

WEB APP DEVELOPMENT

Wholesale management system

Group Information

Our group consists of two members:

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Requirements

Design a database to maintain information about stock, buyers and customers satisfying following properties:

1. **Maintain the details of stock** like their id, name, quantity
2. **Maintain the details of buyers** from which manager has to buy stock like buyer id, name, address, stock id to be bought
3. **Details of customers** i.e. name, address, id
4. Default list of customers who **has not paid their pending amount**
5. List of payment **paid or pending**

Requirements (Cont.)

6. **Stock that is to be buy** if quantity goes less than a particular amount.
7. **Profit calculation** for a month
8. **Quantity cannot be sold** to a customer if required amount is not present in stock and date of delivery should be maintained up to which stock can be provided.

Requirement Analysis

| ID | Name | Description | Type |
|----|---------------------|---|----------------|
| 1 | Authentication | The system requires a password to be used | Functional |
| 2 | Store data | Store data about customer, shop, transaction, etc. | Functional |
| 3 | Search function | Search for primary key and name attribute of entities | Functional |
| 5 | Profit calculation | Calculate the profit in a week/month/year | Functional |
| 6 | Adding new entities | Add new user | Functional |
| 7 | Usability | User-friendly GUI | Non-Functional |
| 8 | Security | Password must be encrypted | Non-Functional |
| 9 | Interactive plot | Plot should be interactive and customizable | Non-Functional |

Software

- **Python 3.8:** Primary programming language. Python is a general purpose language: it has a lot of libraries and a big community.
- **Git, GitHub:** Version control. Git is a very popular Version Control System.
- **PostgreSQL:** Database.
- **Streamlit:** for the user interface.
- **FastAPI:** backend framework.
- **Docker Compose:** Container.

Hardware and Software Requirements

To run both backend and frontend:

- RAM: 8GB
- Disk: 5GB
- OS: Linux-based or WSL
- Prerequisite: Docker Compose

ERD, Sequence Diagram & Test Cases Details

Please refer to the report for more details

Demo

Lessons

- **Software development process:** from analysis to prototype implementation, testing, use cases, teamwork, etc.
- **Use many tools** for various purposes: drawing Entity-Relationship Diagram, Relational Schema, Class Diagram, Sequence Diagram
- Know how to use Python for simple web app using Streamlit, FastAPI and deploy with Docker
- CRUD and REST for Web app

Limitations

- Scalable project & database.
- More test cases.
- More complicated requirements.
- Data integrity and app security.

Reference

Please see the report for more details about references.