PROGRAMMING ONE
CSIS-PRG-121
EBCS2
C++ Programming Project

Enock S Nkhoma
+265(0) 885 283 795 | enocknkhoma18@gmail.com

INTRODUCTION

A Point of Sale (POS) system is the hardware and software used by businesses to process **sales transactions**, including accepting payments, tracking sales, and managing inventory. Sales transactions encompass all instances of a business selling goods or services, including cash, credit card, and online purchases, and recording these transactions in the POS system.

CONTEXT

Mr. Aliyense Alinaye , a businessman in the commercial city of Blantyre, owns a hardware store. The store has 10 shop attendants and makes about 5,000 – 7,000 sales per day. These sales are recorded in a hardcover notebook. Each attendant has his own notebook for recording sales. Once every week , these sales must be transferred into the main sales book that is maintained by **Mr. Alinaye**.

The prices on the products in the store are listed exclusive of the VAT. This means that at every sale , the attendance must calculate the VAT and consequently the Total price with VAT inclusive. The attendant writes these details on a receipt that is presented to the customer.

For each sale transaction, the attendant records the following details on the receipt:

- The name of the sales attendant.
- The ID of the item sored.(This is an alphanumeric ID).
- The quantity of the items.
- The Unit price.
- The VAT
- The name of the client
- The contact phone of the client.

TASK

The store owner has approached you to produce a computer program to digitize the sales records.

REQUIREMENTS.
You are expected to come up with a C++ program to be used by shop attendance that allow him to accomplish the following :

1. **Authentication**
   Your program should allow the shop attendant to login using a username and password.

2. **Record Sales**
   The shop attendant should be able to record sales. For each sale the program should capture: **product_id, quality, unit_price, quantity, client_name, client_phone**.

   The program should also be able to calculate **VAT** for each sale made. *(Use the Malawi VAT rate as published by MRA)*

3. **View Sales**
   The program should allow the sales agent to view his sales on a table format.
   The program should allow for :

   a) **Summary View**
   This view should show in a table format:
   - Total sales transactions.
   - Total Items sold.
   - Total amount sold.
   - Total amount of sales made on the current day.

   Sample output may look like

KPI	**Value**
Total Transactions	500
Total Items Sold	10
Total Amount Sold	100,000.00

   b) **Highest Vs Lowest View**
   This view should show a table of dates with the highest, median and lowest total sales for the attendant.

   Sample output may look like

KPI	**Date**	**Value**
Highest Total Sales	12 /03/2025	500,000.00
Median Total Sales	16/04/2025	250,000.00
Lowest Total Sales	5/06/2024	45,000.00

c) **List View**
This view simply displays all sales for the store attendant logged in.

4. **Download Sales**
This tab should allow the store attendants to export their sales to an excel files. The file should have appropriate headers for all the columns.

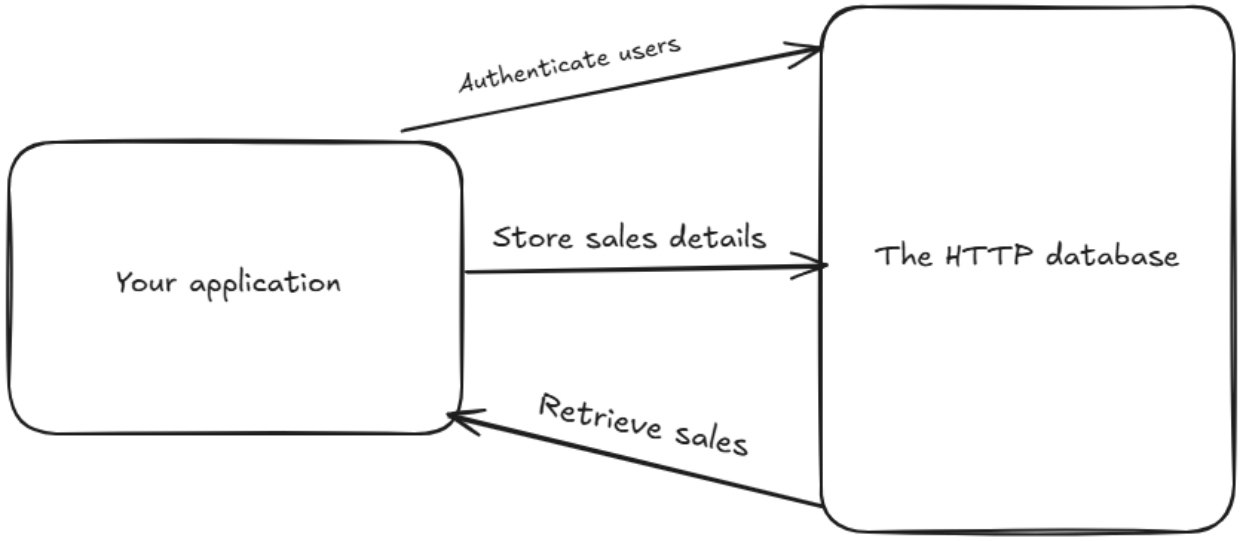
MR. Nkhoma has volunteered to support you on this project by developing an http accessible database that will be used for this system. This online database will help you to :

a) **Authenticate users**
Your program will sent to this database the credentials of users , and the database will return **true** or **false** indicating whether those credentials are valid or not.

b) **Persistent Storage of Sales transactions.**
After the attendant has captured the sale details , your program, should sent these details to the http accessible database for persistent storage.

c) **Retrieving Sales**
You will be able to retrieve all sales for the logged in sales agent from the http accessible database.

The schematic below illustrates the interactions between your program and what Mr Nkhoma will provide.



IMPORTANT REMINDERS AND EXPECTATIONS

- To ensure sufficient practice of the concepts discussed in class, you are required to use only the concepts that have been covered. Inclusion of programming concepts beyond our scope will result in a zero grade. However, feel free to use libraries that will support output formatting , and http connections.

- Your program should be modular. Split it into functions and spread across files using header files.

- All group members must participate and understand what is happening. This will be assessed.

- Your submission should include the User Manual.

- Remember to document your code using comments.

- Ensure you have employed input validation where appropriate and that your have correct formatting when displaying figures.

WHAT YOU WILL SUBMIT

- Source code.
- User Manual as PDF

"TALK IS CHEAP , SHOW ME THE CODE"
Linus Torvalds