: a list of products and their selling prices.

- **Transaction Processing**

- This is the main function of the Point-of-Sale application. In this function, sales staff will enter products to be purchased through various ways such as searching or entering barcodes/ QR Code. Remember what the counter clerk does when you pay for your order at a supermarket, this function works the same way.
- The added products will be displayed in a list view where you can see the list of products being purchased along with information such as: number of items, unit price and total amount of each product. In the next interface, there will often be summary information such as: the total amount of the entire order, where to enter customer information (phone number), along with other relevant information during the payment process. such as the amount of money the customer gives, the amount of money the customer receives back.
- When a product is added (whether by search or barcode), it will be displayed in the list immediately without waiting for confirmation (to make it easier for the salesperson to manipulate), the parameters such as the total amount also need to be updated automatically. When a product is updated (e.g. update quantity) or removed from the list, the parameters should also be updated automatically.

- At this checkout interface, as mentioned before, the salesperson has an easy way to enter the customer's phone number or enter the full name and address if it's a new customer. After entering enough information, the payment process will be completed, and an invoice will be printed (can be simulated by printing a pdf invoice file).
- **Reporting and Analytics**
 - Sales results can be viewed by timelines such as: from date to date (20/03/2023 to 30/03/2023), month, quarter, year.
 - For each timeline as above, the system needs to show information such as: total amount received, number of orders, number of products along with a list of orders arranged in chronological order. If needed, viewers can also select a specific order to see the details inside.
 - Both admin and sales staff can see this information, admin can see more information about total profit.

Part 2 (2 pts): Develop a Web-App (or Desktop App) for the head-quarter to manage those agents' retail store.

- Manage the administrator role (grant or revoke permission of manager)
- Manage the inventory (Total items among agents' retail store)
- Manage the revenue of each agents / all agents and provide a dashboard for statics with Realtime update.

Part 3 (1 pts + bonus 1 pts):

- Video demo
- PowerPoint (5-10 slides, to present your products, should have overall architecture)
- Bonus 1 pts
 - if having correctly & fully Use Case Diagram + Class Diagram to the Web-App
 - if web-app is smoothly & user-friendly

Language Programming: Java

Database: can be either any RDBMS or NoSQL

If your project contains some features that overlap with the requirements but contains a lot of features, data, or uses a programming language that is not related to the detailed requirements of the project, it can be considered as an invalid submission and all your group members will receive a zero.

IV. DETAIL SCORE

Part 1: 80%

STT	FUNCTIONALITY		1	2	3
		POINT	0 PT	1/2 PT	FULL POINT
ACCOUNT MANAGEMENT		1.75 pts			
1	Create an account for a salesperson	0.25	The feature is not available or it does not work at all or it is done completely wrong	The feature has been implemented but it is not working properly or there are still some serious bugs	The feature has correctly been implemented as required, with no bugs or only insignificant bugs.
2	Send email automatically after creating new account	0.25	The feature is not available, or it does not work at all or it is done completely wrong	The feature has been implemented but it is not working properly or there are still some serious bugs	The feature has correctly been implemented as required, with no bugs or only insignificant bugs.
3	The login link is valid for 1 minute	0.25	The feature is not available, or it does not work at all or it is done completely wrong	The feature has been implemented but it is not working properly or there are still some serious bugs	The feature has correctly been implemented as required, with no bugs or only insignificant bugs.
4	New employees must log in via the link in the email	0.25	The feature is not available, or it does not work at all or it is done completely wrong	The feature has been implemented but it is not working properly or there are still some serious bugs	The feature has correctly implemented as required, wit'h no bugs or only insignificant bugs.
5	Login feature	0.25	The feature is not available, or it does not work at all or it is done completely wrong	The feature has been implemented but it is not working properly or there are still some serious bugs	The feature has correctly been implemented as required, with no bugs or only insignificant bugs.
6	Force creating a new password on first login	0.25	The feature is not available, or it does not work at all or it is done completely wrong	The feature has been implemented but it is not working properly or there are still some serious bugs	The feature has correctly been implemented as required, with no bugs or only insignificant bugs.
7	For new employees: can only access system functions after creating a new password	0.25	The feature is not available, or it does not work at all or it is done completely wrong	The feature has been implemented but it is not working properly or there are still some serious bugs	The feature has correctly been implemented as required, with no bugs or only insignificant bugs.

USER MANAGEMENT		1.75 pts			
8	Admin: View staff list	0.25	The feature is not available, or it does not work at all or it is done completely wrong	The feature has been implemented but it is not working properly or there are still some serious bugs	The feature has correctly been implemented as required, with no bugs or only insignificant bugs.
9	Admin: View details of an employee	0.25	The feature is not available, or it does not work at all or it is done completely wrong	The feature has been implemented but it is not working properly or there are still some serious bugs	The feature has correctly been implemented as required, with no bugs or only insignificant bugs.
10	Admin: Resend a 1 minute login email	0.25	The feature is not available, or it does not work at all or it is done completely wrong	The feature has been implemented but it is not working properly or there are still some serious bugs	The feature has correctly been implemented as required, with no bugs or only insignificant bugs.
11	Admin: Lock/unlock employee accounts	0.25	The feature is not available, or it does not work at all or it is done completely wrong	The feature has been implemented but it is not working properly or there are still some serious bugs	The feature has correctly been implemented as required, with no bugs or only insignificant bugs.
12	All employees see their profile information	0.25	The feature is not available, or it does not work at all or it is done completely wrong	The feature has been implemented but it is not working properly or there are still some serious bugs	The feature has correctly been implemented as required, with no bugs or only insignificant bugs.
13	Update profile picture	0.25	The feature is not available, or it does not work at all or it is done completely wrong	The feature has been implemented but it is not working properly or there are still some serious bugs	The feature has correctly been implemented as required, with no bugs or only insignificant bugs.
14	Change password	0.25	The feature is not available, or it does not work at all or it is done completely wrong	The feature has been implemented but it is not working properly or there are still some serious bugs	The feature has correctly been implemented as required, with no bugs or only insignificant bugs.
PRODUCT MANAGEMENT		1.25 pts			
15	Admin view product list	0.25	The feature is not available, or it does not work at all or it is done completely wrong	The feature has been implemented but it is not working properly or there are still some serious bugs	The feature has correctly been implemented as required, with no bugs or only insignificant bugs.
16	Employee view product list	0.25	The feature is not available, or it does not work at all or it is done completely wrong	The feature has been implemented but it is not working properly or there are still some serious bugs	
17	Add a new product	0.25	The feature is not available, or it does not work at all or it is done completely wrong	The feature has been implemented but it is not working properly or there are still some serious bugs	The feature has correctly been implemented as required, with no bugs or only insignificant bugs.
18	Edit products' information	0.25	The feature is not available, or it does not work at all or it is done completely wrong	The feature has been implemented but it is not working properly or there are still some serious bugs	The feature has correctly been implemented as required, with no bugs or only insignificant bugs.

19	Delete a product	0.25	The feature is not available, or it does not work at all or it is done completely wrong	The feature has been implemented but it is not working properly or there are still some serious bugs	The feature has correctly been implemented as required, with no bugs or only insignificant bugs.
CUSTOMER MANAGEMENT		1 pt			
20	Customer's account is created automatically on first purchase	0.25	The feature is not available, or it does not work at all or it is done completely wrong	The feature has been implemented but it is not working properly or there are still some serious bugs	The feature has correctly been implemented as required, with no bugs or only insignificant bugs.
21	View customer's personal information	0.25	The feature is not available, or it does not work at all or it is done completely wrong	The feature has been implemented but it is not working properly or there are still some serious bugs	The feature has correctly been implemented as required, with no bugs or only insignificant bugs.
22	View customer purchase history	0.25	The feature is not available or it does not work at all or it is done completely wrong	The feature has been implemented but it is not working properly or there are still some serious bugs	The feature has correctly been implemented as required, with no bugs or only insignificant bugs.
23	View details of a customer's order	0.25	The feature is not available or it does not work at all or it is done completely wrong	The feature has been implemented but it is not working properly or there are still some serious bugs	The feature has correctly been implemented as required, with no bugs or only insignificant bugs.
TRANSACTION PROCESSING		1.5 pts			
24	Transaction Processing: displays a list of currently selected products, along with related information	0.25	The feature is not available or it does not work at all or it is done completely wrong	The feature has been implemented but it is not working properly or there are still some serious bugs	The feature has correctly been implemented as required, with no bugs or only insignificant bugs.
25	Add a new product to the list by searching by name.	0.25	The feature is not available or it does not work at all or it is done completely wrong	The feature has been implemented but it is not working properly or there are still some serious bugs	The feature has correctly been implemented as required, with no bugs or only insignificant bugs.
26	Add a new product to the list by entering the barcode	0.25	The feature is not available or it does not work at all or it is done completely wrong	The feature has been implemented but it is not working properly or there are still some serious bugs	The feature has correctly been implemented as required, with no bugs or only insignificant bugs.
27	The overview interface displays the necessary information of the order: product number, total amount, amount given by customer...	0.25	The feature is not available or it does not work at all or it is done completely wrong	The feature has been implemented but it is not working properly or there are still some serious bugs	The feature has correctly been implemented as required, with no bugs or only insignificant bugs.

28	Complete payment and show invoice	0.25	The feature is not available or it does not work at all or it is done completely wrong	The feature has been implemented but it is not working properly or there are still some serious bugs	The feature has correctly been implemented as required, with no bugs or only insignificant bugs.
28	Update cart information instantly when adding, removing or adjusting the quantity of a product.	0.25	The feature is not available or it does not work at all or it is done completely wrong	The feature has been implemented but it is not working properly or there are still some serious bugs	The feature has correctly been implemented as required, with no bugs or only insignificant bugs.
REPORTING AND ANALYTICS		1 pts			
29	View reports by pre-fixed timelines like: today, yesterday, in 7 days, this month	0.25	The feature is not available or it does not work at all or it is done completely wrong	The feature has been implemented but it is not working properly or there are still some serious bugs	The feature has correctly been implemented as required, with no bugs or only insignificant bugs.
30	View reports for a specific period (from-to)	0.25	The feature is not available or it does not work at all or it is done completely wrong	The feature has been implemented but it is not working properly or there are still some serious bugs	The feature has correctly been implemented as required, with no bugs or only insignificant bugs.
31	Calculate and display correct aggregate report information: total amount received, number of orders, number of products	0.25	The feature is not available or it does not work at all or it is done completely wrong	The feature has been implemented but it is not working properly or there are still some serious bugs	The feature has correctly been implemented as required, with no bugs or only insignificant bugs.
32	Display the correct list of orders corresponding to the selected timeline	0.25	The feature is not available or it does not work at all or it is done completely wrong	The feature has been implemented but it is not working properly or there are still some serious bugs	The feature has correctly been implemented as required, with no bugs or only insignificant bugs.
OTHER REQUIREMENTS		2 pts			
33	User Interface <i>(evaluated according to the opinion of the examiner)</i>	1.0	The interface is not beautiful	The interface is okay, enough to use the features but not eye-catching or the interface is complicated and difficult to use.	The interface of the website has a good investment, looks beautiful and eye-catching, the layout is clear, responsive and easy to use.

34	Product deployment/packaging	0.5	Didn't deploy/package the product or did it but got lots of errors and barely used the content	Product development/package is available but there are still some minor bugs that are not serious, still enough for viewers to use/experience the product easily	There is product deployment/packaging and no bugs. Users can easily access/install to view and use
35	Video demonstration	0.5	Do not submit product demonstration/introduction videos	There is a demonstration/introduction video but it's done through sketchy speakers or the sound/image quality is not good	Product demonstration/introduction video has good quality, clear sound, fully clarifies the features of the application

Part 2: 20%

Part 2 REQUIREMENTS		10 pts			
			0 Pts	½ Pts	Full
1	Manage the administrator role (grant or revoke permission of manager)	3	Don't have	Few	Full
2	Manage the revenue of each agents /all agents by selecting each agents or all agents	3	Don't have	Few	Full
3	Dashboard	3	Don't have	Few	Full
4	Other function for filtering	1	Don't have	Few	Full