COM1028 Software Engineering Problem 7: Online Market

Contents

1 INTRODUCTION

1.1 Purpose

This document specifies the requirements and functionality of the 'Online Market' system. It will list the software's features in detail providing an overview of the characteristics, intentions and interactions between each feature. Any limitations considering time and resources will also be explained in this document. The project will be intended for users that wish to buy items over an interface and users that wish to make profit by selling their products.

1.2 Scope

The 'Online Market' software will primarily have 2 access levels; the customer and the administrators (admins). This is accommodated through the system's secure login system that will calculate the access level the user should have depending on their login details.

Just like an ordinary market, the primary stakeholder (the customer), will be able to navigate through a list of varied products. Upon viewing a product, the system should allow the user to add a review or add the product into their basket. From their baskets, items can be removed, and the system will then calculate the total cost before the final process of purchasing. Furthermore, the programme can track the user's transactions and update their balance accordingly.

Users may also create a list of products they would like to monitor, whenever the price of the products change or if the products stock becomes empty or restocked a notification will be sent to the user's email. The customer can register a product that is to be sold. The system should keep track of their profile and provide a score which other users can judge to decide whether the seller is trustworthy or not.

The other type of user will be the administrators who have the key role of verifying products that are to be sold. They can block and ban sellers with a bad score, which may be caused by an accumulation of bad reviews. The system should allow the administrator to delete any information to do with users and products but will not allow them to buy or sell an item. Log scripts should be generated to keep track of an administrator's actions which cannot be deleted by the administrator. It is also important to note that the customer will not have any access to admin control.

The software will be based on Java. The GUI will be created using 'WindowBuilderPro'. Working with java proves to be beneficial as it is easy to use and maintain the code that we write [2]. Java can also work on different platforms allowing our software to be compatible with various devices that run on different platforms due to the ability of java working cross-platform [2].

1.3 Terminology

Administrator	A special user with access to administer controls that will manage and maintain the system.
Balance	This is the Customer's account balance
Basket	A list of products the user wants to buy
Customer	Any person registered to the system as a user that can buy or sell products
Log	Log will record each action an administrator makes
Product	Product is an item registered by a customer to be sold
Review	Product reviews of a product from customers who had bought the item
Score	Each individual user will have a score based on all their reviews
Stakeholder	refers to anyone that uses the system
Transaction	A transaction is the process where a customer buys the products from their basket.
Wish list	A list of products the user would like to monitor

1.4 References

[1] ieeeexplore.ieee.org (1998) "IEEE Recommended Practice for Software Requirements Specifications" [Online]. Available at http://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=720574 (Accessed: 11/03/2018)

[2] "Advantages of Java" ibm, [Online] Available: https://www.ibm.com/support/knowledgecenter/en/ssw_aix_72/com.ibm.aix.performance/advantages_java.htm [Accessed:13/03/2018]

[3] "The Data Protection Act" gov, 2018, [Online] Available: https://www.gov.uk/data-protection [Accessed:14/03/2018]

[4] "E-commerce Legal Requirements" onlineretailing, 06 June [Online] Available: http://www.onlineretailing.co.uk/e-commerce-legal-requirements/ [Accessed:14/03/2018]

[5] "Computer Misuse Act 1990" legislation.gov, 2018 [Online] Available: https://www.legislation.gov.uk/ukpga/1990/18/contents [Accessed:14/03/2018]

[6] "Underage sales" businesscompanion, 2018 [Online] Available: https://www.businesscompanion.info/en/quick-guides/underage-sales [Accessed:14/03/2018]

1.5 Overview

This Software Requirements Specifications document uses the structure specified in the [1] . The remaining section of my document will explore the overview of the system, it's constraints, assumptions, dependencies, as well as it's functional and specific requirements.

2 OVERALL DESCRIPTION

2.1 Product perspective

The final software will be standalone and does not need any software or hardware to interface my program. However, to store data, I have decided to use SQL lite. This means that the system will be dependent on the database. It should be able to run on multiple platforms that have virtual machines. The system is related deeply to websites such as Amazon, eBay and some other retailer sites. They all have similar system requirements to the system described in this SRS. They all also target users that wish to buy or sell products over the internet.

2.2 Product Functions

Summary of the system's function,
For normal users, the system will allow the user to;

- View products in an organized fashion
- Add/Delete products into their basket
- Add/Delete products into their wish list
- Add a review, which can then be later edited or deleted
- Register a product to be sold
- Add money into their profile bank

For administrator users, the system will allow this type of user to;

- Edit/delete user, product or review details
- Ban or unban users

Other system functions;

- Data stored consistently
- Updates the user's balance according to what they have bought
- Updates the list of products so that new products can be listed
- List of products can be sorted
- Calculates the user's profile score
- Email notifications about user's wish list
- Register new users and administrators
- Have a record of user's transactions
- Log administrator's actions

2.3 User Characteristics

The audience of the software will be aimed at customers from all ages since a range of products can be found on the system. However, to buy certain products that have age restrictions, such as alcohol, the system must check the user's age to see if they are either 18+ or 21+ for certain restricted products, this is so that the system can follow the trading standard law [6]. If someone under the age of 18 and would like to buy a product then it is important for them to have parental consent and purchase the item through an account. Therefore, a customer/user account must have their age registered as 18+ or 21+ to buy products. It is important to note that any users with any educational level or background will be able to use the software unless they have been banned from the system due to a bad score which has accumulated from bad reviews. Administrators on the other hand will maintain the system and manage the system by filtering data and removing/blocking unwanted details.

2.4 Constraints

A major factor which will limit the design of the software will be time management, if not managed properly features would be removed to have a working clean functional product. Decisions based on whether to remove features would be decided in the design step. Because the program is written in java, for it to work cross platform the computer would most likely require a virtual machine to run the program. Memory is also a limitation and so the device should have enough memory to store the system's data. Devices with better hardware (Ram/processor/cache/SSD) will perform better having faster access read/write speeds allowing to run the system with ease. Another factor to consider is security and should be wary of possible SQL injection attacks. Also, under the Data protection act it is important to keep data secure and is not misused inn any way.

2.5 Assumptions and dependencies

The device the program will be used on will be assumed to have enough memory to run the project and will also have a virtual machine to run the java program. The program is heavily dependent on the database, without the database the program will fail as the users wouldn't even be able to log in or do anything with the database. Building on to this, we must also assume that the database's security is strong preventing SQL injections or any other breaches by any other method. We also must assume that the login system of the program is strong to prevent any unauthorized access. The user's password should safely be stored and hashed to prevent hackers from easily accessing user account and stealing information. The system is also quite dependent on the administrators who should regularly maintain the system by filtering data, without admin's the system will not be able to do this by itself.

3 Specific Requirements

3.1 Non-functional Requirements

- Users are required to register and sell products

3.1.1 Operational Requirements

- The system shall use SQL Lite to store data into a database
- The system should work cross platform due to java being compatible with different platforms
- Database shall be backed up periodically on an external device

3.1.2 Performance Requirements

- The system shall perform tasks in a reasonably acceptable time. Data should be fetched from database relatively fast, this is pivotal to ensure smooth interactions with the user interface.
- A computer system with decent spec and memory to run the program. The faster the system the smoother the performance.

3.1.3 Security Requirements

- Anyone with an account registered will be able to use the system. To be authenticated, a secure login system should be in place that allows the system to work out which users are administrators, and which are normal users whom may buy and sell products.
- Users do not have access to administrator's control, the system shall ensure that the user see's what they are supposed to see
- Database used should be secure, free from SQL injection
- Users will not be able to delete/edit any information except from their profile
- User's passwords will be hashed when stored in the database to ensure security and trust of our users specified in [3]

3.1.4 Cultural, Political or Legal Requirements

- The system should follow 'The Data Protection Act 1998' [3] making sure that any personal data stored in the database should be kept safe and secure from unauthorized access.
- System should comply with 'The Electronic Commerce (EC Directive) Regulations 2002' [4] making sure we gain the customer's trust by informing users on the 'terms of conditions' and any other additional information or conditions the user needs to know.
- The system should also comply with the 'Distance Selling Act 2000' [4], meaning that the products registered by the users should have information that is clear to read. This should be regulated and verified by the administrators.
- It is important to log the administrator's actions to make sure they abide with 'The Computer Misuse Act (1990)' [5]. They shouldn't edit data, such as someone's balance, without permission.

3.2 Functional Requirements

F1 Login System

F1.1 The system shall allow a user to register and create an account.
F1.2 A user must login with a correct login username and password
F1.3 The password should be hashed before being stored into the database.

F3 Viewing products

F3.1 Products can be searched by using search bar.
F3.2 Products can be sorted from lowest to highest.
F3.3 Products can be sorted from Ratings.
F3.4 Products can be sorted so that the last added products are shown.

F4 User (Buyer and Seller)

F4.1 A user shall be able to view and edit products in their wish list.
F4.2 If a product in a user's wish list becomes out of stock, the user should be emailed and notified by the system.
F4.3 If a product in the user's Wishlist becomes restocked, the user should be emailed and notified by the system.
F4.4 If a product in the user's Wishlist price changes then the user should be emailed and notified by the system.
F4.5 A User shall be able to view and edit products in their basket.
F4.6 A user shall be able to register a product to be sold.
F4.7 A user shall be able to leave a review of a product or seller.
F4.8 A user shall be able to top up their balance to purchase products.
F4.9 A user shall be able to view or edit their personal details.

F5 Administrators

F5.1 Admins shall be able to view or delete any registered users.
F5.2 Admins shall be able to ban users from selling products or unban users.
F5.3 Admins shall be able to remove any products registered in the system.
F5.4 Admins shall be able to remove reviews of a product.
F5.5 Admins must verify a list of newly registered product before they get added.

F6 System

F6.1 The system shall be able to update the user's balance after a purchase
F6.2 The system should calculate a user's selling score from reviews and rating
F6.3 Determine whether a user can be banned judging from their score
F6.4 The system should determine, from the login details entered, whether the user is an admin or not.
F6.5 The system should keep a log of user's past transactions
F6.6 The system should keep a log of admin's actions