Institute Of Computer Engineering Technology

iCET Certified Master

Standalone Application Development

Project Name	Standalone Application Development
Assigning Date	26th of September, 2024
Batch	iCD 110

info@icet.lk | www.icet.lk | +94 705 805 805

Objectives

- To understand the requirements of a Standalone clothing store application and design a comprehensive plan for the application development process including system architecture, database design and user interface design.
- To gain proficiency in JavaFX, Hibernate, Jasper Reporting and layered architecture.
- To implement functionality including processing and validating data using Java.
- To learn concepts of architectures and design patterns.

Course Work Requirements

- You should use your knowledge on JavaFX, Hibernate, architectures and designpatterns to implement this project.
- Refer this course work guideline document to understand the project requirements.
- The application must have a resizable UI and display properly on a desktop.
- The application should be well-designed and visually appealing, incorporating appropriate use of colors, typography, layout and imagery.

Project Submission

- You are required to create a Git repository on GitHub at the beginning of the project. All updates and changes made to the project should be committed and pushed to the repository regularly. The repository should include all necessary files and assets required to run the application.
- Your GitHub link should be submitted to the Google Classroom on or before the deadline. Please read instructions under the topic “Time Frame and Submission Process” in this document to get better understanding about the submission process.

Deadline	19th of October, 2024
Submit to	LMS
Material	Your GitHub link of the project repo.

Project Introduction

As part of the JavaFX module's final project, you are required to develop a Standalone application. The guidelines and requirements for this project are outlined in this document, so please read it carefully.

The application you have to develop is a POS system to manage a clothing store. You should use JavaFX with Jfoenix, MySQL as the database, Hibernate, Maven as the build tool and Java as the primary language. You can utilize any Java libraries to enhance the functionality and aesthetics of the application.

Project Flow

Step 01 : Project Analysis and Planning

1. Review project requirements and understand key objectives.
2. Analyze functional and non-functional requirements.
3. Identify dependencies and plan the project timeline accordingly.
4. Prioritize requirements based on importance.
5. Assess the feasibility of implementing requirements within given constraints.
6. Create a ER diagram and Use-case diagram outlining finalized requirements, priorities, dependencies, and technical solutions.

Step 02 : Design and Prototyping

1. Gather design requirements.
2. Conduct research for inspiration.
3. Create wireframes to outline basic structure and layout.
4. Design mockups to represent the visual look and feel.
5. Consider user experience (UX) aspects for a smooth user journey.
6. Develop interactive prototypes.
7. Finalize design assets.

Step 03 : Software Development

1. Set up the development environment.
2. Break down the project into smaller tasks.
3. Follow coding best practices and standards.
4. Implement a resizable UI (Using border layout).
5. Optimize application performance.

By following this project flow, you can effectively analyze, plan, design and develop the project ensuring a systematic and organized approach.

1.0 About the Business.

1.1 Introduction to the business

“Clothify Store” is a thriving clothing shop located in the Panadura town area. The shop offers a wide selection of trendy clothing for men, women, and children, catering to diverse tastes and styles. At Clothify, they take pride in their commitment to quality, affordability, and exceptional customer service.

As their business has grown, they have recognized the need to streamline their operations and improve their business processes. While they have a dedicated team of 15 employees, they have been managing their sales, stores, and income calculations manually, which has led to errors and inefficiencies in their day-to-day operations. They believe that it is time to modernize their business processes and invest in a software management system that can help them automate many of their time-consuming tasks.

With the implementation of a software management system, they aim to revolutionize the way they manage their business. Their new system will enable them to automate inventory management, sales tracking, and billing processes. This will not only save their time but will also reduce the likelihood of errors, which will help them serve their customers better. By providing their employees with the tools they need to manage their business processes efficiently, they will be able to focus on what they do best – providing their customers with the latest fashion trends and exceptional service.

At Clothify, they are committed to staying ahead of the curve and continuously innovating to meet the evolving needs of their customers. They believe that investing in a software management system is the next logical step in their growth journey, and they are excited to embark on this new chapter in their business.

1.2 Information

Name of the business	“Clothify Store” (PVT) Ltd.
Owned By	Mr. Sheshan Thilakshana
Location	Panadura
Contact	+94 123 456 789
Email	clothify@sample.com

2.0 Project Requirements

Below are the requirements of “Clothify” store owner Mr. Sheshan Thilakshana,

1. System Overview:

- There will be two interfaces: a user interface for store employees and an admin interface for the store owner.

2. User Management:

- User Registration:
  - There are two types of users. Default user (store employee) and Admin user (store owner/manager).
  - Users should be able to create accounts using their email address and a password (8 characters or more, including numbers, letters, and symbols).
  - Users should have the ability to update the password for their account.
  - Only the main admin user (store owner) should have the ability to register a new user.

- User Authentication:
  - During login, users should enter their email and password.
  - The system should verify the provided credentials against stored user data.
  - In the event of a user forgetting their password, the user should be able to send an OTP pin to their email and reset the password.
  - An admin user, they should be directed to the admin dashboard. Otherwise, the user should be directed to the Default dashboard.

3. Product Management:

- Product Catalog:
  - The product catalog should include categories such as Ladies, Gents and Kids.
  - Each category should have a range of products associated with it.
  - The products should have basic details such as an ID, name, size, price and quantity on hand. If possible, the products should have an image.
  - Any user should be able to add a new product to the system.
  - Each added item should have a supplier and an auto-generated ID.

- Inventory Management:
  - Each product should have a field to track its available quantity in stock.
  - The system should update the available quantity in real-time as purchases are made or stock is added.
  - Any user should be able to add an item stock to the system.
  - In the event of an order being returned, the inventory should be updated.
  - Any user should be able to update and remove an item.

4. Supplier and Employee Management:

- Supplier Management:
  - Users should be able to add a new supplier. When adding a supplier, the system should gather the supplier's details. (Name, Company, Email address, Item).
  - Each supplier should have an auto-generated ID.
  - Users should be able to see the items supplied by each supplier.
  - Users should be able to update the supplier's details or remove a supplier altogether.

- Employee Management:
  - Admin user should be able to add a new employee. When adding an employee, the system should gather the employee's details. (Name, Company, Email address).
  - Each employee should have an auto-generated ID.
  - Admin user should be able to update the employee's details or remove a employee altogether.

5. Order Management:

- Order Placement:
  - When a customer makes a purchase, the user should be able to place an order. The system should capture and store the relevant details, including the order ID, items purchased, total cost and payment type.
  - The order ID should be auto-generated. The order details should also include the name and ID of the employee who made the sale.
  - Customer should receive a receipt via email.
  - The order can be returned, if needed.

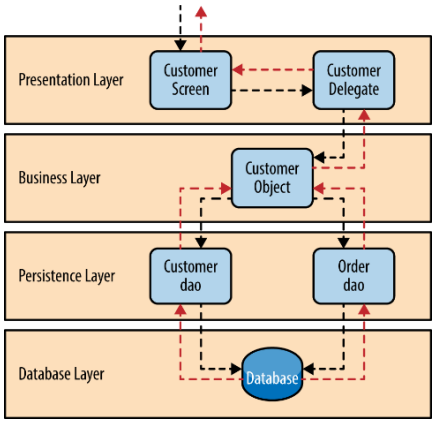
- Order Details:
  - Users should be able to view the order details of past orders.

6. Reports:

- When an order is placed, a receipt should be generated.
- User should be able to print an inventory report.
- User should be able to print an employee report.
- User should be able to print a supplier report.
- Only the admin user should be able to preview and generate sales reports (Daily, Monthly, Annual reports).
- Reports should be displayed using charts. (Line charts & Pie charts)
- All reports should be generated using Jasper Reports.

3.0 Project Architecture

As shown in the below sketch, this project should consist of several components. You have to implement this project using layered architecture.



4.0 Time frame and Submission Process.

Date	Milestone
26th of September, 2024	Project Assigning.
03th of October, 2024	Milestone 01.
19th of October, 2024	Final Submission.

a. Milestone 01

- You should create a document that explains below points.

  01. Time Schedule for your project. (You can use Gantt Chart)
  02. Use case diagram.
  03. ER Diagram.
  04. Completed prototype design. (Figma / Adobe XD)

- **SUBMISSION** You should submit the documents and links of the Prototype to the LMS on before the deadline. Send your name and the batch number with the document.

Milestone Deadline	03th of October, 2024
Submit to	LMS
Material	Documentation as a PDF and Links

b. Final Submission

- You are required to complete the below tasks before the deadline.

  01. User interface should be completed.
  02. Database Connectivity with Hibernate.
  03. The project should be completed using layered architecture with Jfoenix.

- **SUBMISSION** You should submit the GitHub repository Link to the LMS. Send your name and the batch number along with these links.

Milestone Deadline	19th of October, 2024
Submit to	LMS
Material	Link of the GitHub Repository.

NOTE: Please be advised that completing the Standalone Application Development Final Project is a mandatory requirement for all students who wish to join for the training program at the end of this course.

5.0 Recommended References

- Encryption:https://www.javatpoint.com/how-to-encrypt-password-in-java#:~:text=The%20password%2Dbased%20encryption%20technique,util%20package.
- More of JFoenix: https://genuinecoder.com/javafx-materia-design-setting-up-login-application-html/
- Maven Repository: https://mvnrepository.com/
- JavaFX: https://openjfx.io/openjfx-docs/
- Hibernate: https://hibernate.org/orm/documentation/6.3/
- MySQL: https://dev.mysql.com/doc/
- Hibernate Many-to-many Relationship: https://www.baeldung.com/jpa-many-to-many
- React Colors: https://casesandberg.github.io/react-color/