Software Design Document

for

Business Insight

Version 1.0 approved

Prepared by Rishabh Agarwal

Galaxy Insights

April 19, 2020

Table of Contents

Revision History

Name	Date	Reason For Changes	Version
Inventory Management System	March 12, 2020	Making an inventory management system that provide business insight for cloths/garments business.	1.0
Business Insight	April 19, 2020	I want to make it more generic and not just for clothing business to target larger audience.	2.0

1. Introduction

1.1 Purpose

We are seeing lots and lots of small businesses like restaurant, clothing business etc. A lot of these businesses are also facing loss with leads to permanent closure or overwhelming loss and debt. Small businesses are the backbone of the country they help improve economy and bring business. The goal of this product is to protect their business by providing useful insight and coaching them in right direction.

1.2 Product Scope

The product will be featuring following,

1. *Profit Calculation*
2. Inventory Management
3. Business Insight
4. Connect to Live Business Expert
5. Scalability

1.3 Overview

The purpose of this software design document is to formally outline the purpose and architecture of the product. This will ensure during the development phase we are sticking to the original design and will act as a source of truth. Also as discussed in book and architecture document is also useful when developing similar application again, because this document will be already documenting all those concerns.

1.4 References

For this project I am not referring to any of online resources. I just use the project template which was provided in module.

2. System Overview

In this section I will be explaining the features discussed in product scope.

1. *Profit Calculation*

   This feature is very simple to implement. Profit calculation is calculated by subtracting selling price – buying price. Data like buying price, item name, item barcode, quantity will already be available in the database.

2. *Inventory Management*

This feature will take care of storing and maintaining inventory information like item name, generating barcode for item, buying price, description, quantity etc. The inventory data will be used to perform any kind of transaction.

3. *Business Insight*

   Business Insight will be provided with 1 and 2. We will perform various algorithm to generate a pattern based on the past profit and current inventory. This will guide customer what to stock during particular time.

4. *Connect to Live Business Expert*

   We are expecting business Insight will get smarter over time as it will collect more data, but it won't be always able to address all customer concern. For that we will be providing customers to talk to a business expert in that particular field. These mentors will be able to provide them personal attention and will be working with customer in helping to increase the profit.

5. *Scalability*

   Scalability is to helping people to scale their business, connecting them to right people from the feedback provided by Live Business Expert. For example if business expert said you should scale your business to online market and our customer is not technically informed to perform those task, we will be connecting him to different technical people who will help him retail online.

3. System Architecture

3.1 Architectural Design

The design is distributed into following modules,

API Development

All the business logic require for this application will be developed informs on API. API will be responsible for getting an input and updating database and when prompted for some information fetching that information from database and return to UI. Developing API will make it modular as later when we go platform independent application can directly hit the correct Rest Endpoint.

Note: API level security such as (authorization and authentication) will be managed under API Development.

UI Development

This module will be responsible to hit the right API for a particular event and return the result returned by API to the customer.

Mobile Development

Similar to UI Development mobile development team will be developing Android and IOS app that will contact API for particular event.

DevOps

This team will be responsible for creating the environment, handling server security, dockerizing services and publishing them. This team will be also responsible for implementing AWS to support the services.

3.2 Decomposition Description

Already explained as part of architectural design. (Refer to 3.1)

3.3 Design Rationale

One of the designs I was trying to follow earlier was storing data in customer local machine to ensure security of the data and make the application subscription free. But this may be the cause of lot of potential problem. For example, local storage full or accidental data wipe or issue in accessing data. Switching to AWS will cost more but will ensure security of customer data.

4. Data Design

4.1 Data Description

Since we are trying to make application generic for different type of businesses, database table will be different for different type of businesses. We will be specifying some specific template for different type for business.

The application will be using database majorly for *Inventory Management* and for *security*.

Below are some of the expected tables for garment/clothing business,

InventoryTable
- Inventory Id (unique Id, non-nullable, UUID)
- Description (nullable, String)
- Buying price (non-nullable, Int)
- Date of purchase (non-nullable, Date)
- Item category (non-nullable, String/Enum)
- Selling price (nullable, Int)
- Profit (nullable, Int)
- Color (non-nullable, String)
- Quantity (non-nullable, Int)
- Size/Dimension (non-nullable, String)

UserTable
- Username (non-nullable, String)
- Encrypted password (non-nullable, SHA256 (String))
- Role (non-nullable, String)
- Privileges (non-nullable, String)
- Access Until (non-nullable, Date)
- Date of joining (non-nullable, Date)
- Age of Service (non-nullable, Int)
- Pay (non-nullable, Int)
- Benefits (non-nullable, Int)

4.2 Data Dictionary

Refer to 4.1. Data Dictionary provided in 4.1

5. Component Design

The application uses simple Springboot API with microservices architecture. The application doesn't have any complication business logic yet. It is currently functioning to save an entry to DB and remove it once the item is sold hence there is no algorithm used yet.
It is expected the algorithm will be used for business insight but that is in implementation phase yet.

6. Human Interface Design

6.1 Overview of User Interface

The application aims to have the simplest design with white and dark theme. Since the UI phase is not completed yet, only API phase was completed. Screenshot is not available.

Appendix B: To Be Determined List

Pending features to be completed,

1. UI
2. Business Insight (using machine learning algorithms)
3. Mobile App
4. *Connect to Live Business Expert*
5. Dockerizing and AWS (partially left)