Inventory Management System

Table of Contents

# 1.0. Introduction

## 1.1. Purpose
- The purpose of this document is to present detailed information on the Inventory Management System project. Here will be explained the steps of how the system is put to work by connecting all the parts together.

## 1.2. Scope
- This system will be designed to store and manage an inventory where products will be classified into categories. There will be a section of Users, where they will be created by its specific module. The section of Products will hold 10 PCs, 12 monitors, 7 laptops, 15 keyboards, and 16 mousses as requested. The section of Categories will consist of 4 categories which will include all the products mentioned above. The option of adding and updating will be available to the administrator role for every section. The user role will have permission to add and update products and categories, while the guest role will have permission to only read about products and categories.

## 1.3. Glossary

| Terms | Definitions |
|---|---|
| Database | The collection of all the needed data used by this windows application |
| Admin | The primary role which can access everything related to the project |
| User | The secondary role which has some reading and writing functions |
| Guest | The role which has some read functions only |
| Form | UI framework for building Windows desktop apps. |
| Log | Report that provides detailed event audit information in a format that minimizes the report's impact on system resources. |
| Drop Down | Appearing below a menu title when it is selected, and remaining until used or dismissed. |

### 1.4. Overview of Document

- The next chapter, the Overall Description section, of this document gives an overview of the functionality of the product. It describes the informal requirements and is used to establish a context for the technical requirements specification in the next chapter.

  The third chapter, the Requirements Specification section, of this document is written primarily for the developers and describes in technical terms the details of the functionality of the product.

  Both sections of the document describe the same software in its entirety, but are intended for different audiences and thus use different language.

## 2.0. Overall Description

### 2.1. System Environment

- Inventory Management System is a Windows Forms Project developed on the .NET Visual Studio Platform and written on C# programming language. It consists of eight forms, where the Home Form holds the role-based access simulation. The database is configured offline.

### 2.2. Functional Requirements Specification

- This section outlines the functions of each role separately.

The administrator role can do any kind of functions, such as: add users *(username, full name, phone number, type)*, products *(products name, quantity, price, description, category and product Id)*, categories *(category name and Id)*, and delete any of them. In the Home Form, there are three buttons that make lists of users, products and categories appear. Three additional buttons are for adding data in each of these sections. The administrator role has access to all of these functions. It can read and write info on all the sections of the project.

The user role cannot access the section of users, therefore cannot read the info on the users nor can add new ones. But the user role can add new products, update or delete them. It can also access the categories section where these functions are available there also.

The guest role can only access the users and categories list, which means it can read the info on products and categories, but cannot add new ones nor do any changes upon them.

Every logged-in user can logout by the button provided in the Home Form, and that would make the Login Form appear again for a re-login.

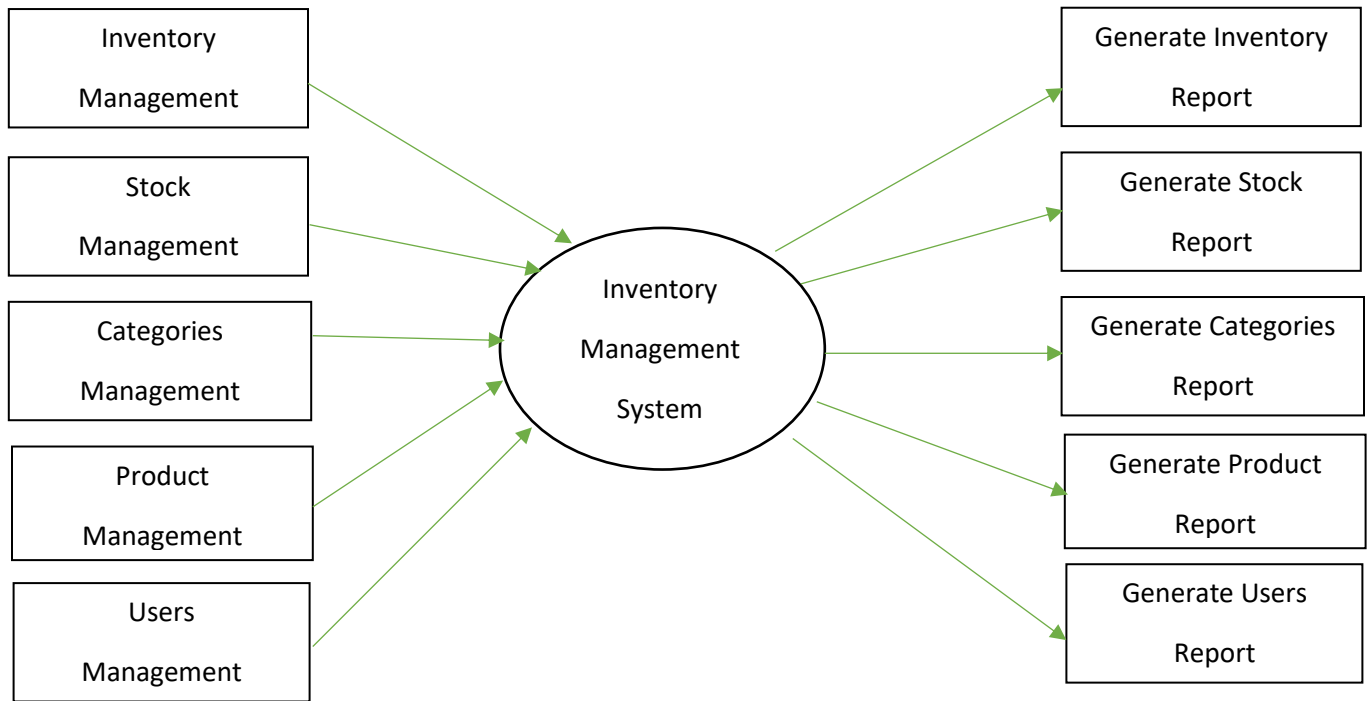## 2.3. A detailed explanation on every form of the application

| | | |
|---|---|---|
| Inventory Management | | Generate Inventory Report |
| Stock Management | Inventory Management System | Generate Stock Report |
| Categories Management | | Generate Categories Report |
| Product Management | | Generate Product Report |
| Users Management | | Generate Users Report |

*Figure 1 –System's main functions*

## 2.4. Inventory Management Flowchart
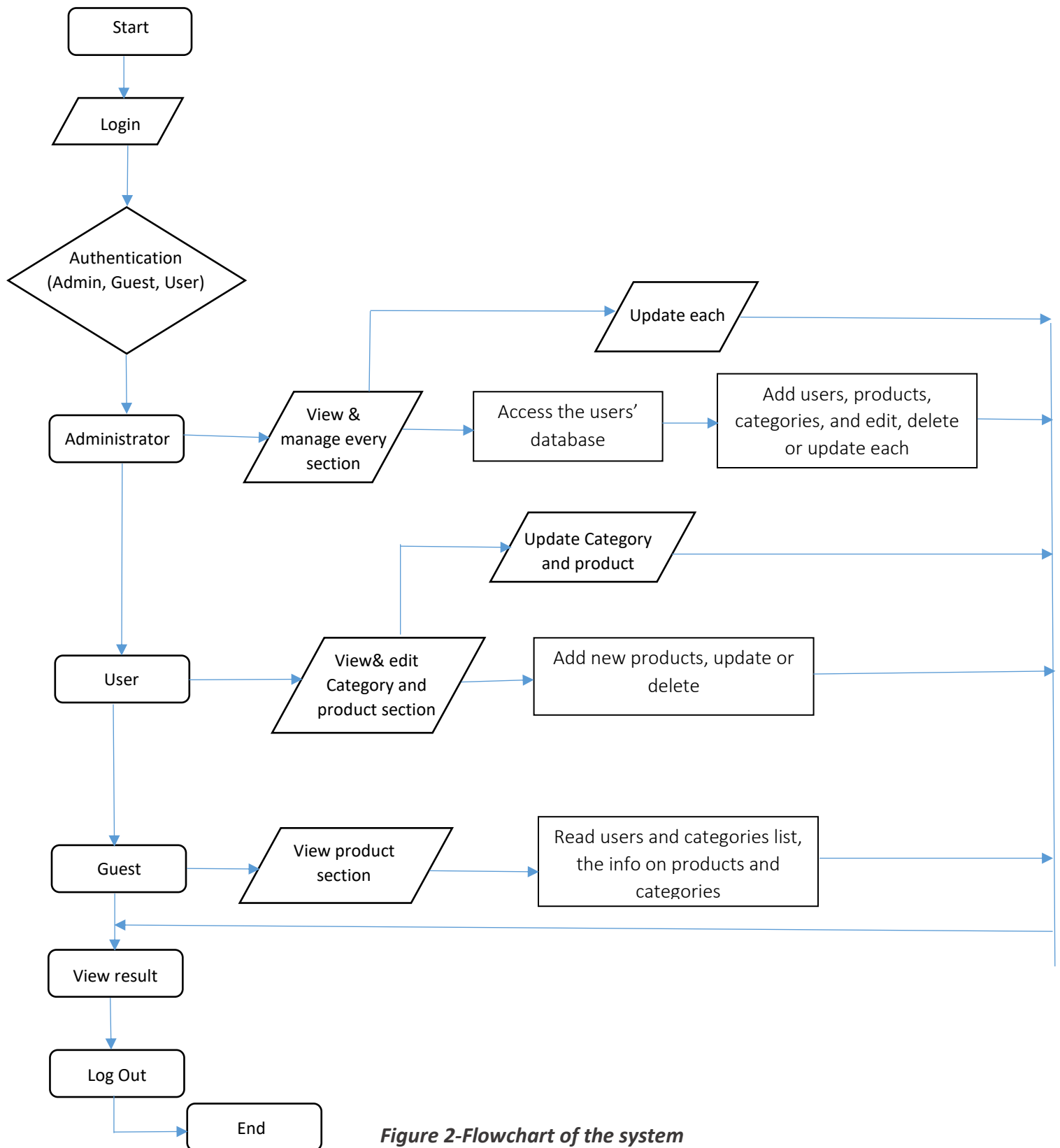


*Figure 2-Flowchart of the system*

## 2.5. End-User Characteristics

| Data item | Type | Description |
|---|---|---|
| ID | Integer | The id number is auto-generated by the system itself |
| Username | Character data that is varying | The user name is unique for each user |
| Full name | Character data that is varying | Name and the surname of the person |
| Password | Character data that is varying | The password entered in the registration section |
| Phone | Character data that is varying | Phone number is entered in the registration |
| Type | Integer | Each number decides a specific role(Admin, User, Guest) |

## 2.5.1. Inventory Management System Application

- An application for managing any inventory, where we can store, add or remove products, categories and users. The application is developed on the Microsoft .NET platform and is coded in C # programming language. The project is of the Windows Forms type, so we are dealing with a desktop application. In the following sections are detailed the component forms of the project on which the application is created.

## Home Form

- The main form of the application is executed automatically after logging in with the relevant data of a user inserted in the database table. We have all the components of the project and we can access them through this form. In this form, role-based access is possible, divided into three options (administrator, user and guest). Depending on the role we choose, the functions that are allowed to use based on them, also change. Furthermore, the role of the administrator has no restrictions on the application. Administrator rights are the addition, removal and updating of all components of the project. The role of the user can perform actions on products and categories but is limited to the part of the user table, to which only the administrator has access. If we choose the role of guest, we will have the opportunity only to read data in the table of products and categories. This form also includes the logout button which performs the logout function as a logged-in user and restores the Login Form.

## Login Form

- One of the necessary forms for every application created is the Login Form. Firstly there are three options where each can choose the corresponding Administrator, User, Guest, each of them has its own login form. If not registered, there is the chance where you can create a new account by clicking Create account. Each type has its own login form because they have different functions. We can write the relevant credentials (username and password) and this gives us the opportunity to log in to the system to perform various actions. Also, the opportunity is offered for:

- delete newly inserted credentials via the 'Clear' button
- show password via the 'Show Password' button.
- 'Return to Login' in order to return to the previous page to make another selection

## User Module Form

- Form for adding new users. The form displays the appropriate parameters required for each user, such as; user name, full name, password and rewrite, as well as mobile / phone number. In this form is also added a dropdown box that is used to select the type of the category that this new user will fit. The buttons that perform actions in this form are:

- 'Save' for storing data in the table
- 'Clear' for deleting newly inserted credentials

## User Form

- The form shows the order of each existing user in the respective table. This session is only available to the ones registered as administrators. The data are displayed with each respective parameter and here we can manage them through the button:

- 'Delete' which offers the possibility to remove any unwanted user
- The button 'X' is used to close this entire page

## Product Module Form

- In this form we can create new products with the right parameters, such as: product name, quantity, price, description and category in which it belongs. The categories of the products are initially inserted and one can only choose the inserted categories. The buttons that perform actions in this form are the same as those of the User Module Form, through which we save new products and delete newly inserted credentials.

## Product Form

-   The form which shows the order of each existing product in the respective table. They are displayed with each respective parameter and here we can manage them through the button:

    • 'Delete' which offers the possibility of deletion

## Category Module Form

-   Similar to the module formats described above, the categories in this application also have a corresponding module. In this form, we can create new categories, where it is enough to write only their only parameter which is the name of the category. The buttons that perform actions in this form are the same as those of the above modules.

    •   'Clear' which offers the option to clear everything written in this module
    •   'Save ' is used to save the new category entered

## Category Form

-   Form for displaying categories with parameters mentioned above that belong to each. We can manage them through the buttons:

    • 'Delete' which offers the possibility of deletion

## Database Transactions Log

-   Database is what makes possible the creation and storage of data in relevant tables. The database of this project was created in SQL Lite in order to be accessible in every platform in case the project will be transferred. The connection string holds the location of the database, it is configured in the Entity Framework model, and in the app.config included in the solution. In this project we have created three tables:

    • Table of users (assigned as tbUser)

    • Product table (assigned as tbProduct)

    • Table of categories (assigned as tbCategory)

The following picture shows each transaction performed on this database during the creation of the project:



*Figure 3 – Log transaction*

## 2.6. Task report

Elira Ismaili:

- Creating User Module Form, User Form, User Panel Form
- Creating Login Admin/User/Guest Form
- Creating database tables of users, products, and categories
- Writing the Inventory Management System Documentation
- Commenting code lines
- Creating the documentation file

Vait Veliasi:

- Creating Product Module Form, Product Form
- Creating Category Form, Category Module Form
- Creating Administrator Panel Form, Login Admin/Guest/User Form and implementing a role-based access function
- Inserting data into database tables of users, products and categories
- Designing forms
- Commenting code

## 2.7. Login credentials

The Login credentials are shown the usernames and the passwords of the users created:

Username: vveliasi

Password: 12344321

Username: eismaili

Password: elira99

Username: user01

Password: 1111

Username: guest01

Password: 2222