Department: Computer Engineering
Course Name: Visual Programming CPE 317

VISUAL PROGRAMMING PROJECT

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1.0 PROJECT OVERVIEW

Project Name: Inverntory Management System

Project Description:

Inverntory Management System is a C# application developed to facilitate inventory management for a business. This project is designed to allow users to track, update on their product stocks.

Key Features:

User Management: The project enables different users to log into the system and provides each user with authorized functionalities.

Product Management: Users can add, update, or delete products in the stock. Basic information for each product (product name, stock quantity, price, etc.) can be stored.

Inventory Tracking: The system automatically tracks changes in stock. Product sales, additions, or updates are recorded, and stock quantities are updated

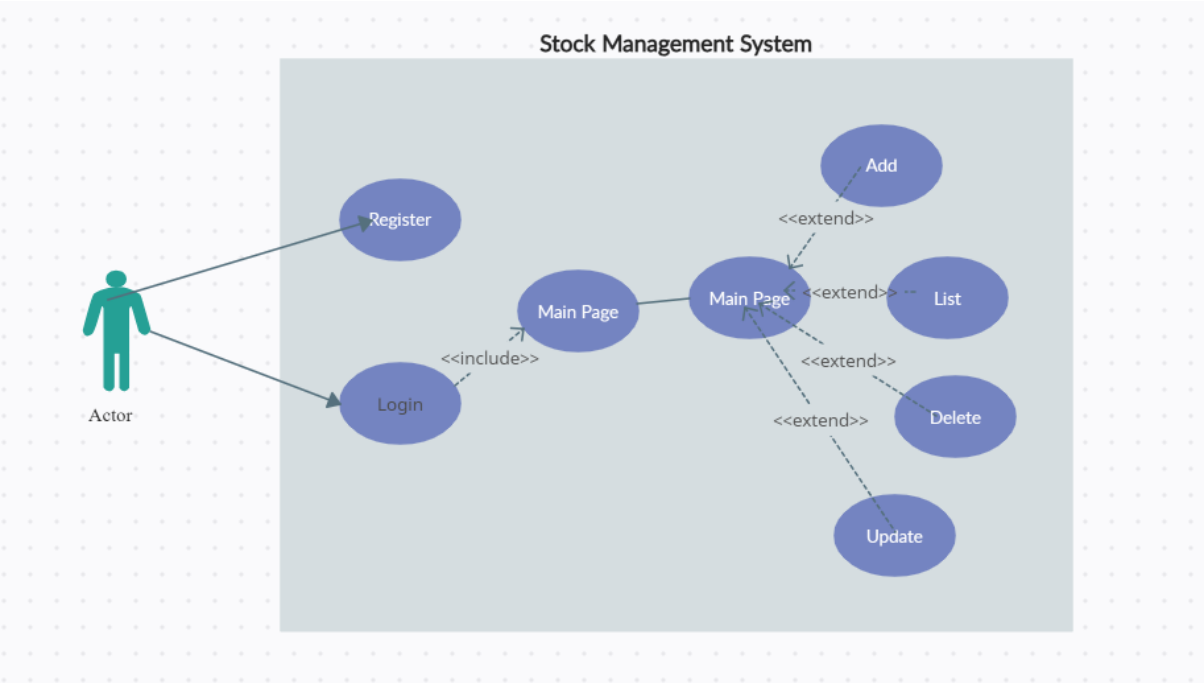
accordingly. Additionally, a warning message is displayed for a product whose stock quantity is critically low.

Technological Specifications:

Programming Language: C#
Database: Access DB
User Interface: C# based interface technologies Windows Forms
Security: Security measures for user login and authorization

Project Github Link (You can check the existing repository): https://github.com/Maslan34/Visual-Programming-Project/tree/dev-Hale

2.0 PROJECT USE CASE DIAGRAM



3.0 USED TECHNOLOGIES & RESOURCES

3.1 Visual Studio

We used Visual Studio environment for developing our form application project. Visual Studio, is an integrated development environment (IDE) created by Microsoft for software development which supports various languages like C#, C++, etc. It provides a comprehensive set of tools and services for building various types of applications, including desktop, web, mobile, and cloud-based applications.

3.2 C#

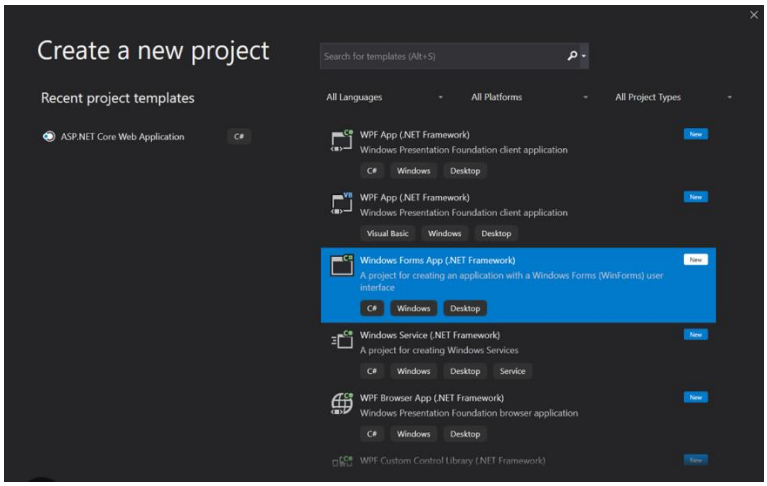
C# (C-Sharp) is a modern, object-oriented programming language developed by Microsoft. Designed for building scalable applications on the .NET framework, C# is widely used for web, desktop, mobile, and cloud-based development. Its syntax is similar to Java, making it accessible to developers familiar with C-style languages.

3.3 Microsoft Access Database

Microsoft Access Database we used in our projects database process is a relational database management system (RDBMS) part of the Microsoft Office suite. It provides a user-friendly interface for creating and managing databases. Access is often used for small to mid-sized projects, offering tools for designing forms, reports, and queries

3.4 Windows Form Application

Windows Forms (WinForms) is a graphical user interface (GUI) framework for building Windows desktop applications in the .NET framework. Developed by Microsoft, it allows developers to create applications with a rich user interface using a drag-and-drop interface for designing forms. WinForms supports event-driven programming and integration with other .NET technologies.

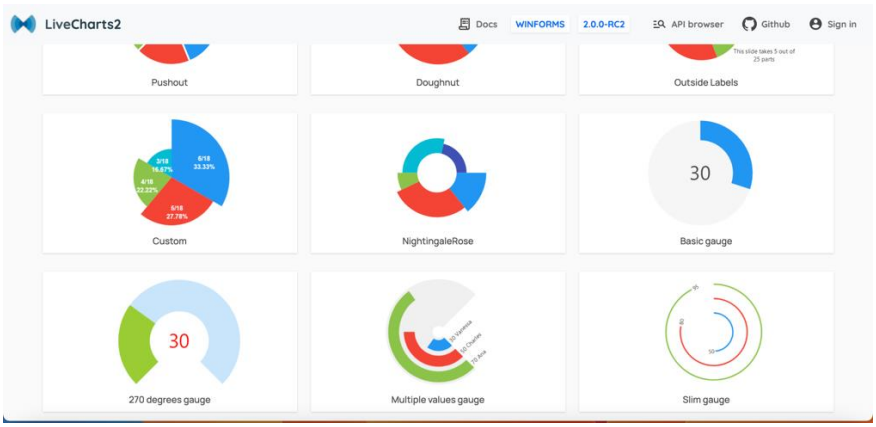


3.5 .NET Framework

The .NET Framework, developed by Microsoft, is a versatile platform for building desktop, web, mobile, and cloud applications. Offering a common runtime and unified class library, it supports multiple languages. Evolving into .NET Core and subsequent versions, it emphasizes cross-platform development and modern application architecture.

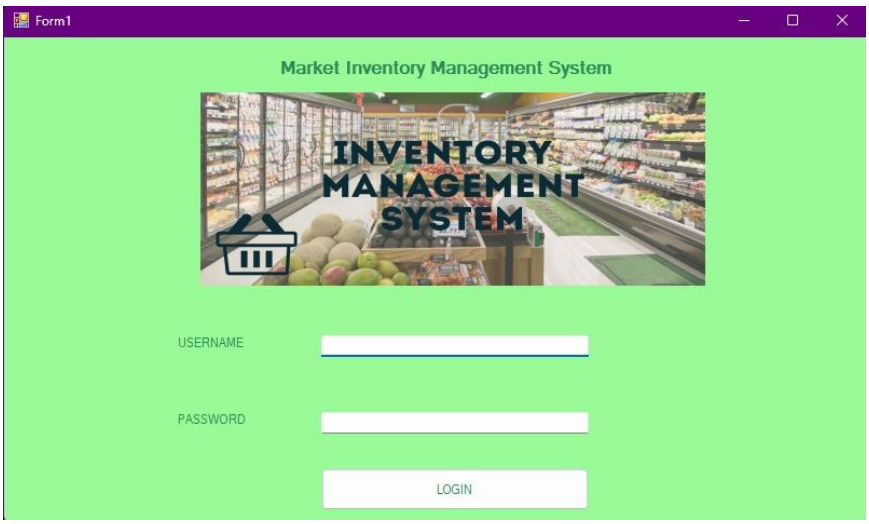
3.6 Livecharts 2 WinForms Library

We implemented Livecharts library for displaying real-time data in our project. LiveCharts is a WinForms library for real-time data visualization in C#. It enables developers to create dynamic charts and graphs with smooth animations. LiveCharts simplifies the integration of interactive charts in Windows Forms applications, providing a user-friendly experience for displaying and updating data in real-time.

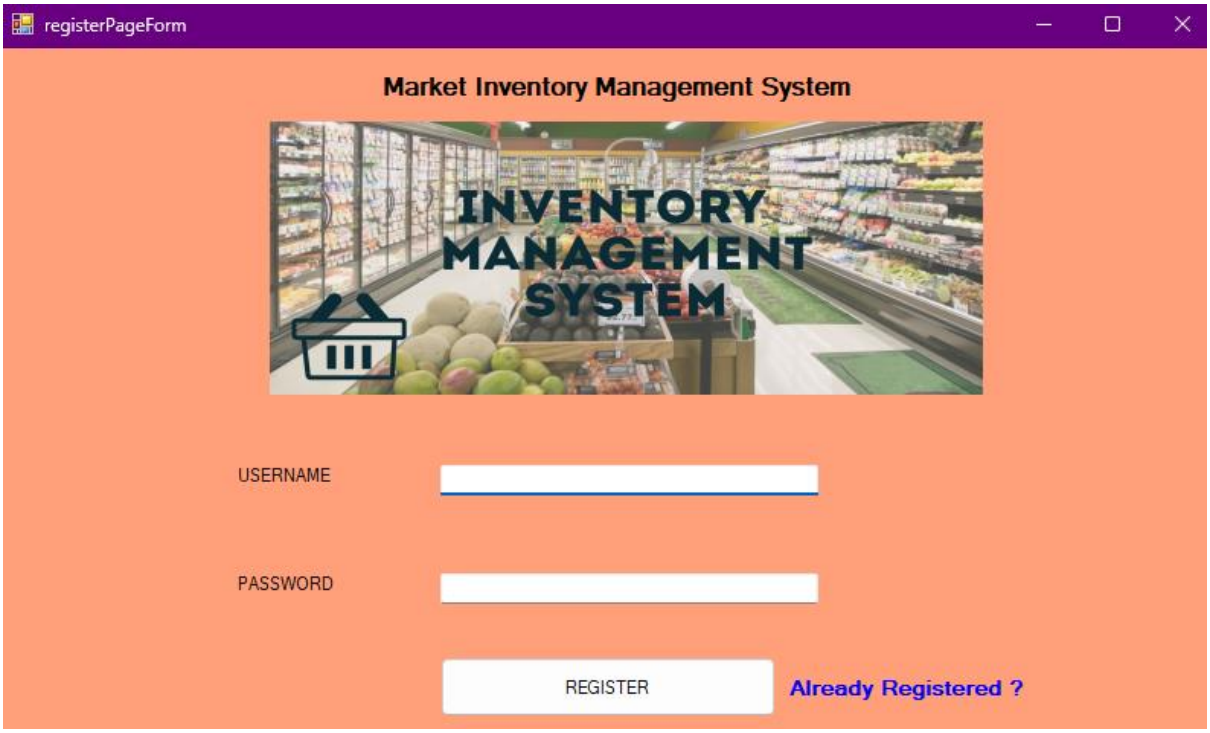


4.0 PROJECT STEPS & CODES

4.1 Login & Register Form Pages

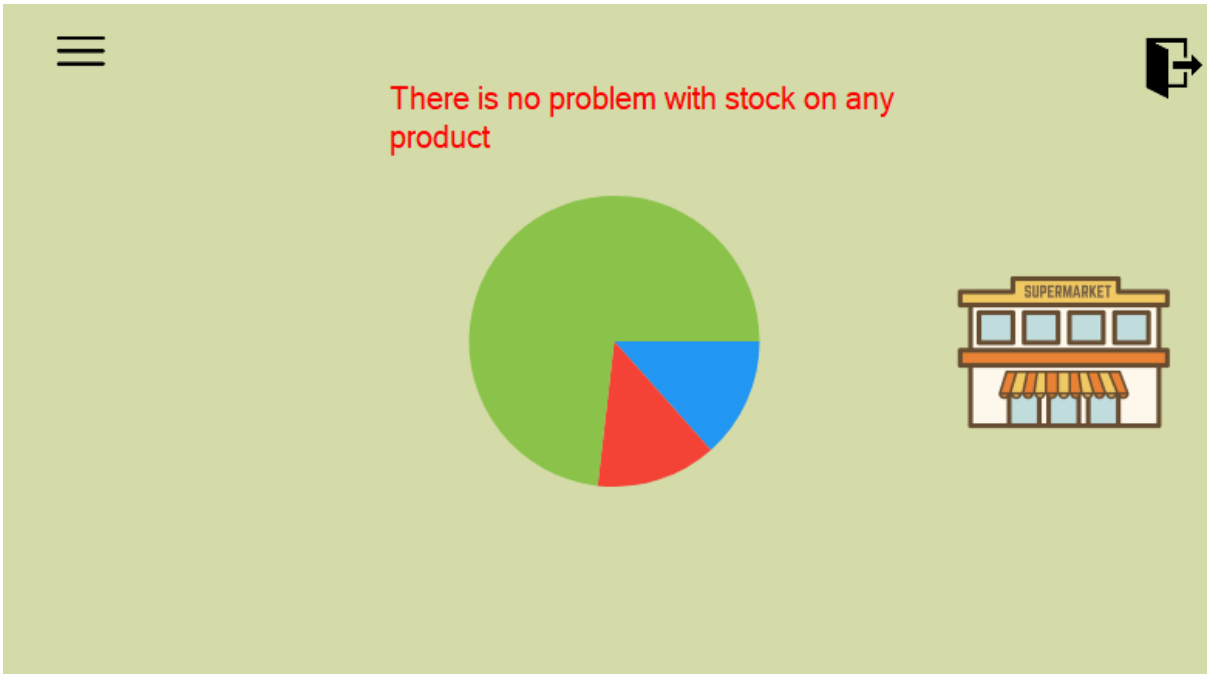


- On the login page, users are prompted to enter their credentials. The entered information is then verified against the data in the Access database. If the information is correct, the user gains access to the system. Otherwise, a warning message is displayed. Additionally, checks are performed to alert the user in case of scenarios such as leaving the username or password fields blank.



- On the registration page, users are required to fill in both the username and password fields. If the user fails to fill in either the username or password field, a warning message is displayed. If the user fills in both fields, the system checks in the Access Database whether the entered username already exists. If it does, a warning message is shown to the user, prompting them to try again. If the username does not exist, the user is registered in the system.

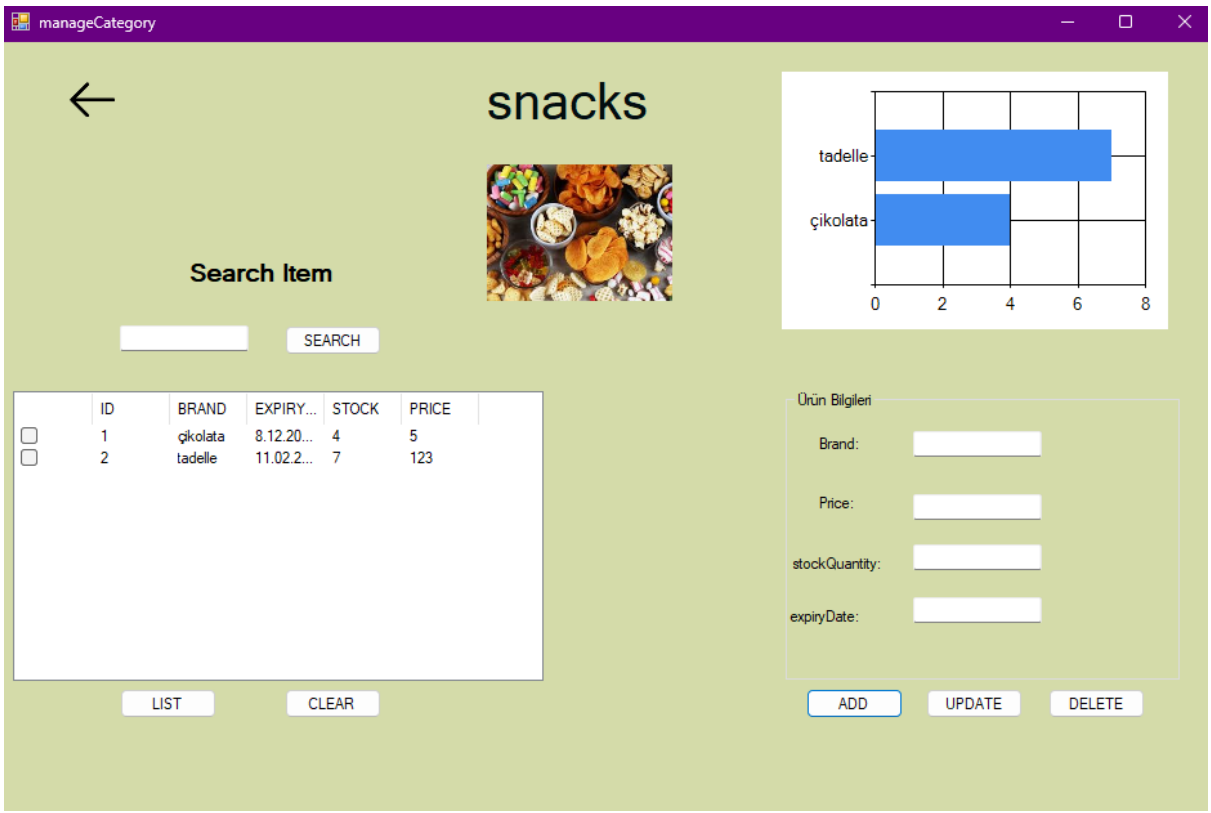
4.2 Main Page


There is no problem with stock on any product
SUPERMARKET


Form1
Welcome Back!
muharrem
Warning: drinks is at critical level!
drinks
snacks
patisserie

- On the main page, there is a logout button located in the top right corner for the user. When clicked, a confirmation message is displayed. If 'yes' is selected, the user is logged out of the system and redirected to the login page. On the left side, there is a panel for the user displaying their name and profile picture. At the bottom, there are buttons representing product categories. When hovering over these buttons, a photo related to that category is displayed. In the center, a pie chart shows the total stock quantity for all categories. Warning messages are shown for categories whose stock quantity falls below 10. If there are no categories, relevant information is provided.

4.3 Manage Product



- At the top-middle of the 'Manage Product' page, the name of the category is displayed, and just below it, there is a photo associated with that category. In the top-left corner, a back button is placed.

  On the top-right corner, there is a bar chart depicting detailed stock quantities for all products in that category. In the middle-left

section, users can perform searches based on product names within all products, and necessary validations have been implemented for this section.

On the top-right corner, there are buttons for users to add, delete, and update products. These sections incorporate appropriate warning messages to alert the user about scenarios such as negative price amounts or incorrect date formats.

Below the ListView, two buttons are added to allow users to either display all products or remove selected products from the panel.