**A**

**PROJECT REPORT ON**

**INVENTORY MANAGEMENT SYSTEM**

BY

SIDDIQUI HAMZA ABRAR

TYBSc CS - 42

2021-2022

**AND GUIDED**

**BY**

Prof.KAMLESH PAL

**SUBMITTED IN PARTIAL FULFILLMENT OF ACADEMIC PROJECT**

**[BACHELOR OF SCIENCE COMPUTER SCIENCE]**

**[UNIVERSITY OF MUMBAI]**

**ACKNOWLEDGEMENT**

Presentation inspiration and motivation have always played a key role in the success of any venture. I express

my sincere thanks to **Prof. Anushka Padhye, Guardian Teacher, Royal College of Arts, Science & Commerce.** Ipay my deep sense of gratitude to **Prof. Ritika Lala (HOD) of Computer Science Department, Royal College of Arts, Science & Commerce, Mira Road (E)**

to encourage me to the highest peak and to provide me the opportunity to prepare the project. I am immensely obliged to **my friends** for their elevating inspiration, encouraging guidance and kind supervision in completion of my project. Last, but not the least, my parents are also an important inspiration for me. So with due Regards, I express my gratitudes to them.

SIDDIQUI HAMZA ABRAR

**DECLARATION**

I hereby declare that the project work entitled

**“Inventory Management System”**, submitted to the

**Department of Computer Science, Royal College of Science and Commerce, Mira road (E),** is prepared by me. All the coding is the result of my personal efforts. I on my own have designed the system and have done all the programming required. It may require some modifications in the future as per the user’s requirements. From a practical implementation point of view flexibility in the changes have been incorporated in the package.

SIDDIQUI HAMZA ABRAR



**Since 1989**

**DEPARTMENT OF COMPUTER SCIENCE**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Class: **TYBSc** | Roll. No. | | 42 . | |
|  | Seat No. |  | . | |
|  |  |  |  |  |

**Certificate**

Certified that Mr SIDDIQUI HAMZA ABRAR of T.Y.BSc Semester-VI has successfully completed the project as prescribed by the University of Mumbai on Inventory Management System as partial fulfillment of requirement for completing Bachelor’s Degree in Computer Science during the academic year 2021-2022.



Signature of Project Guide

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

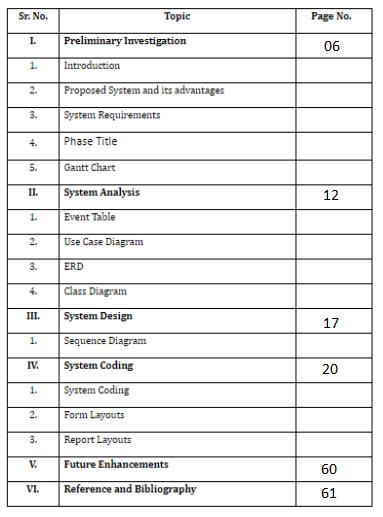
Signature of Examiner

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

H.O.D

Dept. of Computer Science

**INDEX**



**PRELIMINARY INVESTIGATION**

**INTRODUCTION**

Inventory Management System is written in C# using Asp .NET. This is a simple GUI based project which is easy to understand and use. A user has to pass through a login system in order to get access. Talking about the system, it contains all the required functions which include adding, viewing, deleting and updating inventory items. While adding inventory items, the user has to enter the product name, quantity, and its price. The system shows the Product record in a list view. And also the user easily deletes any Product. The user can search for an item as it contains a search function too.This Inventory Management system provides the simplest management of Product Management.In short, these projects mainly focus on CRUD with a search function. There’s an external database connection file used in this mini project to save the data permanently.

**The Proposed System and its Advantages**

1. Storing the information of the admin in the computerized database.
2. Admin can add , update ,delete products.
3. Admin can view the variety of products.
4. Admin can print the bill.
5. System is window based, user friendly and efficient.
6. System security is implemented by preventing unauthorized access to it by unique id and password.
7. Admin can view all the bills.

**System Requirements**

Operating system: Windows 11

Language: C# .NET

Tool Kit: Windows Platform

IDE: Visual Studio 2022

Database: SQL Server

**PHASE TITLE**

|  |  |  |  |
| --- | --- | --- | --- |
| **Phase Title** | **Expected Date of Completion** | **Actual Time of Completion with Guide’s Signature** | **Remarks** |
| **I. Preliminary Investigation** |  |  |  |
| (i) Organizational Overview | 15/7/22 |  |  |
| (ii) Present System and its advantages |  |  |  |
| (iii) System Requirements |  |  |  |
| (iv) Feasibility Study |  |  |  |
| (v) Fact Finding Methods |  |  |  |
| (vi) Phase Title | 29/7/22 |  |  |
| (vii) Gantt Chart |  |  |  |
| **II. System Analysis** |  |  |  |
| (i) Event Table |  |  |  |
| (ii) Use Case Diagram | 12/8/22 |  |  |
| (iii) ERD |  |  |  |
| (iv) Class Diagram |  |  |  |
| **III. System Design** |  |  |  |
| 1. Sequence Diagram 2. Activity Diagram | 16/9/22 |  |  |
| **IV. System Coding** |  |  |  |
| (i) System Coding |  |  |  |
| (ii) Test Cases |  |  |  |
| (iii) Form Layouts |  |  |  |
| (iv) Report Layouts |  |  |  |
| **V. Future Enhancements** |  |  |  |
| **VI. Reference and Bibliography** | 24/9/22 |  |  |

**Chart

Description automatically generatedGentt Chart**



**SYSTEM ANALYSIS**

**EVENT TABLE**



**USE CASE DIAGRAM**

**Diagram

Description automatically generated**

**ER DIAGRAM**

Diagram

Description automatically generated

**CLASS DIAGRAM**

Diagram

Description automatically generated

**SYSTEM DESIGN**

**SEQUENCE DIAGRAM**

Diagram

Description automatically generated

**ACTIVITY DIAGRAM**

Diagram

Description automatically generated

**SYSTEM CODING**

**Program.cs**

using System;

using System.Collections.Generic;

using System.Linq;

using System.Threading.Tasks;

using System.Windows.Forms;

namespace InventoryManagementSystem

{

staticclassProgram

{

[STAThread]

staticvoid Main()

{

Application.EnableVisualStyles();

Application.SetCompatibleTextRenderingDefault(false);

Application.Run(new WelcomeForm());

}

}

}

**WelcomeForm.cs**

using System;

using System.Collections.Generic;

using System.ComponentModel;

using System.Data;

using System.Drawing;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

using System.Windows.Forms;

namespace InventoryManagementSystem

{

public partial class WelcomeForm : Form

{

public WelcomeForm()

{

InitializeComponent();

timer1.Start();

}

int startPoint = 0;

private void timer1\_Tick(object sender, EventArgs e)

{

startPoint += 2;

progressBar1.Value = startPoint;

if (progressBar1.Value == 100)

{

progressBar1.Value = 0;

timer1.Stop();

LoginForm login = new LoginForm();

this.Hide();

login.ShowDialog();

}

}

}

**LoginForm.cs**

using System;

using System.Collections.Generic;

using System.ComponentModel;

using System.Data;

using System.Data.SqlClient;

using System.Drawing;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

using System.Windows.Forms;

namespace InventoryManagementSystem

{

public partial class LoginForm : Form

{

SqlConnection con = new SqlConnection(@"Data Source=(LocalDB)\MSSQLLocalDB;AttachDbFilename=""D:\InventoryManagementSystem\Tutorial Database\dbIMS.mdf"";Integrated Security=True;Connect Timeout=30");

SqlCommand cm = new SqlCommand();

SqlDataReader dr;

public LoginForm()

{

InitializeComponent();

}

private void checkBoxPass\_CheckedChanged(object sender, EventArgs e)

{

if (checkBoxPass.Checked == false)

txtPass.UseSystemPasswordChar = true;

else

txtPass.UseSystemPasswordChar = false;

}

private void lblClear\_Click(object sender, EventArgs e)

{

txtName.Clear();

txtPass.Clear();

}

private void pictureBoxClose\_Click(object sender, EventArgs e)

{

if (MessageBox.Show("Exit Applicaton", "Confirm", MessageBoxButtons.YesNo, MessageBoxIcon.Question) == DialogResult.Yes)

{

Application.Exit();

}

}

private void btnLogin\_Click(object sender, EventArgs e)

{

try

{

cm = new SqlCommand("SELECT \* FROM tbUser WHERE username=@username AND password=@password", con);

cm.Parameters.AddWithValue("@username", txtName.Text);

cm.Parameters.AddWithValue("@password", txtPass.Text);

con.Open();

dr = cm.ExecuteReader();

dr.Read();

if (dr.HasRows)

{

MessageBox.Show("Welcome " + dr["fullname"].ToString() + " | ", "ACCESS GRANTED", MessageBoxButtons.OK, MessageBoxIcon.Information);

MainForm main = new MainForm();

this.Hide();

main.ShowDialog();

}

else

{

MessageBox.Show("Invalid username or password!", "ACCESS DENITED", MessageBoxButtons.OK, MessageBoxIcon.Information);

}

con.Close();

}

catch (Exception ex)

{

MessageBox.Show(ex.Message);

}

}

}

}

**MainForm.cs**

using System;

using System.Collections.Generic;

using System.ComponentModel;

using System.Data;

using System.Drawing;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

using System.Windows.Forms;

namespace InventoryManagementSystem

{

public partial class MainForm : Form

{

public MainForm()

{

InitializeComponent();

}

//to show subform form in mainform

private Form activeForm = null;

private void openChildForm(Form childForm)

{

if (activeForm != null)

activeForm.Close();

activeForm = childForm;

childForm.TopLevel = false;

childForm.FormBorderStyle = FormBorderStyle.None;

childForm.Dock = DockStyle.Fill;

panelMain.Controls.Add(childForm);

panelMain.Tag = childForm;

childForm.BringToFront();

childForm.Show();

}

private void btnUser\_Click(object sender, EventArgs e)

{

openChildForm(new UserForm());

}

private void btnCustomer\_Click(object sender, EventArgs e)

{

openChildForm(new CustomerForm());

}

private void btnCategory\_Click(object sender, EventArgs e)

{

openChildForm(new CategoryForm());

}

private void btnProduct\_Click(object sender, EventArgs e)

{

openChildForm(new ProductForm());

}

private void btnOrder\_Click(object sender, EventArgs e)

{

openChildForm(new OrderForm());

}

private void MainForm\_Load(object sender, EventArgs e)

{

}

}

}

**ProductForm.cs**

using System;

using System.Collections.Generic;

using System.ComponentModel;

using System.Data;

using System.Data.SqlClient;

using System.Drawing;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

using System.Windows.Forms;

namespace InventoryManagementSystem

{

public partial class ProductForm : Form

{

SqlConnection con = new SqlConnection(@"Data Source=(LocalDB)\MSSQLLocalDB;AttachDbFilename=""D:\InventoryManagementSystem\Tutorial Database\dbIMS.mdf"";Integrated Security=True;Connect Timeout=30");

SqlCommand cm = new SqlCommand();

SqlDataReader dr;

public ProductForm()

{

InitializeComponent();

LoadProduct();

}

public void LoadProduct()

{

int i = 0;

dgvProduct.Rows.Clear();

cm = new SqlCommand("SELECT \* FROM tbProduct WHERE CONCAT(pid, pname, pprice, pdescription, pcategory) LIKE '%"+txtSearch.Text+"%'", con);

con.Open();

dr = cm.ExecuteReader();

while (dr.Read())

{

i++;

dgvProduct.Rows.Add(i, dr[0].ToString(), dr[1].ToString(), dr[2].ToString(), dr[3].ToString(), dr[4].ToString(), dr[5].ToString());

}

dr.Close();

con.Close();

}

private void btnAdd\_Click(object sender, EventArgs e)

{

ProductModuleForm formModule = new ProductModuleForm();

formModule.btnSave.Enabled = true;

formModule.btnUpdate.Enabled = false;

formModule.ShowDialog();

LoadProduct();

}

private void dgvProduct\_CellContentClick(object sender, DataGridViewCellEventArgs e)

{

string colName = dgvProduct.Columns[e.ColumnIndex].Name;

if (colName == "Edit")

{

ProductModuleForm productModule = new ProductModuleForm();

productModule.lblPid.Text = dgvProduct.Rows[e.RowIndex].Cells[1].Value.ToString();

productModule.txtPName.Text = dgvProduct.Rows[e.RowIndex].Cells[2].Value.ToString();

productModule.txtPQty.Text = dgvProduct.Rows[e.RowIndex].Cells[3].Value.ToString();

productModule.txtPPrice.Text = dgvProduct.Rows[e.RowIndex].Cells[4].Value.ToString();

productModule.txtPDes.Text = dgvProduct.Rows[e.RowIndex].Cells[5].Value.ToString();

productModule.comboCat.Text = dgvProduct.Rows[e.RowIndex].Cells[6].Value.ToString();

productModule.btnSave.Enabled = false;

productModule.btnUpdate.Enabled = true;

productModule.ShowDialog();

}

else if (colName == "Delete")

{

if (MessageBox.Show("Are you sure you want to delete this product?", "Delete Record", MessageBoxButtons.YesNo, MessageBoxIcon.Question) == DialogResult.Yes)

{

con.Open();

cm = new SqlCommand("DELETE FROM tbProduct WHERE pid LIKE '" + dgvProduct.Rows[e.RowIndex].Cells[1].Value.ToString() + "'", con);

cm.ExecuteNonQuery();

con.Close();

MessageBox.Show("Record has been successfully deleted!");

}

}

LoadProduct();

}

private void txtSearch\_TextChanged(object sender, EventArgs e)

{

LoadProduct();

}

}

}

**ProductModuleForm.cs**

using System;

using System.Collections.Generic;

using System.ComponentModel;

using System.Data;

using System.Data.SqlClient;

using System.Drawing;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

using System.Windows.Forms;

namespace InventoryManagementSystem

{

public partial class ProductModuleForm : Form

{

SqlConnection con = new SqlConnection(@"Data Source=(LocalDB)\MSSQLLocalDB;AttachDbFilename=""D:\InventoryManagementSystem\Tutorial Database\dbIMS.mdf"";Integrated Security=True;Connect Timeout=30");

SqlCommand cm = new SqlCommand();

SqlDataReader dr;

public ProductModuleForm()

{

InitializeComponent();

LoadCategory();

}

public void LoadCategory()

{

comboCat.Items.Clear();

cm = new SqlCommand("SELECT catname FROM tbCategory", con);

con.Open();

dr = cm.ExecuteReader();

while (dr.Read())

{

comboCat.Items.Add(dr[0].ToString());

}

dr.Close();

con.Close();

}

private void pictureBoxClose\_Click(object sender, EventArgs e)

{

this.Dispose();

}

private void btnSave\_Click(object sender, EventArgs e)

{

try

{

if (MessageBox.Show("Are you sure you want to save this product?", "Saving Record", MessageBoxButtons.YesNo, MessageBoxIcon.Question) == DialogResult.Yes)

{

cm = new SqlCommand("INSERT INTO tbProduct(pname,pqty,pprice,pdescription,pcategory)VALUES(@pname, @pqty, @pprice, @pdescription, @pcategory)", con);

cm.Parameters.AddWithValue("@pname", txtPName.Text);

cm.Parameters.AddWithValue("@pqty", Convert.ToInt16(txtPQty.Text));

cm.Parameters.AddWithValue("@pprice", Convert.ToInt16(txtPPrice.Text));

cm.Parameters.AddWithValue("@pdescription", txtPDes.Text);

cm.Parameters.AddWithValue("@pcategory", comboCat.Text);

con.Open();

cm.ExecuteNonQuery();

con.Close();

MessageBox.Show("Product has been successfully saved.");

Clear();

}

}

catch (Exception ex)

{

MessageBox.Show(ex.Message);

}

}

public void Clear()

{

txtPName.Clear();

txtPQty.Clear();

txtPPrice.Clear();

txtPDes.Clear();

comboCat.Text = "";

}

private void btnClear\_Click(object sender, EventArgs e)

{

Clear();

btnSave.Enabled = true;

btnUpdate.Enabled = false;

}

private void btnUpdate\_Click(object sender, EventArgs e)

{

try

{

if (MessageBox.Show("Are you sure you want to update this product?", "Update Record", MessageBoxButtons.YesNo, MessageBoxIcon.Question) == DialogResult.Yes)

{

cm = new SqlCommand("UPDATE tbProduct SET pname = @pname, pqty=@pqty, pprice=@pprice, pdescription=@pdescription, pcategory=@pcategory WHERE pid LIKE '" + lblPid.Text + "' ", con);

cm.Parameters.AddWithValue("@pname", txtPName.Text);

cm.Parameters.AddWithValue("@pqty", Convert.ToInt16(txtPQty.Text));

cm.Parameters.AddWithValue("@pprice", Convert.ToInt16(txtPPrice.Text));

cm.Parameters.AddWithValue("@pdescription", txtPDes.Text);

cm.Parameters.AddWithValue("@pcategory", comboCat.Text);

con.Open();

cm.ExecuteNonQuery();

con.Close();

MessageBox.Show("Product has been successfully updated!");

this.Dispose();

}

}

catch (Exception ex)

{

MessageBox.Show(ex.Message);

}

}

}

}

**CustomerForm.cs**

using System;

using System.Collections.Generic;

using System.ComponentModel;

using System.Data;

using System.Drawing;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

using System.Windows.Forms;

using System.Data.SqlClient;

namespace InventoryManagementSystem

{

public partial class CustomerForm : Form

{

SqlConnection con = new SqlConnection(@"Data Source=(LocalDB)\MSSQLLocalDB;AttachDbFilename=""D:\InventoryManagementSystem\Tutorial Database\dbIMS.mdf"";Integrated Security=True;Connect Timeout=30");

SqlCommand cm = new SqlCommand();

SqlDataReader dr;

public CustomerForm()

{

InitializeComponent();

LoadCustomer();

}

public void LoadCustomer()

{

int i = 0;

dgvCustomer.Rows.Clear();

cm = new SqlCommand("SELECT \* FROM tbCustomer", con);

con.Open();

dr = cm.ExecuteReader();

while (dr.Read())

{

i++;

dgvCustomer.Rows.Add(i, dr[0].ToString(), dr[1].ToString(), dr[2].ToString());

}

dr.Close();

con.Close();

}

private void btnAdd\_Click\_1(object sender, EventArgs e)

{

CustomerModuleForm moduleForm = new CustomerModuleForm();

moduleForm.btnSave.Enabled = true;

moduleForm.btnUpdate.Enabled = false;

moduleForm.ShowDialog();

LoadCustomer();

}

private void dgvCustomer\_CellContentClick(object sender, DataGridViewCellEventArgs e)

{

string colName = dgvCustomer.Columns[e.ColumnIndex].Name;

if (colName == "Edit")

{

CustomerModuleForm customerModule = new CustomerModuleForm();

customerModule.lblCId.Text = dgvCustomer.Rows[e.RowIndex].Cells[1].Value.ToString();

customerModule.txtCName.Text = dgvCustomer.Rows[e.RowIndex].Cells[2].Value.ToString();

customerModule.txtCPhone.Text = dgvCustomer.Rows[e.RowIndex].Cells[3].Value.ToString();

customerModule.btnSave.Enabled = false;

customerModule.btnUpdate.Enabled = true;

customerModule.ShowDialog();

}

else if (colName == "Delete")

{

if (MessageBox.Show("Are you sure you want to delete this customer?", "Delete Record", MessageBoxButtons.YesNo, MessageBoxIcon.Question) == DialogResult.Yes)

{

con.Open();

cm = new SqlCommand("DELETE FROM tbCustomer WHERE cid LIKE '" + dgvCustomer.Rows[e.RowIndex].Cells[1].Value.ToString() + "'", con);

cm.ExecuteNonQuery();

con.Close();

MessageBox.Show("Record has been successfully deleted!");

}

}

LoadCustomer();

}

}

}

**CustomerModuleForm.cs**

using System;

using System.Collections.Generic;

using System.ComponentModel;

using System.Data;

using System.Drawing;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

using System.Windows.Forms;

using System.Data.SqlClient;

namespace InventoryManagementSystem

{

public partial class CustomerModuleForm : Form

{

SqlConnection con = new SqlConnection(@"Data Source=(LocalDB)\MSSQLLocalDB;AttachDbFilename=""D:\InventoryManagementSystem\Tutorial Database\dbIMS.mdf"";Integrated Security=True;Connect Timeout=30");

SqlCommand cm = new SqlCommand();

public CustomerModuleForm()

{

InitializeComponent();

}

private void btnSave\_Click(object sender, EventArgs e)

{

try

{

if (MessageBox.Show("Are you sure you want to save this customer?", "Saving Record", MessageBoxButtons.YesNo, MessageBoxIcon.Question) == DialogResult.Yes)

{

cm = new SqlCommand("INSERT INTO tbCustomer(cname,cphone)VALUES(@cname, @cphone)", con);

cm.Parameters.AddWithValue("@cname", txtCName.Text);

cm.Parameters.AddWithValue("@cphone", txtCPhone.Text);

con.Open();

cm.ExecuteNonQuery();

con.Close();

MessageBox.Show("User has been successfully saved.");

Clear();

}

}

catch (Exception ex)

{

MessageBox.Show(ex.Message);

}

}

public void Clear()

{

txtCName.Clear();

txtCPhone.Clear();

}

private void btnClear\_Click(object sender, EventArgs e)

{

Clear();

btnSave.Enabled = true;

btnUpdate.Enabled = false;

}

private void pictureBoxClose\_Click(object sender, EventArgs e)

{

this.Dispose();

}

private void btnUpdate\_Click(object sender, EventArgs e)

{

try

{

if (MessageBox.Show("Are you sure you want to update this Customer?", "Update Record", MessageBoxButtons.YesNo, MessageBoxIcon.Question) == DialogResult.Yes)

{

cm = new SqlCommand("UPDATE tbCustomer SET cname = @cname,cphone=@cphone WHERE cid LIKE '" + lblCId.Text + "' ", con);

cm.Parameters.AddWithValue("@cname", txtCName.Text);

cm.Parameters.AddWithValue("@cphone", txtCPhone.Text);

con.Open();

cm.ExecuteNonQuery();

con.Close();

MessageBox.Show("Customer has been successfully updated!");

this.Dispose();

}

}

catch (Exception ex)

{

MessageBox.Show(ex.Message);

}

}

}

}

**CustomerButton.cs**

using System;

using System.Collections.Generic;

using System.ComponentModel;

using System.Data;

using System.Drawing;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

using System.Windows.Forms;

namespace InventoryManagementSystem

{

public partial class CustomerButton : PictureBox

{

public CustomerButton()

{

InitializeComponent();

}

private Image NormalImage;

private Image HoverImage;

public Image ImageNormal

{

get { return NormalImage; }

set { NormalImage = value; }

}

public Image ImageHover

{

get { return HoverImage; }

set { HoverImage = value; }

}

private void CustomerButton\_MouseHover(object sender, EventArgs e)

{

this.Image = HoverImage;

}

private void CustomerButton\_MouseLeave(object sender, EventArgs e)

{

this.Image = NormalImage;

}

}

}

**CategoryForm.cs**

using System;

using System.Collections.Generic;

using System.ComponentModel;

using System.Data;

using System.Data.SqlClient;

using System.Drawing;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

using System.Windows.Forms;

namespace InventoryManagementSystem

{

public partial class CategoryForm : Form

{

SqlConnection con = new SqlConnection(@"Data Source=(LocalDB)\MSSQLLocalDB;AttachDbFilename=""D:\InventoryManagementSystem\Tutorial Database\dbIMS.mdf"";Integrated Security=True;Connect Timeout=30");

SqlCommand cm = new SqlCommand();

SqlDataReader dr;

public CategoryForm()

{

InitializeComponent();

LoadCategory();

}

public void LoadCategory()

{

int i = 0;

dgvCategory.Rows.Clear();

cm = new SqlCommand("SELECT \* FROM tbCategory", con);

con.Open();

dr = cm.ExecuteReader();

while (dr.Read())

{

i++;

dgvCategory.Rows.Add(i, dr[0].ToString(), dr[1].ToString());

}

dr.Close();

con.Close();

}

private void btnAdd\_Click(object sender, EventArgs e)

{

CategoryModuleForm formModule = new CategoryModuleForm();

formModule.btnSave.Enabled = true;

formModule.btnUpdate.Enabled = false;

formModule.ShowDialog();

LoadCategory();

}

private void dgvCategory\_CellContentClick(object sender, DataGridViewCellEventArgs e)

{

string colName = dgvCategory.Columns[e.ColumnIndex].Name;

if (colName == "Edit")

{

CategoryModuleForm formModule = new CategoryModuleForm();

formModule.lblCatId.Text = dgvCategory.Rows[e.RowIndex].Cells[1].Value.ToString();

formModule.txtCatName.Text = dgvCategory.Rows[e.RowIndex].Cells[2].Value.ToString();

formModule.btnSave.Enabled = false;

formModule.btnUpdate.Enabled = true;

formModule.ShowDialog();

}

else if (colName == "Delete")

{

if (MessageBox.Show("Are you sure you want to delete this category?", "Delete Record", MessageBoxButtons.YesNo, MessageBoxIcon.Question) == DialogResult.Yes)

{

con.Open();

cm = new SqlCommand("DELETE FROM tbCategory WHERE catid LIKE '" + dgvCategory.Rows[e.RowIndex].Cells[1].Value.ToString() + "'", con);

cm.ExecuteNonQuery();

con.Close();

MessageBox.Show("Record has been successfully deleted!");

}

}

LoadCategory();

}

}

}

**CategoryModuleForm.cs**

using System;

using System.Collections.Generic;

using System.ComponentModel;

using System.Data;

using System.Data.SqlClient;

using System.Drawing;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

using System.Windows.Forms;

namespace InventoryManagementSystem

{

public partial class CategoryModuleForm : Form

{

SqlConnection con = new SqlConnection(@"Data Source=(LocalDB)\MSSQLLocalDB;AttachDbFilename=""D:\InventoryManagementSystem\Tutorial Database\dbIMS.mdf"";Integrated Security=True;Connect Timeout=30");

SqlCommand cm = new SqlCommand();

public CategoryModuleForm()

{

InitializeComponent();

}

private void btnSave\_Click(object sender, EventArgs e)

{

try

{

if (MessageBox.Show("Are you sure you want to save this category?", "Saving Record", MessageBoxButtons.YesNo, MessageBoxIcon.Question) == DialogResult.Yes)

{

cm = new SqlCommand("INSERT INTO tbCategory(catname)VALUES(@catname)", con);

cm.Parameters.AddWithValue("@catname", txtCatName.Text);

con.Open();

cm.ExecuteNonQuery();

con.Close();

MessageBox.Show("Category has been successfully saved.");

Clear();

}

}

catch (Exception ex)

{

MessageBox.Show(ex.Message);

}

}

public void Clear()

{

txtCatName.Clear();

}

private void btnClear\_Click(object sender, EventArgs e)

{

Clear();

btnSave.Enabled = true;

btnUpdate.Enabled = false;

}

private void pictureBoxClose\_Click(object sender, EventArgs e)

{

this.Dispose();

}

private void btnUpdate\_Click(object sender, EventArgs e)

{

try

{

if (MessageBox.Show("Are you sure you want to update this Category?", "Update Record", MessageBoxButtons.YesNo, MessageBoxIcon.Question) == DialogResult.Yes)

{

cm = new SqlCommand("UPDATE tbCategory SET catname = @catname WHERE catid LIKE '" + lblCatId.Text + "' ", con);

cm.Parameters.AddWithValue("@catname", txtCatName.Text);

con.Open();

cm.ExecuteNonQuery();

con.Close();

MessageBox.Show("Category has been successfully updated!");

this.Dispose();

}

}

catch (Exception ex)

{

MessageBox.Show(ex.Message);

}

}

}

}

**UserForm.cs**

using System;

using System.Collections.Generic;

using System.ComponentModel;

using System.Data;

using System.Drawing;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

using System.Windows.Forms;

using System.Data.SqlClient;

namespace InventoryManagementSystem

{

public partial class UserForm : Form

{

SqlConnection con = new SqlConnection(@"Data Source=(LocalDB)\MSSQLLocalDB;AttachDbFilename=""D:\InventoryManagementSystem\Tutorial Database\dbIMS.mdf"";Integrated Security=True;Connect Timeout=30");

SqlCommand cm = new SqlCommand();

SqlDataReader dr;

public UserForm()

{

InitializeComponent();

LoadUser();

}

public void LoadUser()

{

int i = 0;

dgvUser.Rows.Clear();

cm = new SqlCommand("SELECT \* FROM tbUser", con);

con.Open();

dr = cm.ExecuteReader();

while (dr.Read())

{

i++;

dgvUser.Rows.Add(i,dr[0].ToString(), dr[1].ToString(), dr[2].ToString(), dr[3].ToString());

}

dr.Close();

con.Close();

}

private void btnAdd\_Click(object sender, EventArgs e)

{

UserModuleForm userModule = new UserModuleForm();

userModule.btnSave.Enabled = true;

userModule.btnUpdate.Enabled = false;

userModule.ShowDialog();

LoadUser();

}

private void dgvUser\_CellContentClick(object sender, DataGridViewCellEventArgs e)

{

string colName = dgvUser.Columns[e.ColumnIndex].Name;

if (colName == "Edit")

{

UserModuleForm userModule = new UserModuleForm();

userModule.txtUserName.Text = dgvUser.Rows[e.RowIndex].Cells[1].Value.ToString();

userModule.txtFullName.Text = dgvUser.Rows[e.RowIndex].Cells[2].Value.ToString();

userModule.txtPass.Text = dgvUser.Rows[e.RowIndex].Cells[3].Value.ToString();

userModule.txtPhone.Text = dgvUser.Rows[e.RowIndex].Cells[4].Value.ToString();

userModule.btnSave.Enabled = false;

userModule.btnUpdate.Enabled = true;

userModule.txtUserName.Enabled = false;

userModule.ShowDialog();

}

else if (colName == "Delete")

{

if (MessageBox.Show("Are you sure you want to delete this user?","Delete Record",MessageBoxButtons.YesNo,MessageBoxIcon.Question)==DialogResult.Yes)

{

con.Open();

cm = new SqlCommand("DELETE FROM tbUser WHERE username LIKE '" + dgvUser.Rows[e.RowIndex].Cells[1].Value.ToString() + "'", con);

cm.ExecuteNonQuery();

con.Close();

MessageBox.Show("Record has been successfully deleted!");

}

}

LoadUser();

}

}

}

**UserModuleForm.cs**

using System;

using System.Collections.Generic;

using System.ComponentModel;

using System.Data;

using System.Drawing;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

using System.Windows.Forms;

using System.Data.SqlClient;

namespace InventoryManagementSystem

{

public partial class UserModuleForm : Form

{

SqlConnection con = new SqlConnection(@"Data Source=(LocalDB)\MSSQLLocalDB;AttachDbFilename=""D:\InventoryManagementSystem\Tutorial Database\dbIMS.mdf"";Integrated Security=True;Connect Timeout=30");

SqlCommand cm = new SqlCommand();

public UserModuleForm()

{

InitializeComponent();

}

private void pictureBoxClose\_Click(object sender, EventArgs e)

{

this.Dispose();

}

private void btnSave\_Click(object sender, EventArgs e)

{

try

{

if (txtPass.Text != txtRepass.Text)

{

MessageBox.Show("Password did not Match!", "Warning", MessageBoxButtons.OK, MessageBoxIcon.Warning);

return;

}

if (MessageBox.Show("Are you sure you want to save this user?", "Saving Record",MessageBoxButtons.YesNo,MessageBoxIcon.Question)==DialogResult.Yes)

{

cm = new SqlCommand("INSERT INTO tbUser(username,fullname,password,phone)VALUES(@username,@fullname,@password,@phone)", con);

cm.Parameters.AddWithValue("@username", txtUserName.Text);

cm.Parameters.AddWithValue("@fullname", txtFullName.Text);

cm.Parameters.AddWithValue("@password", txtPass.Text);

cm.Parameters.AddWithValue("@phone", txtPhone.Text);

con.Open();

cm.ExecuteNonQuery();

con.Close();

MessageBox.Show("User has been successfully saved.");

Clear();

}

}catch (Exception ex)

{

MessageBox.Show(ex.Message);

}

}

private void btnClear\_Click(object sender, EventArgs e)

{

Clear();

btnSave.Enabled = true;

btnUpdate.Enabled = false;

}

public void Clear()

{

txtUserName.Clear();

txtFullName.Clear();

txtPass.Clear();

txtRepass.Clear();

txtPhone.Clear();

}

private void btnUpdate\_Click(object sender, EventArgs e)

{

try

{

if (txtPass.Text != txtRepass.Text)

{

MessageBox.Show("Password did not Match!", "Warning", MessageBoxButtons.OK, MessageBoxIcon.Warning);

return;

}

if (MessageBox.Show("Are you sure you want to update this user?", "Update Record", MessageBoxButtons.YesNo, MessageBoxIcon.Question) == DialogResult.Yes)

{

cm = new SqlCommand("UPDATE tbUser SET fullname = @fullname, password=@password, phone=@phone WHERE username LIKE '"+txtUserName.Text +"' ", con);

cm.Parameters.AddWithValue("@fullname", txtFullName.Text);

cm.Parameters.AddWithValue("@password", txtPass.Text);

cm.Parameters.AddWithValue("@phone", txtPhone.Text);

con.Open();

cm.ExecuteNonQuery();

con.Close();

MessageBox.Show("User has been successfully updated!");

this.Dispose();

}

}

catch (Exception ex)

{

MessageBox.Show(ex.Message);

}

}

}

}

**OrderForm.cs**

using System;

using System.Collections.Generic;

using System.ComponentModel;

using System.Data;

using System.Data.SqlClient;

using System.Drawing;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

using System.Windows.Forms;

namespace InventoryManagementSystem

{

public partial class OrderForm : Form

{

SqlConnection con = new SqlConnection(@"Data Source=(LocalDB)\MSSQLLocalDB;AttachDbFilename=""D:\InventoryManagementSystem\Tutorial Database\dbIMS.mdf"";Integrated Security=True;Connect Timeout=30");

SqlCommand cm = new SqlCommand();

SqlDataReader dr;

public OrderForm()

{

InitializeComponent();

LoadOrder();

}

public void LoadOrder()

{

double total = 0;

int i = 0;

dgvOrder.Rows.Clear();

cm = new SqlCommand("SELECT orderid, odate, O.pid, P.pname, O.cid, C.cname, qty, price, total FROM tbOrder AS O JOIN tbCustomer AS C ON O.cid=C.cid JOIN tbProduct AS P ON O.pid=P.pid WHERE CONCAT (orderid, odate, O.pid, P.pname, O.cid, C.cname, qty, price) LIKE '%"+txtSearch.Text+"%'", con);

con.Open();

dr = cm.ExecuteReader();

while (dr.Read())

{

i++;

dgvOrder.Rows.Add(i, dr[0].ToString(),Convert.ToDateTime(dr[1].ToString()).ToString("dd/MM/yyyy"), dr[2].ToString(), dr[3].ToString(), dr[4].ToString(), dr[5].ToString(), dr[6].ToString(), dr[7].ToString(), dr[8].ToString());

total += Convert.ToInt32(dr[8].ToString());

}

dr.Close();

con.Close();

lblQty.Text = i.ToString();

lblTotal.Text = total.ToString();

}

private void btnAdd\_Click(object sender, EventArgs e)

{

OrderModuleForm moduleForm = new OrderModuleForm();

moduleForm.ShowDialog();

LoadOrder();

}

private void dgvUser\_CellContentClick(object sender, DataGridViewCellEventArgs e)

{

string colName = dgvOrder.Columns[e.ColumnIndex].Name;

if (colName == "Delete")

{

if (MessageBox.Show("Are you sure you want to delete this order?", "Delete Record", MessageBoxButtons.YesNo, MessageBoxIcon.Question) == DialogResult.Yes)

{

con.Open();

cm = new SqlCommand("DELETE FROM tbOrder WHERE orderid LIKE '" + dgvOrder.Rows[e.RowIndex].Cells[1].Value.ToString() + "'", con);

cm.ExecuteNonQuery();

con.Close();

MessageBox.Show("Record has been successfully deleted!");

cm = new SqlCommand("UPDATE tbProduct SET pqty=(pqty+@pqty) WHERE pid LIKE '" + dgvOrder.Rows[e.RowIndex].Cells[3].Value.ToString() + "' ", con);

cm.Parameters.AddWithValue("@pqty", Convert.ToInt16(dgvOrder.Rows[e.RowIndex].Cells[5].Value.ToString()));

con.Open();

cm.ExecuteNonQuery();

con.Close();

}

}

LoadOrder();

}

private void txtSearch\_TextChanged(object sender, EventArgs e)

{

LoadOrder();

}

}

}

**OrderModuleForm.cs**

using System;

using System.Collections.Generic;

using System.ComponentModel;

using System.Data;

using System.Data.SqlClient;

using System.Drawing;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

using System.Windows.Forms;

namespace InventoryManagementSystem

{

public partial class OrderModuleForm : Form

{

SqlConnection con = new SqlConnection(@"Data Source=(LocalDB)\MSSQLLocalDB;AttachDbFilename=""D:\InventoryManagementSystem\Tutorial Database\dbIMS.mdf"";Integrated Security=True;Connect Timeout=30");

SqlCommand cm = new SqlCommand();

SqlDataReader dr;

int qty = 0;

public OrderModuleForm()

{

InitializeComponent();

LoadCustomer();

LoadProduct();

}

private void pictureBoxClose\_Click(object sender, EventArgs e)

{

this.Dispose();

}

public void LoadCustomer()

{

int i = 0;

dgvCustomer.Rows.Clear();

cm = new SqlCommand("SELECT cid, cname FROM tbCustomer WHERE CONCAT(cid,cname) LIKE '%"+txtSearchCust.Text+"%'", con);

con.Open();

dr = cm.ExecuteReader();

while (dr.Read())

{

i++;

dgvCustomer.Rows.Add(i, dr[0].ToString(), dr[1].ToString());

}

dr.Close();

con.Close();

}

public void LoadProduct()

{

int i = 0;

dgvProduct.Rows.Clear();

cm = new SqlCommand("SELECT \* FROM tbProduct WHERE CONCAT(pid, pname, pprice, pdescription, pcategory) LIKE '%" + txtSearchProd.Text + "%'", con);

con.Open();

dr = cm.ExecuteReader();

while (dr.Read())

{

i++;

dgvProduct.Rows.Add(i, dr[0].ToString(), dr[1].ToString(), dr[2].ToString(), dr[3].ToString(), dr[4].ToString(), dr[5].ToString());

}

dr.Close();

con.Close();

}

private void txtSearchCust\_TextChanged(object sender, EventArgs e)

{

LoadCustomer();

}

private void txtSearchProd\_TextChanged(object sender, EventArgs e)

{

LoadProduct();

}

private void numericUpDown1\_ValueChanged(object sender, EventArgs e)

{

GetQty();

if (Convert.ToInt16(UDQty.Value) > qty)

{

MessageBox.Show("Instock quantity is not enough!", "Warning", MessageBoxButtons.OK, MessageBoxIcon.Warning);

UDQty.Value = UDQty.Value - 1;

return;

}

if (Convert.ToInt16(UDQty.Value) > 0)

{

int total = Convert.ToInt16(txtPrice.Text) \* Convert.ToInt16(UDQty.Value);

txtTotal.Text = total.ToString();

}

}

private void dgvCustomer\_CellClick(object sender, DataGridViewCellEventArgs e)

{

txtCId.Text = dgvCustomer.Rows[e.RowIndex].Cells[1].Value.ToString();

txtCName.Text = dgvCustomer.Rows[e.RowIndex].Cells[2].Value.ToString();

}

private void dgvProduct\_CellClick(object sender, DataGridViewCellEventArgs e)

{

txtPid.Text = dgvProduct.Rows[e.RowIndex].Cells[1].Value.ToString();

txtPName.Text = dgvProduct.Rows[e.RowIndex].Cells[2].Value.ToString();

txtPrice.Text = dgvProduct.Rows[e.RowIndex].Cells[4].Value.ToString();

}

private void btnInsert\_Click(object sender, EventArgs e)

{

try

{

if (txtCId.Text == "")

{

MessageBox.Show("Please select customer!", "Warning", MessageBoxButtons.OK, MessageBoxIcon.Warning);

return;

}

if (txtPid.Text == "")

{

MessageBox.Show("Please select product!", "Warning", MessageBoxButtons.OK, MessageBoxIcon.Warning);

return;

}

if (MessageBox.Show("Are you sure you want to insert this order?", "Saving Record", MessageBoxButtons.YesNo, MessageBoxIcon.Question) == DialogResult.Yes)

{

cm = new SqlCommand("INSERT INTO tbOrder(odate, pid, cid, qty, price, total)VALUES(@odate, @pid, @cid, @qty, @price, @total)", con);

cm.Parameters.AddWithValue("@odate", dtOrder.Value);

cm.Parameters.AddWithValue("@pid", Convert.ToInt32(txtPid.Text));

cm.Parameters.AddWithValue("@cid", Convert.ToInt32(txtCId.Text));

cm.Parameters.AddWithValue("@qty", Convert.ToInt32(UDQty.Value));

cm.Parameters.AddWithValue("@price", Convert.ToInt32(txtPrice.Text));

cm.Parameters.AddWithValue("@total", Convert.ToInt32(txtTotal.Text));

con.Open();

cm.ExecuteNonQuery();

con.Close();

MessageBox.Show("Order has been successfully inserted.");

cm = new SqlCommand("UPDATE tbProduct SET pqty=(pqty-@pqty) WHERE pid LIKE '"+ txtPid.Text +"' ", con);

cm.Parameters.AddWithValue("@pqty", Convert.ToInt16(UDQty.Value));

con.Open();

cm.ExecuteNonQuery();

con.Close();

Clear();

LoadProduct();

}

}

catch (Exception ex)

{

MessageBox.Show(ex.Message);

}

}

public void Clear()

{

txtCId.Clear();

txtCName.Clear();

txtPid.Clear();

txtPName.Clear();

txtPrice.Clear();

UDQty.Value = 0;

txtTotal.Clear();

dtOrder.Value = DateTime.Now;

}

private void btnClear\_Click(object sender, EventArgs e)

{

Clear();

}

public void GetQty()

{

cm = new SqlCommand("SELECT pqty FROM tbProduct WHERE pid='"+ txtPid.Text +"'", con);

con.Open();

dr = cm.ExecuteReader();

while (dr.Read())

{

qty = Convert.ToInt32(dr[0].ToString());

}

dr.Close();

con.Close();

}

}

}

**Form layout**

**Welcome page**

A picture containing shape

Description automatically generated

**Login Page**

Graphical user interface, application

Description automatically generated

**Main Form**

A group of people building a house

Description automatically generated with medium confidence

**Product Form**

Table

Description automatically generated with medium confidence

**Product Module Form**

Graphical user interface

Description automatically generated with low confidence

**Customer Form**

A picture containing graphical user interface

Description automatically generated

**Customer Module Form**

Graphical user interface

Description automatically generated

**Category Form**

A picture containing table

Description automatically generated

**Category Module Form**

Graphical user interface

Description automatically generated with medium confidence

**Order Form**

Table

Description automatically generated

**Order Module Form**

Graphical user interface

Description automatically generated

**FUTURE ENHANCEMENTS**

The project has covered almost all the requirements, further requirements and improvements can easily be done since the coding is mainly structured or modular in nature.

**REFERENCE AND BIBLIOGRAPHY**

WEBSITES:-

●

●

Stackoverflow.com

W3school.com

● Youtube.com