Shop Inventory Management System

Team 20
TA : Swastik Maiti
Course : CS253

Why use this software?

- Aimed at small-scale retailers.
- Common practice for people to manage their shops manually and using unscientific methods leading to losses which can be avoided.
- Our software aims to provide a one stop solution to these problems.

Major Requirements

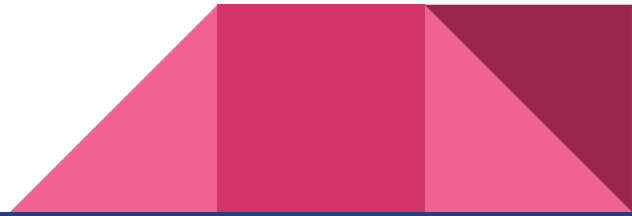
- Generating Billing Invoices
- Checking Inventory Levels
- Restocking suggestions based on previous demand using sound scientific methods.

Key Design and Implementation Details

- Frontend: Qt (Version 6.2.3), which is an open-source cross platform GUI framework
- Backend: State Machine, implemented using the Finite State Design Pattern
- Database: An offline database created and modified using SQLite3 library
- All of these implemented as CMake projects, and written in C++
- Using MinGW-x64 compiler for compiling these projects, however, required MSVSC-2022 compiler as well if you want to use the recommendation system.

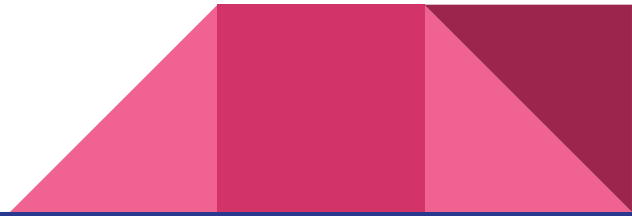
Key Design and Implementation Details

- Used Google OR-Tools library for providing restocking suggestions.
- Applied a linear programming approach to provide restocking suggestions.
- Forecasting manually for ease of testing.



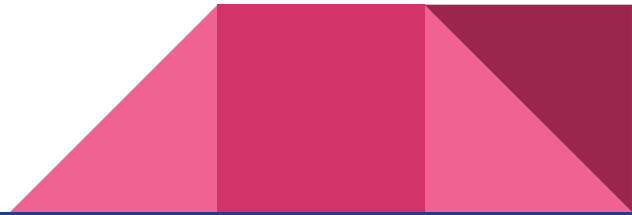
Future Development Plans

- Improve optimization algorithms. Possible use neural nets for demand forecasting. Also automate forecasting.
- Improve the User Interface.
- Add functionalities like display attendance, show profit loss.
- Encrypting our database for security reasons.
- Implement Input Sanitization.



Lessons Learnt

- Check the requirements of external libraries carefully before beginning actual development.
- Understood the many complications that come with windows development, that are not there on linux.
- Learnt the many powerful features of CMake
- Learnt many software design paradigms such as the Finite State Design Pattern, Model-View-Controller Architecture, etc.



Thank you

Any questions?