



**NATIONAL PRACTICAL EXAMINATIONS FOR TSS
LEVEL 5,
SCHOOL YEAR 2022-2023**

**SECTOR: ICT AND MULTIMEDIA
TRADE: SOFTWARE PROGRAMMING AND EMBEDDED
SYSTEMS**

**INTEGRATED ASSESSMENT FOR OBJECT-ORIENTED
PROGRAMMING (OOP) WITH JAVA**

Modules combined:

1. SPFOO401 -Introduction To Object Oriented Programming With Java
2. SFP AJ401 -Advanced Java
3. SFPWD401-Web services Development
4. SFPBD301-Basics of Database development
5. SFPAD401-Advanced Database development

1. INTEGRATED SITUATION:

KALIM is the owner of “**Binary Supermarket**” located in the Kimironko sector in the Gasabo District and sells different goods to clients where they buy different products they need **physically**. Some clients wish to have the opportunity of ordering and purchasing products online. To solve this problem; KALIM decides to improve the manual selling system by adopting an online selling system whereby the clients will shop online using a cart system; and accessing the following minimum information:

Product (code, name, product type, price, in date, and image),

Quantity (id, product code, quantity, operation, date),

Customer (id, firstname, phone, email, password),

Purchased (id, product code, quantity, total, date).

TASK

As a Java developer, you have been hired to develop for them an Online Shopping Management System with these minimum features:

A) Product Management

1. Manage product by registering products details.
2. Register the quantities to respective products.

B) Customer and Shopping cart Management

1. Make customer sign up with name, email as username, phone and password.
2. Create a login for customer to authenticate into the system after signing up.
3. Display the products and add a button **Add to Cart or Buy** to allow shopping online by the authenticated customer.
4. Allow customer to add one or more items to his shopping cart with respective quantity.
5. Use a trigger to calculate the total price in purchased table as a product of price*quantity of individual item purchased before insert operation.
6. Allow a checkout of all products selected/added in a shopping cart by adding the information of the items purchased, quantity, total price by item for the client in the purchased table.
7. Generate the following report as per sample table provided:

No	Customer Name	Date	Product Id	Product Name	Quantity	Unit Price	Total
11	Mugabo	1-08-2023	1	Bag	20	25000	500000

Instructions:

- After proper configuration of backend, the records of products and quantities should be added manually using either postman/swagger/application main class/DBMS level.
- All information to be stored in a relational DBMS of your choice.
- For the beauty of concern separation, in this project the front end has to completely be separated from the back end.
- Spring boot to configure database and generate API to be used for backend implementation.
- Customer registration, product display and shopping cart APIs should be consumed by the Front end
- Your front end is a web based.
- The front end should be free from any business logic.
- Indicated database tables are required to complete this task

The timing of this project is 5 hours