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| **Technical Test**  New Assistant Recruitment 23-1  Desktop | Diagram  Description automatically generated |

## Soal

*Case*

**Purple Lane Bookstore**

Purple Lane Bookstore is an old in West Jakarta. Because of what the manager sees on the internet, the manager wants to build an app so the customers can order their books from the comfort of their home without needing to go the store directly. The manager also wants the app to integrate with the inventory of the store and the promotions that the store often has. Below is the requirement of the system that the manager requested:

* **Transaction**

Before the customer can buy something, they need to have an account first and they can create a new account with ease through the register menu. After they have an account, they can use the app to buy something.

Every transaction that customer have will be recorded into the database. But at first the customer needs to **add the products to their cart**. If the customer decided to add an item to the cart while there already existing said item in the cart, then the quantity of that item will increase accordingly. **The customer is free to check their current cart anytime that they want**.

After the customer are satisfied with the cart, they just need to proceed to **check out** their cart. When they start their check out process, they will need to inspect their cart carefully and **select which product will they buy**. After the products has been selected, the customer needs to input their payment information. Purple Lane Bookstore accept payment through **debit** card or **credit** card. After they input their **card number**, the customer is given the option to **use one of the active promo codes** to get discount for their purchase.

If they successfully checkout then **a new transaction detail will be created for each of products** in the cart that the customer bought. The transaction will be **recorded in transaction history with a timestamp**. After that, the **stock of product in the bookstore will be reduced** according to the quantity of the purchase.

|  |  |
| --- | --- |
| Variable | Validation |
| Product Id | * Cannot be empty * Must be exists |
| Product Quantity | * Cannot be empty * Must be numeric * Must be less than product stock |
| Payment Type | * Must be chosen between Debit or Cash |
| Card Number | * Cannot be empty * Must only contain numeric characters * Must be at least 16 digits |
| Promo Code | * Must be exists |

* **Promotion Team**

Sometimes, Purple Lane Bookstore may have few events through **promo code**. The promo code is used to incentivize the customer by giving them **discount** on their purchases. The employee with a **Promotion Team role** can **create a new promo code, update promo code data, delete ongoing promo code, and view all ongoing promo codes** in the store.

|  |  |
| --- | --- |
| Variable | Validation |
| Promo Id | * Cannot be empty * Must be unique |
| Promo Code | * Cannot be empty * Must be unique |
| Promo Discount | * Cannot be empty * Must be numeric * Must be at least 15000 |
| Promo Note | * Cannot be empty |

* **Admin**

In the Purple Lane Bookstore, the products are managed by employee that has the **Admin role**. They are in charge of maintaining the products data in the store along with their quantity. The employee with an **Admin role** can **create new product, update the current product information, delete existing product in the store, and view all products** that the store has.

|  |  |
| --- | --- |
| Variable | Validation |
| Product Id | * Cannot be empty * Must be unique |
| Product Name | * Cannot be empty |
| Product Author | * Cannot be empty |
| Product Price | * Cannot be empty * Must be numeric * Must be more than zero |
| Product Stock | * Cannot be empty * Must be numeric * Must be more than zero |

* **Manager**

To make sure that the business is working properly the **manager** need to be able to **view all transaction report** in the store. The transaction report will contain **all data regarding to all transactions** that was recorded in the database. The manager is only needed to **input the month and the year** of his choice and then the **transaction report for that month for that year** will appear to the manager. To support the store the **manager** can also **hire new staff** to help him manage the store through the register menu. In the register menu he can choose what role that will be given to the new staff either from the **promotion team role** or **the admin role**.

|  |  |
| --- | --- |
| Variable | Validation |
| Month | * Must be chosen |
| Year | * Must be chosen |

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As a system analyst and programmer, Mr. Stephan wants you to develop the application with the following requirement:

1. Analyze the business process and draw the **Use Case, Activity Diagram, Sequence** **Diagram,** and **Class Diagram** based on the results of the business process analysis.

* You can use any modelling tools to create the diagram. Convert your diagrams into images (.png/.jpeg), and submit **both the diagram and the image files**.

1. Develop **the application** based on your analysis with the following requirement:

* The application must be build using Java-based Programming (JavaFX) with **MVC** (**Model View Controller**) architecture for a better development process
* Model

The model layer is responsible for **representing concepts** in the business or information about the business situation. Beside that, model layer also responsible for **giving access to the database** via its public interfaces to acquiring and manipulating references to preexisting domain objects.

* View

View layer, or Presentation Layer, is responsible for showing information to the user and interpreting the user's commands. This layer is the home for **all user interfaces** in the project.

* Controller

This layer is responsible to **validate** all input from the view layer and **all business logics** are implemented in the controller layer. It also responsible for **delegating request**s from the user to the lower layer for further processing.

* The database must be using **MySQL**
* The application must have an **authenticated user based on roles**
* The application must minimalize human error with great user experiences
* The application must be made based on the analysis diagram that you made.