Họ và Tên: Nguyễn Thanh Kiên.

MSSV: 22110092.

Bài tập:

Yêu cầu

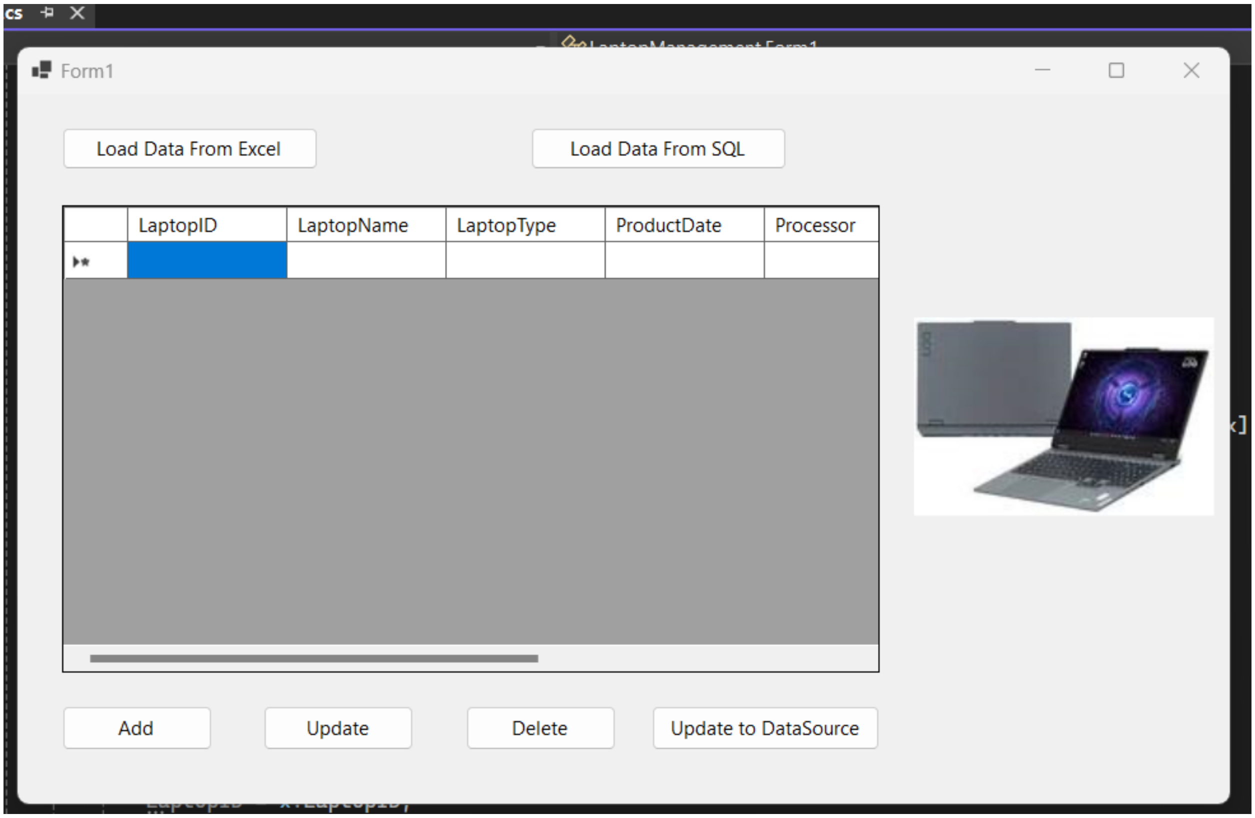
- Làm lại một ứng dụng tương tự như trên nhưng là chương trình quản lý máy tính (LaptopManagement)
- Tự tạo file Excel tên LaptopDB và Database LaptopDB trong SQL
- Thông tin Laptop gồm : LaptopID, LaptopName, LaptopType, ProductDate, Processor, HDD, RAM, Price, ImageName
- Thực hiện các thao tác thêm xóa sửa trên DataGridView

Thực hiện thao tác UpdateToSource cho cả Excel và SQL

Làm thêm: Không.

Bài làm:

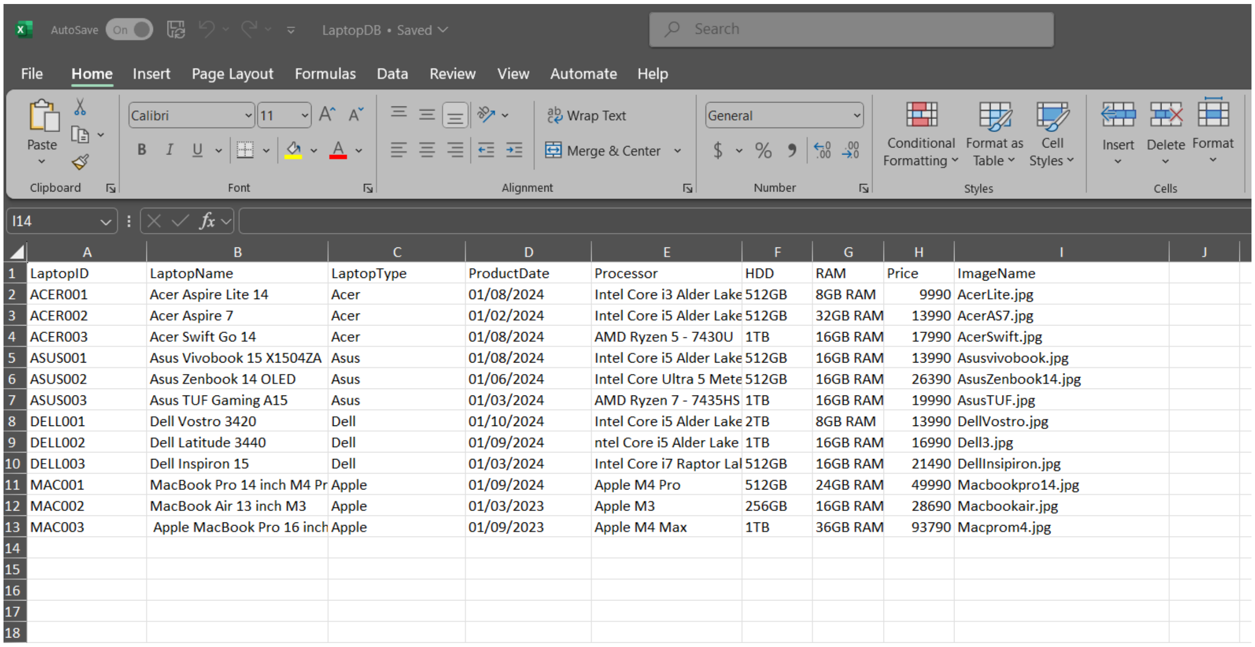
1. Làm lại một ứng dụng tương tự như trên nhưng là chương trình quản lý máy tính (LaptopManagement)



Chương trình sau khi tạo, gồm 6 nút, 1 picture box và 1 datagridview.

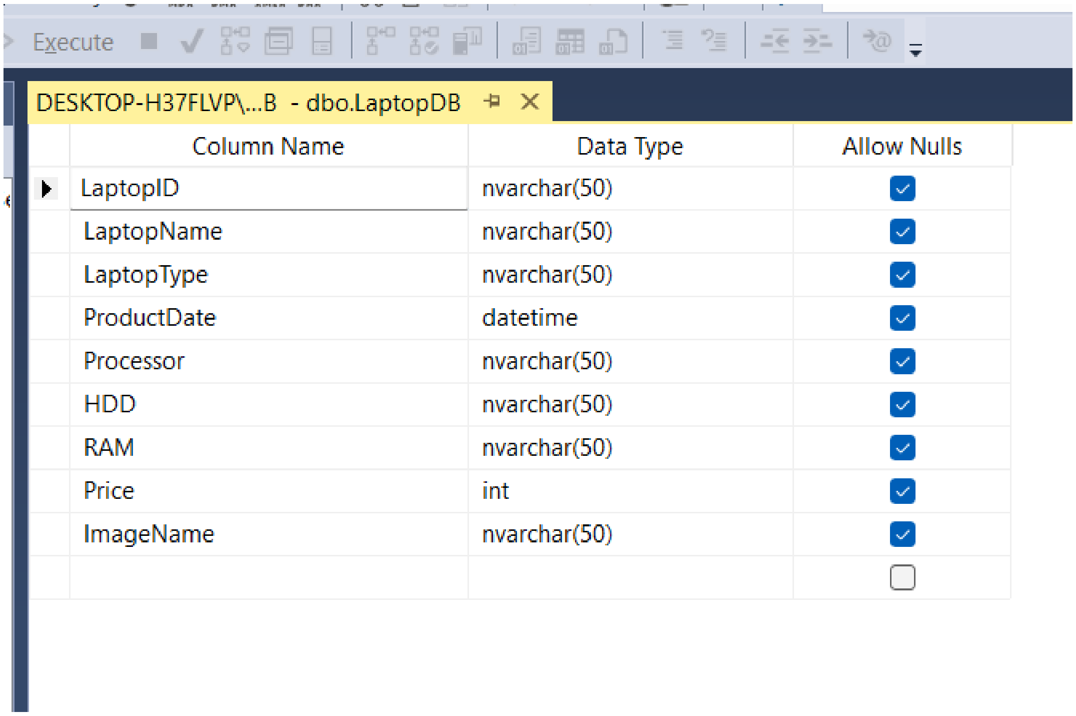
2. Tự tạo file Excel tên LaptopDB và Database LaptopDB trong SQL

File Excel:



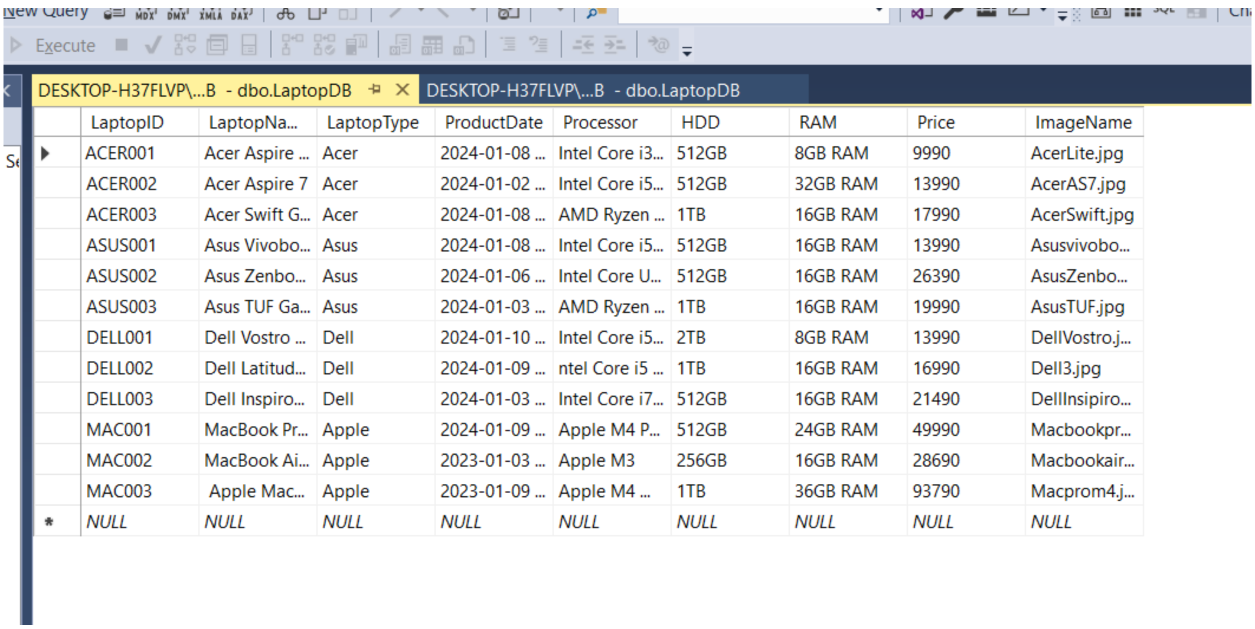
LaptopID	LaptopName	LaptopType	ProductDate	Processor	HDD	RAM	Price	ImageName
ACER001	Acer Aspire Lite 14	Acer	01/08/2024	Intel Core i3 Alder Lake	512GB	8GB RAM	9990	AcerLite.jpg
ACER002	Acer Aspire 7	Acer	01/02/2024	Intel Core i5 Alder Lake	512GB	32GB RAM	13990	AcerAS7.jpg
ACER003	Acer Swift Go 14	Acer	01/08/2024	AMD Ryzen 5 - 7430U	1TB	16GB RAM	17990	AcerSwift.jpg
ASUS001	Asus Vivobook 15 X1504ZA	Asus	01/08/2024	Intel Core i5 Alder Lake	512GB	16GB RAM	13990	Asusvivobook.jpg
ASUS002	Asus Zenbook 14 OLED	Asus	01/06/2024	Intel Core Ultra 5 Mete	512GB	16GB RAM	26390	AsusZenbook14.jpg
ASUS003	Asus TUF Gaming A15	Asus	01/03/2024	AMD Ryzen 7 - 7435HS	1TB	16GB RAM	19990	AsusTUF.jpg
DELL001	Dell Vostro 3420	Dell	01/10/2024	Intel Core i5 Alder Lake	2TB	8GB RAM	13990	DellVostro.jpg
DELL002	Dell Latitude 3440	Dell	01/09/2024	ntel Core i5 Alder Lake	1TB	16GB RAM	16990	Dell3.jpg
DELL003	Dell Inspiron 15	Dell	01/03/2024	Intel Core i7 Raptor Lal	512GB	16GB RAM	21490	DellInsipiron.jpg
MAC001	MacBook Pro 14 inch M4 Pr	Apple	01/09/2024	Apple M4 Pro	512GB	24GB RAM	49990	Macbookpro14.jpg
MAC002	MacBook Air 13 inch M3	Apple	01/03/2023	Apple M3	256GB	16GB RAM	28690	Macbookair.jpg
MAC003	Apple MacBook Pro 16 inch	Apple	01/09/2023	Apple M4 Max	1TB	36GB RAM	93790	Macprom4.jpg

Thuộc tính DB



Column Name	Data Type	Allow Nulls
LaptopID	nvarchar(50)	☑
LaptopName	nvarchar(50)	☑
LaptopType	nvarchar(50)	☑
ProductDate	datetime	☑
Processor	nvarchar(50)	☑
HDD	nvarchar(50)	☑
RAM	nvarchar(50)	☑
Price	int	☑
ImageName	nvarchar(50)	☑
		□

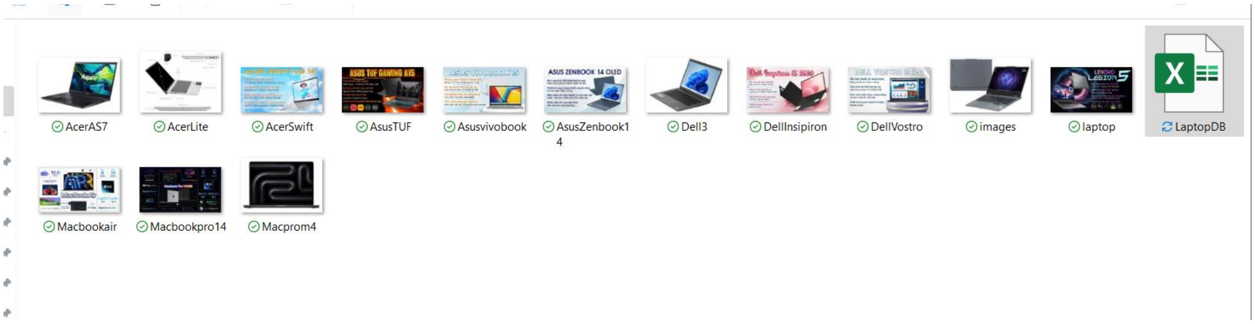
File DB



New Query
Execute
DESKTOP-H37FLVP\...B - dbo.LaptopDB
DESKTOP-H37FLVP\...B - dbo.LaptopDB

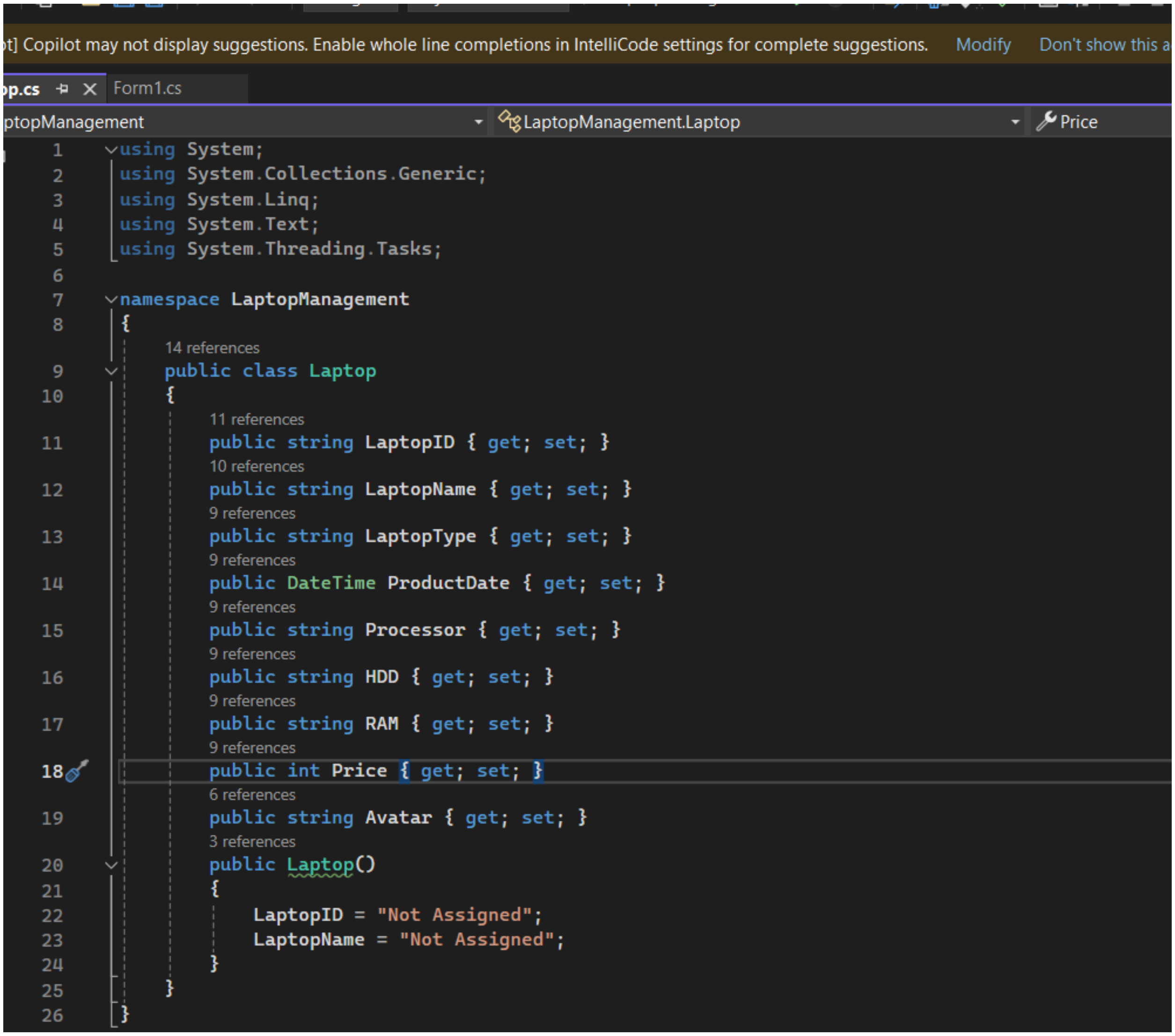
LaptopID	LaptopNa...	LaptopType	ProductDate	Processor	HDD	RAM	Price	ImageName
ACER001	Acer Aspire ...	Acer	2024-01-08 ...	Intel Core i3...	512GB	8GB RAM	9990	AcerLite.jpg
ACER002	Acer Aspire 7	Acer	2024-01-02 ...	Intel Core i5...	512GB	32GB RAM	13990	AcerAS7.jpg
ACER003	Acer Swift G...	Acer	2024-01-08 ...	AMD Ryzen ...	1TB	16GB RAM	17990	AcerSwift.jpg
ASUS001	Asus Vivobo...	Asus	2024-01-08 ...	Intel Core i5...	512GB	16GB RAM	13990	Asusvivobo...
ASUS002	Asus Zenbo...	Asus	2024-01-06 ...	Intel Core U...	512GB	16GB RAM	26390	AsusZenbo...
ASUS003	Asus TUF Ga...	Asus	2024-01-03 ...	AMD Ryzen ...	1TB	16GB RAM	19990	AsusTUF.jpg
DELL001	Dell Vostro ...	Dell	2024-01-10 ...	Intel Core i5...	2TB	8GB RAM	13990	DellVostro.j...
DELL002	Dell Latitud...	Dell	2024-01-09 ...	ntel Core i5 ...	1TB	16GB RAM	16990	Dell3.jpg
DELL003	Dell Inspiro...	Dell	2024-01-03 ...	Intel Core i7...	512GB	16GB RAM	21490	DellInspiro...
MAC001	MacBook Pr...	Apple	2024-01-09 ...	Apple M4 P...	512GB	24GB RAM	49990	Macbookpr...
MAC002	MacBook Ai...	Apple	2023-01-03 ...	Apple M3	256GB	16GB RAM	28690	Macbookair...
MAC003	Apple Mac...	Apple	2023-01-09 ...	Apple M4 ...	1TB	36GB RAM	93790	Macprom4.j...
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

Ảnh trong Data cần có:



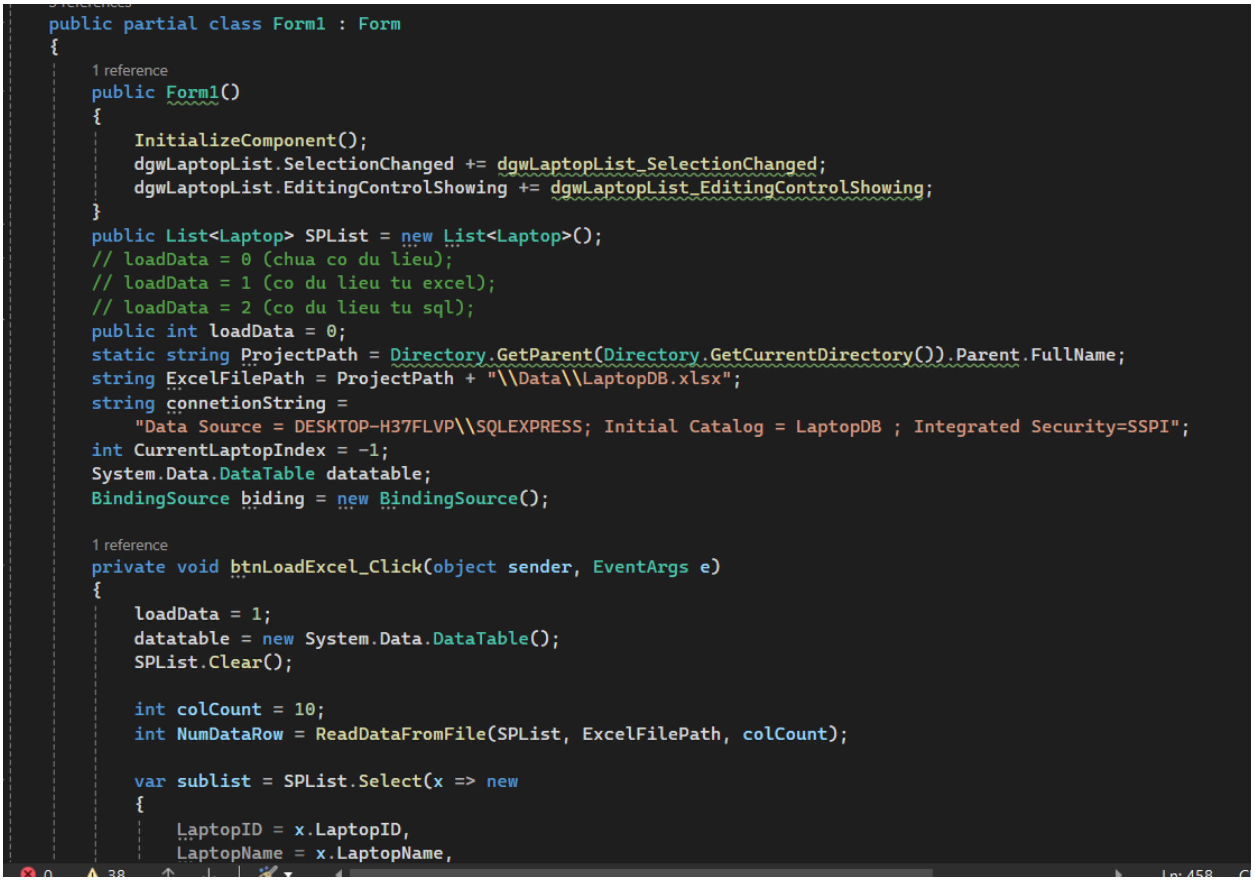
3. Thông tin Laptop gồm : LaptopID, LaptopName, LaptopType, ProductDate, Processor, HDD, RAM, Price, ImageName

File cơ sở dữ liệu của Laptop:

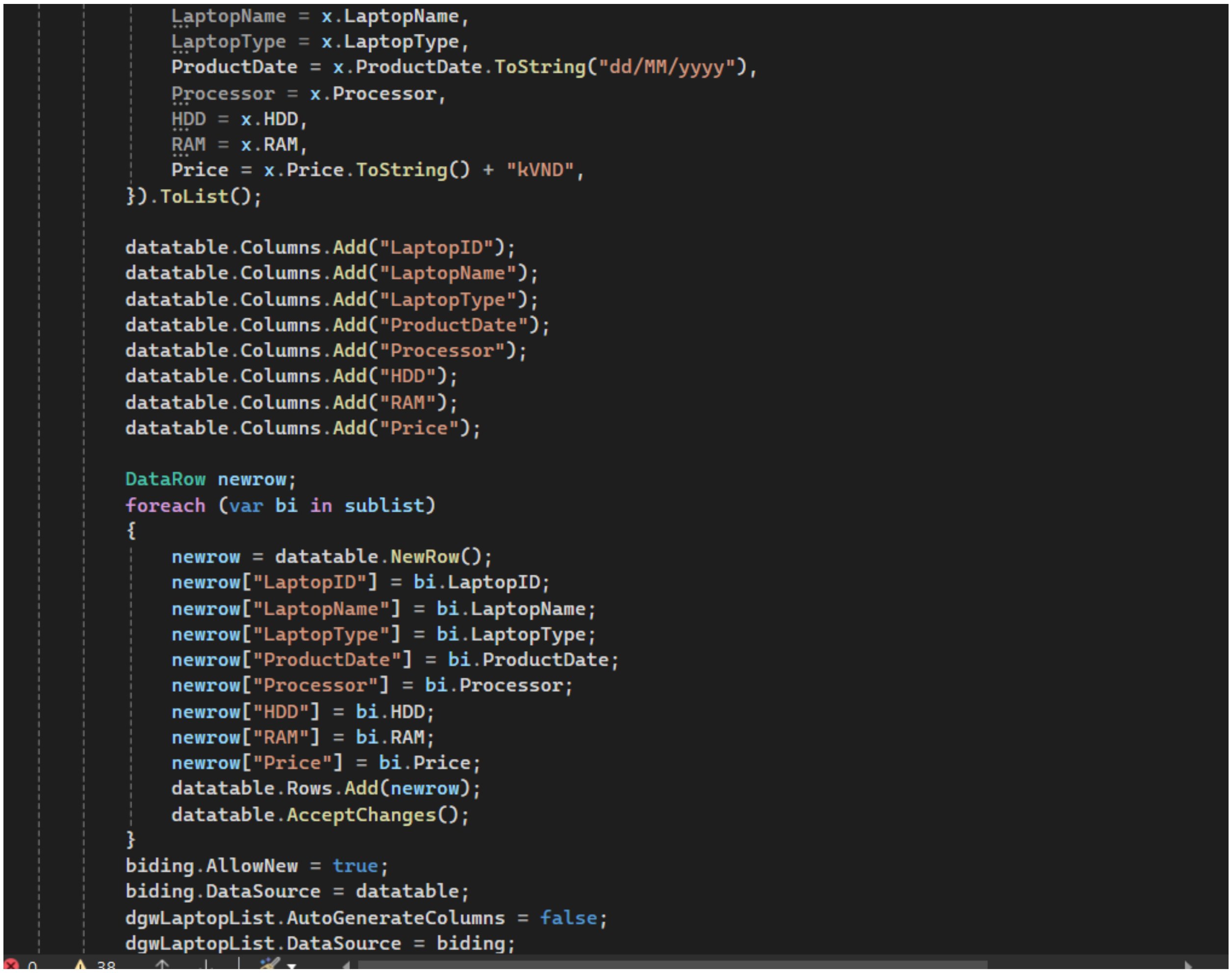


t] Copilot may not display suggestions. Enable whole line completions in IntelliCode settings for complete suggestions.

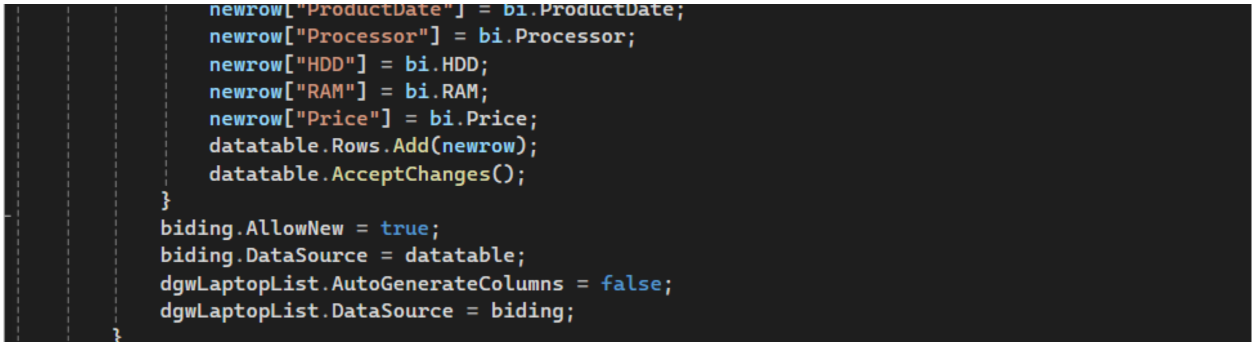
```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace LaptopManagement
{
    public class Laptop
    {
        public string LaptopID { get; set; }
        public string LaptopName { get; set; }
        public string LaptopType { get; set; }
        public DateTime ProductDate { get; set; }
        public string Processor { get; set; }
        public string HDD { get; set; }
        public string RAM { get; set; }
        public int Price { get; set; }
        public string Avatar { get; set; }
        public Laptop()
        {
            LaptopID = "Not Assigned";
            LaptopName = "Not Assigned";
        }
    }
}
```



```
public partial class Form1 : Form
{
    1 reference
    public Form1()
    {
        InitializeComponent();
        dgwLaptopList.SelectionChanged += dgwLaptopList_SelectionChanged;
        dgwLaptopList.EditingControlShowing += dgwLaptopList_EditingControlShowing;
    }
    public List<Laptop> SPList = new List<Laptop>();
    // loadData = 0 (chua co du lieu);
    // loadData = 1 (co du lieu tu excel);
    // loadData = 2 (co du lieu tu sql);
    public int loadData = 0;
    static string ProjectPath = Directory.GetParent(Directory.GetCurrentDirectory()).Parent.FullName;
    string ExcelFilePath = ProjectPath + "\\Data\\LaptopDB.xlsx";
    string connetionString =
        "Data Source = DESKTOP-H37FLVP\\SQLEXPRESS; Initial Catalog = LaptopDB ; Integrated Security=SSPI";
    int CurrentLaptopIndex = -1;
    System.Data.DataTable datatable;
    BindingSource biding = new BindingSource();

    1 reference
    private void btnLoadExcel_Click(object sender, EventArgs e)
    {
        loadData = 1;
        datatable = new System.Data.DataTable();
        SPList.Clear();

        int colCount = 10;
        int NumDataRow = ReadDataFromFile(SPList, ExcelFilePath, colCount);

        var sublist = SPList.Select(x => new
        {
            LaptopID = x.LaptopID,
            LaptopName = x.LaptopName,
```



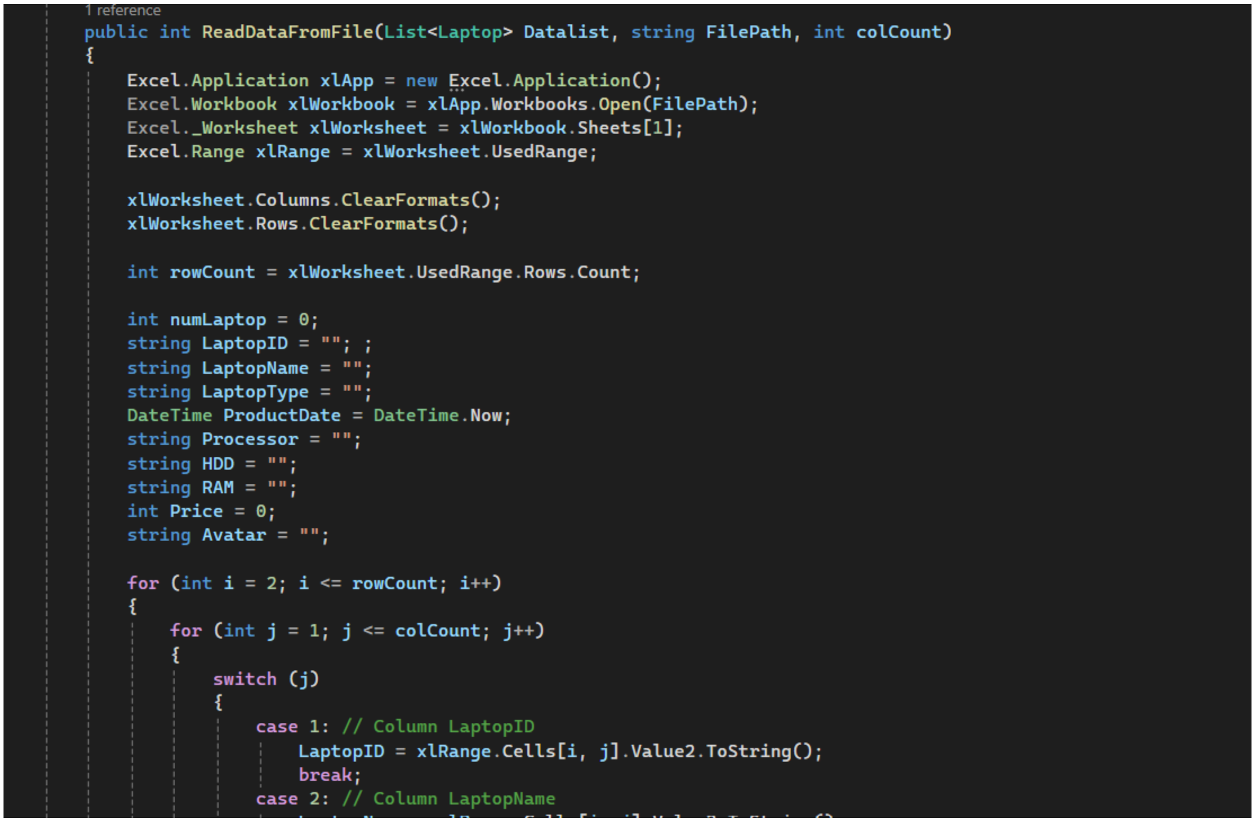
```
        LaptopName = x.LaptopName,
        LaptopType = x.LaptopType,
        ProductDate = x.ProductDate.ToString("dd/MM/yyyy"),
        Processor = x.Processor,
        HDD = x.HDD,
        RAM = x.RAM,
        Price = x.Price.ToString() + "kVND",
    }).ToList();

    datatable.Columns.Add("LaptopID");
    datatable.Columns.Add("LaptopName");
    datatable.Columns.Add("LaptopType");
    datatable.Columns.Add("ProductDate");
    datatable.Columns.Add("Processor");
    datatable.Columns.Add("HDD");
    datatable.Columns.Add("RAM");
    datatable.Columns.Add("Price");

    DataRow newrow;
    foreach (var bi in sublist)
    {
        newrow = datatable.NewRow();
        newrow["LaptopID"] = bi.LaptopID;
        newrow["LaptopName"] = bi.LaptopName;
        newrow["LaptopType"] = bi.LaptopType;
        newrow["ProductDate"] = bi.ProductDate;
        newrow["Processor"] = bi.Processor;
        newrow["HDD"] = bi.HDD;
        newrow["RAM"] = bi.RAM;
        newrow["Price"] = bi.Price;
        datatable.Rows.Add(newrow);
        datatable.AcceptChanges();
    }
    biding.AllowNew = true;
    biding.DataSource = datatable;
    dgwLaptopList.AutoGenerateColumns = false;
    dgwLaptopList.DataSource = biding;
```



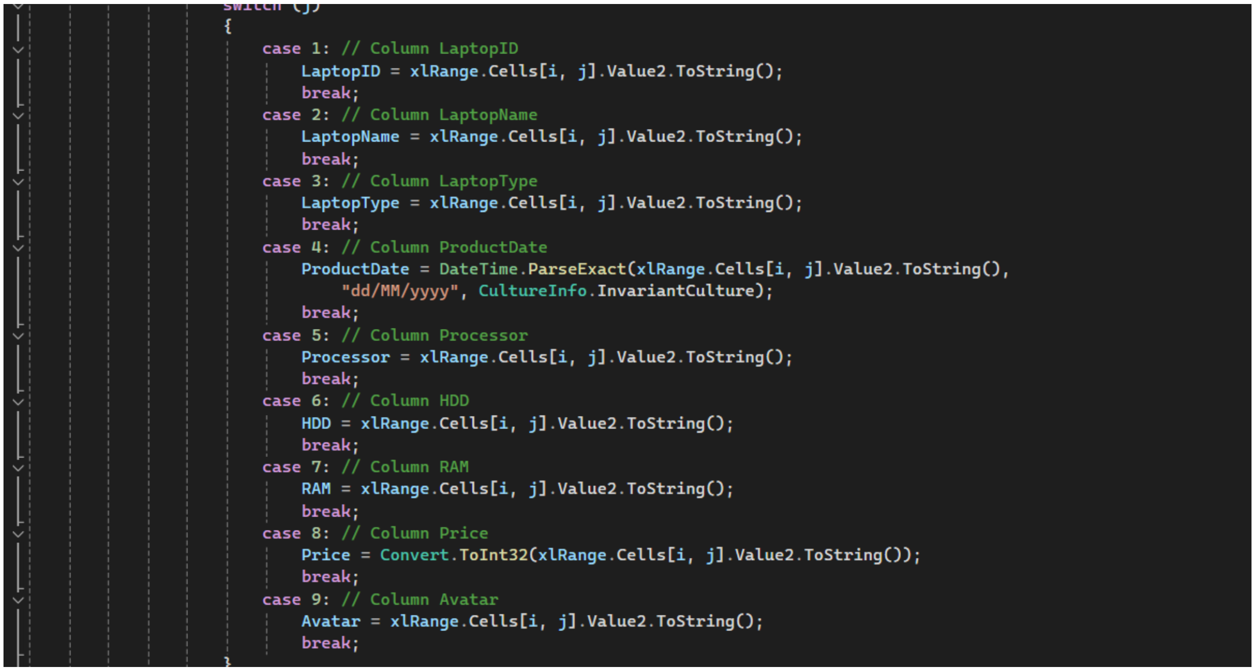
```
        newrow["ProductDate"] = bi.ProductDate;
        newrow["Processor"] = bi.Processor;
        newrow["HDD"] = bi.HDD;
        newrow["RAM"] = bi.RAM;
        newrow["Price"] = bi.Price;
        datatable.Rows.Add(newrow);
        datatable.AcceptChanges();
    }
    biding.AllowNew = true;
    biding.DataSource = datatable;
    dgwLaptopList.AutoGenerateColumns = false;
    dgwLaptopList.DataSource = biding;
}
```

4. Thực hiện các thao tác thêm xóa sửa trên DataGridView

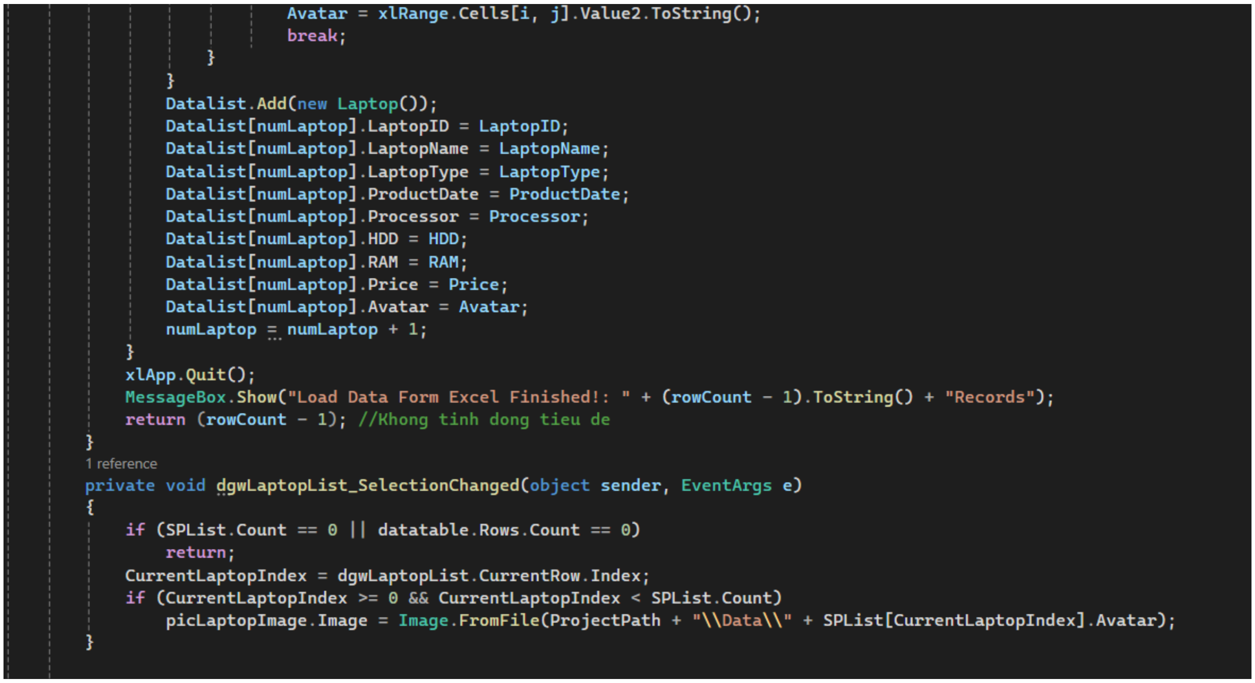
Trước hết, ta đọc data từ Excel



```
1 reference
public int ReadDataFromFile(List<Laptop> Datalist, string FilePath, int colCount)
{
    Excel.Application xlApp = new Excel.Application();
    Excel.Workbook xlWorkbook = xlApp.Workbooks.Open(FilePath);
    Excel._Worksheet xlWorksheet = xlWorkbook.Sheets[1];
    Excel.Range xlRange = xlWorksheet.UsedRange;

    xlWorksheet.Columns.ClearFormats();
    xlWorksheet.Rows.ClearFormats();

    int rowCount = xlWorksheet.UsedRange.Rows.Count;

    int numLaptop = 0;
    string LaptopID = ""; ;
    string LaptopName = "";
    string LaptopType = "";
    DateTime ProductDate = DateTime.Now;
    string Processor = "";
    string HDD = "";
    string RAM = "";
    int Price = 0;
    string Avatar = "";

    for (int i = 2; i <= rowCount; i++)
    {
        for (int j = 1; j <= colCount; j++)
        {
            switch (j)
            {
                case 1: // Column LaptopID
                    LaptopID = xlRange.Cells[i, j].Value2.ToString();
                    break;
                case 2: // Column LaptopName
```

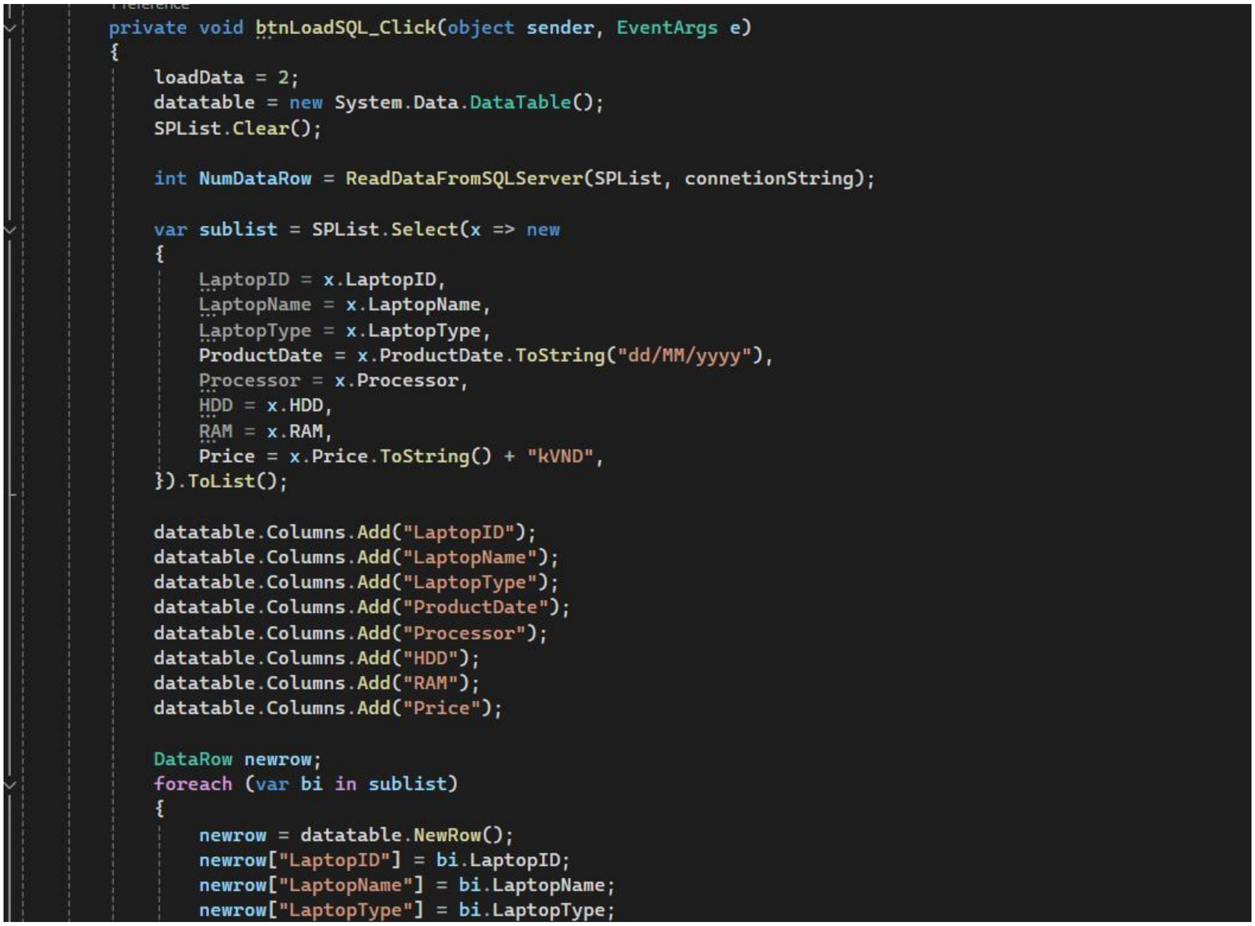


```
            switch (j)
            {
                case 1: // Column LaptopID
                    LaptopID = xlRange.Cells[i, j].Value2.ToString();
                    break;
                case 2: // Column LaptopName
                    LaptopName = xlRange.Cells[i, j].Value2.ToString();
                    break;
                case 3: // Column LaptopType
                    LaptopType = xlRange.Cells[i, j].Value2.ToString();
                    break;
                case 4: // Column ProductDate
                    ProductDate = DateTime.ParseExact(xlRange.Cells[i, j].Value2.ToString(),
                        "dd/MM/yyyy", CultureInfo.InvariantCulture);
                    break;
                case 5: // Column Processor
                    Processor = xlRange.Cells[i, j].Value2.ToString();
                    break;
                case 6: // Column HDD
                    HDD = xlRange.Cells[i, j].Value2.ToString();
                    break;
                case 7: // Column RAM
                    RAM = xlRange.Cells[i, j].Value2.ToString();
                    break;
                case 8: // Column Price
                    Price = Convert.ToInt32(xlRange.Cells[i, j].Value2.ToString());
                    break;
                case 9: // Column Avatar
                    Avatar = xlRange.Cells[i, j].Value2.ToString();
                    break;
            }
```

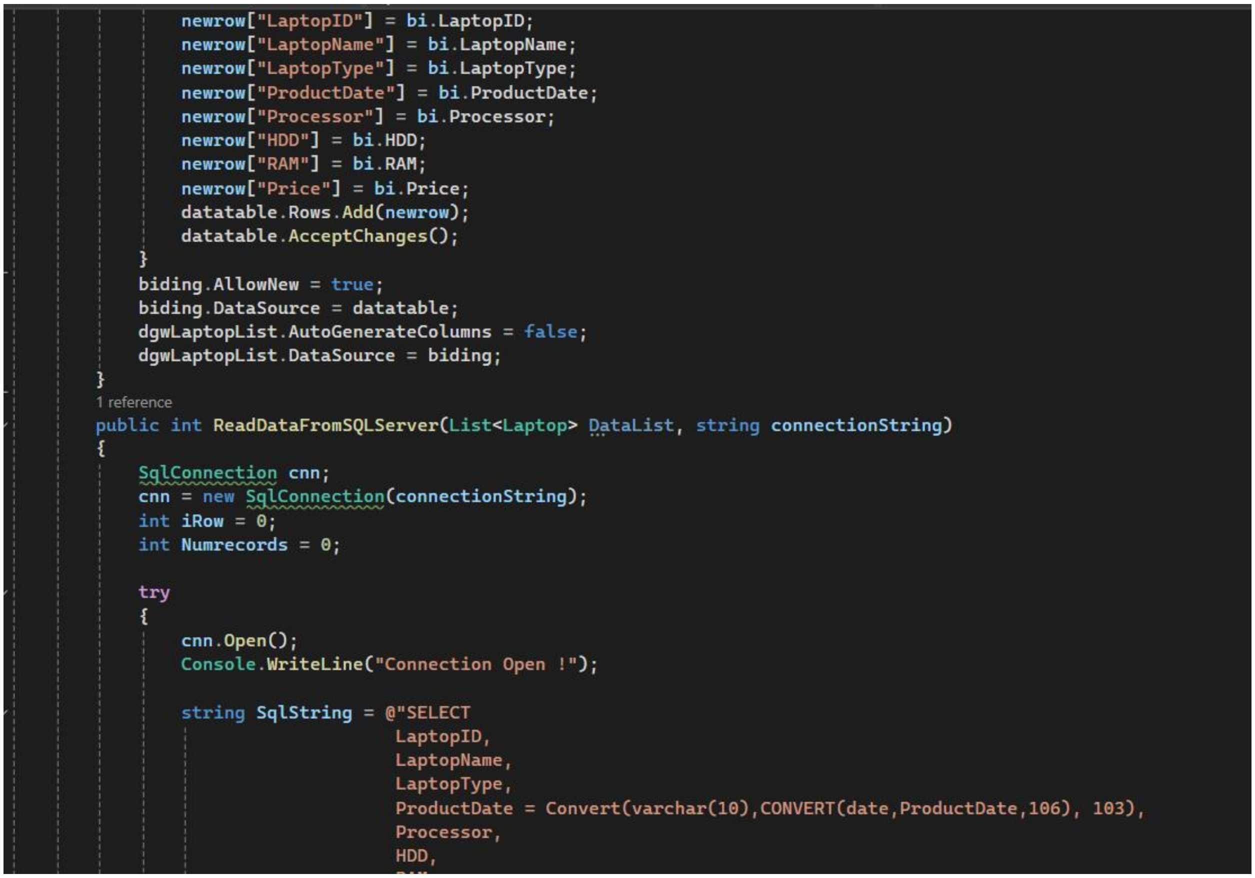


```
                    Avatar = xlRange.Cells[i, j].Value2.ToString();
                    break;
            }
        }
        Datalist.Add(new Laptop());
        Datalist[numLaptop].LaptopID = LaptopID;
        Datalist[numLaptop].LaptopName = LaptopName;
        Datalist[numLaptop].LaptopType = LaptopType;
        Datalist[numLaptop].ProductDate = ProductDate;
        Datalist[numLaptop].Processor = Processor;
        Datalist[numLaptop].HDD = HDD;
        Datalist[numLaptop].RAM = RAM;
        Datalist[numLaptop].Price = Price;
        Datalist[numLaptop].Avatar = Avatar;
        numLaptop = numLaptop + 1;
    }
    xlApp.Quit();
    MessageBox.Show("Load Data Form Excel Finished!: " + (rowCount - 1).ToString() + "Records");
    return (rowCount - 1); //Khong tinh dong tieu de
}
1 reference
private void dgwLaptopList_SelectionChanged(object sender, EventArgs e)
{
    if (SPList.Count == 0 || datatable.Rows.Count == 0)
        return;
    CurrentLaptopIndex = dgwLaptopList.CurrentRow.Index;
    if (CurrentLaptopIndex >= 0 && CurrentLaptopIndex < SPList.Count)
        picLaptopImage.Image = Image.FromFile(ProjectPath + "\\Data\\" + SPList[CurrentLaptopIndex].Avatar);
}
```

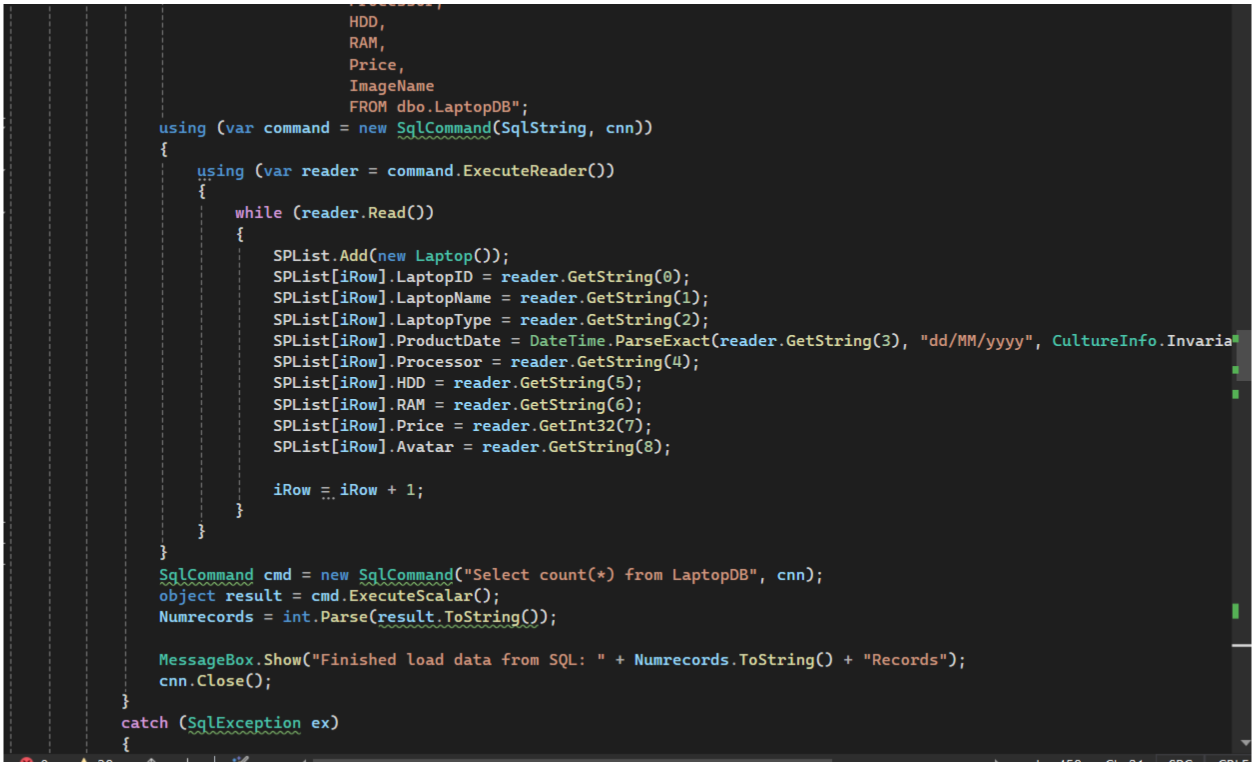
Và đọc từ SQL



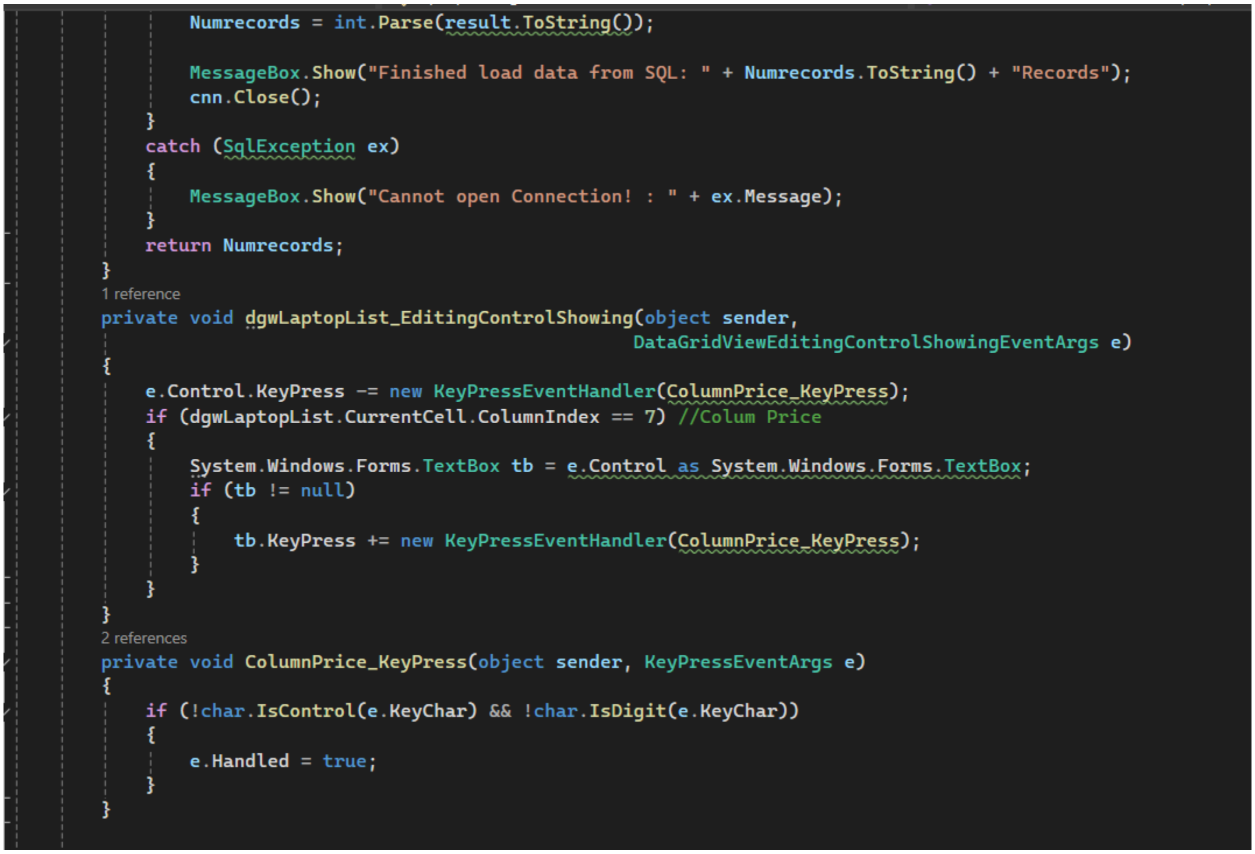
```
1 reference
private void btnLoadSQL_Click(object sender, EventArgs e)
{
    loadData = 2;
    datatable = new System.Data.DataTable();
    SPList.Clear();

    int NumDataRow = ReadDataFromSQLServer(SPList, connetionString);

    var sublist = SPList.Select(x => new
    {
        LaptopID = x.LaptopID,
        LaptopName = x.LaptopName,
        LaptopType = x.LaptopType,
        ProductDate = x.ProductDate.ToString("dd/MM/yyyy"),
        Processor = x.Processor,
        HDD = x.HDD,
        RAM = x.RAM,
        Price = x.Price.ToString() + "kVND",
    }).ToList();

    datatable.Columns.Add("LaptopID");
    datatable.Columns.Add("LaptopName");
    datatable.Columns.Add("LaptopType");
    datatable.Columns.Add("ProductDate");
    datatable.Columns.Add("Processor");
    datatable.Columns.Add("HDD");
    datatable.Columns.Add("RAM");
    datatable.Columns.Add("Price");

    DataRow newrow;
    foreach (var bi in sublist)
    {
        newrow = datatable.NewRow();
        newrow["LaptopID"] = bi.LaptopID;
        newrow["LaptopName"] = bi.LaptopName;
        newrow["LaptopType"] = bi.LaptopType;
```



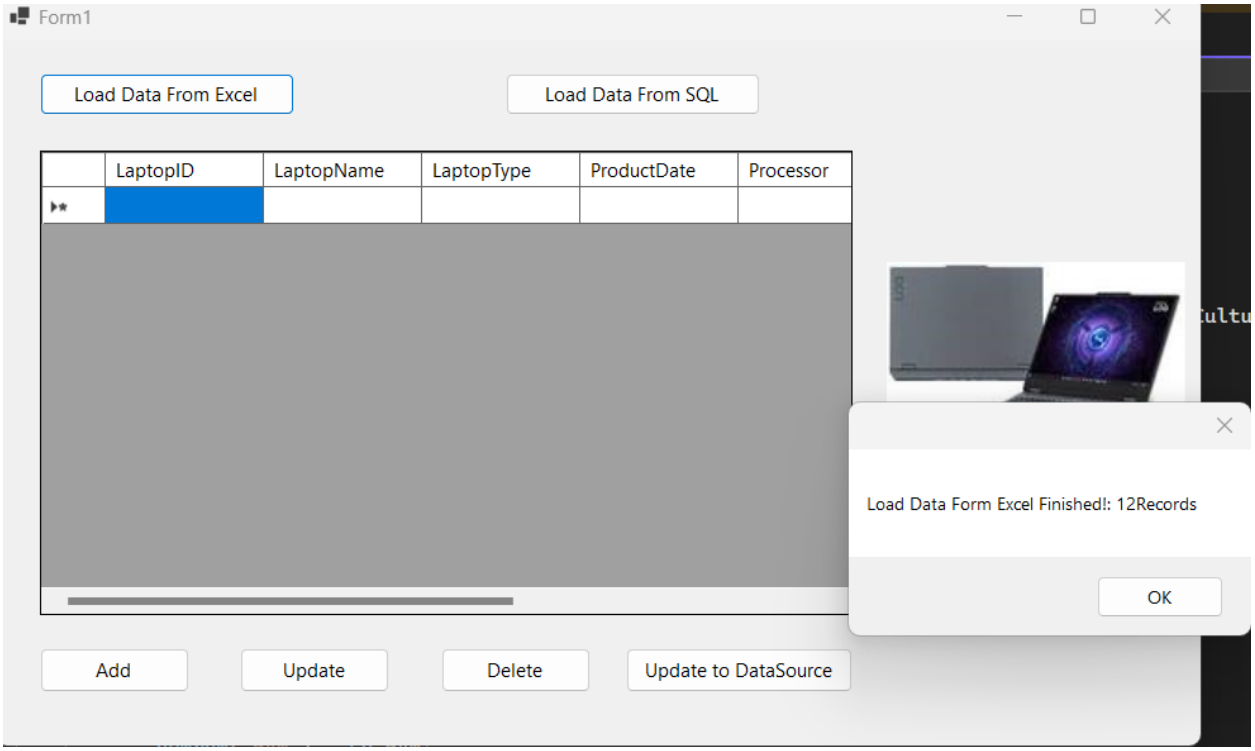
```
        newrow["LaptopID"] = bi.LaptopID;
        newrow["LaptopName"] = bi.LaptopName;
        newrow["LaptopType"] = bi.LaptopType;
        newrow["ProductDate"] = bi.ProductDate;
        newrow["Processor"] = bi.Processor;
        newrow["HDD"] = bi.HDD;
        newrow["RAM"] = bi.RAM;
        newrow["Price"] = bi.Price;
        datatable.Rows.Add(newrow);
        datatable.AcceptChanges();
    }
    biding.AllowNew = true;
    biding.DataSource = datatable;
    dgwLaptopList.AutoGenerateColumns = false;
    dgwLaptopList.DataSource = biding;
}
1 reference
public int ReadDataFromSQLServer(List<Laptop> DataList, string connectionString)
{
    SqlConnection cnn;
    cnn = new SqlConnection(connectionString);
    int iRow = 0;
    int Numrecords = 0;

    try
    {
        cnn.Open();
        Console.WriteLine("Connection Open !");

        string SqlString = @"SELECT
                            LaptopID,
                            LaptopName,
                            LaptopType,
                            ProductDate = Convert(varchar(10),CONVERT(date,ProductDate,106), 103),
                            Processor,
                            HDD,
```



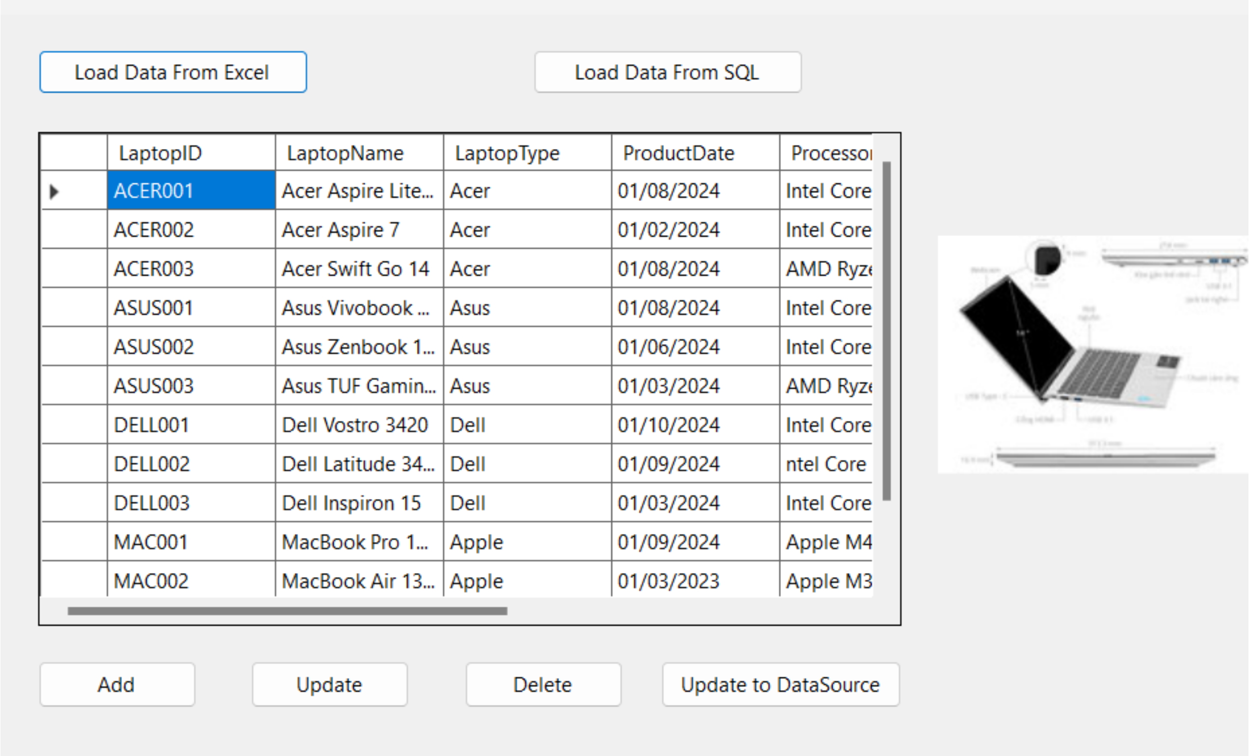
```
                            HDD,
                            RAM,
                            Price,
                            ImageName
                            FROM dbo.LaptopDB";
        using (var command = new SqlCommand(SqlString, cnn))
        {
            using (var reader = command.ExecuteReader())
            {
                while (reader.Read())
                {
                    SPList.Add(new Laptop());
                    SPList[iRow].LaptopID = reader.GetString(0);
                    SPList[iRow].LaptopName = reader.GetString(1);
                    SPList[iRow].LaptopType = reader.GetString(2);
                    SPList[iRow].ProductDate = DateTime.ParseExact(reader.GetString(3), "dd/MM/yyyy", CultureInfo.Invaria
                    SPList[iRow].Processor = reader.GetString(4);
                    SPList[iRow].HDD = reader.GetString(5);
                    SPList[iRow].RAM = reader.GetString(6);
                    SPList[iRow].Price = reader.GetInt32(7);
                    SPList[iRow].Avatar = reader.GetString(8);

                    iRow = iRow + 1;
                }
            }
        }
        SqlCommand cmd = new SqlCommand("Select count(*) from LaptopDB", cnn);
        object result = cmd.ExecuteScalar();
        Numrecords = int.Parse(result.ToString());

        MessageBox.Show("Finished load data from SQL: " + Numrecords.ToString() + "Records");
        cnn.Close();
    }
    catch (SqlException ex)
    {
```



```
                Numrecords = int.Parse(result.ToString());

                MessageBox.Show("Finished load data from SQL: " + Numrecords.ToString() + "Records");
                cnn.Close();
            }
            catch (SqlException ex)
            {
                MessageBox.Show("Cannot open Connection! : " + ex.Message);
            }
            return Numrecords;
        }
        1 reference
        private void dgwLaptopList_EditingControlShowing(object sender,
                                                        DataGridViewEditingControlShowingEventArgs e)
        {
            e.Control.KeyPress -= new KeyPressEventHandler(ColumnPrice_KeyPress);
            if (dgwLaptopList.CurrentCell.ColumnIndex == 7) //Colum Price
            {
                System.Windows.Forms.TextBox tb = e.Control as System.Windows.Forms.TextBox;
                if (tb != null)
                {
                    tb.KeyPress += new KeyPressEventHandler(ColumnPrice_KeyPress);
                }
            }
        }
        2 references
        private void ColumnPrice_KeyPress(object sender, KeyPressEventArgs e)
        {
            if (!char.IsControl(e.KeyChar) && !char.IsDigit(e.KeyChar))
            {
                e.Handled = true;
            }
        }
```

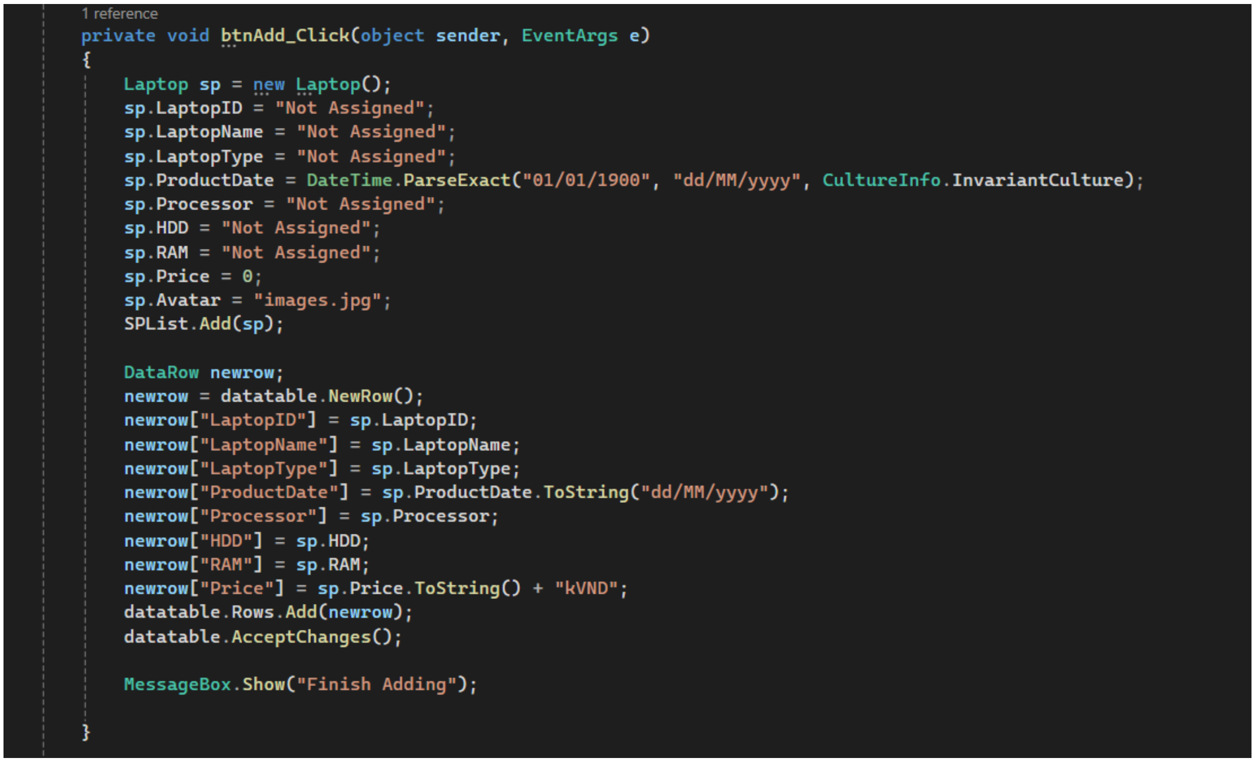


Load Data Form Excel Finished!: 12Records

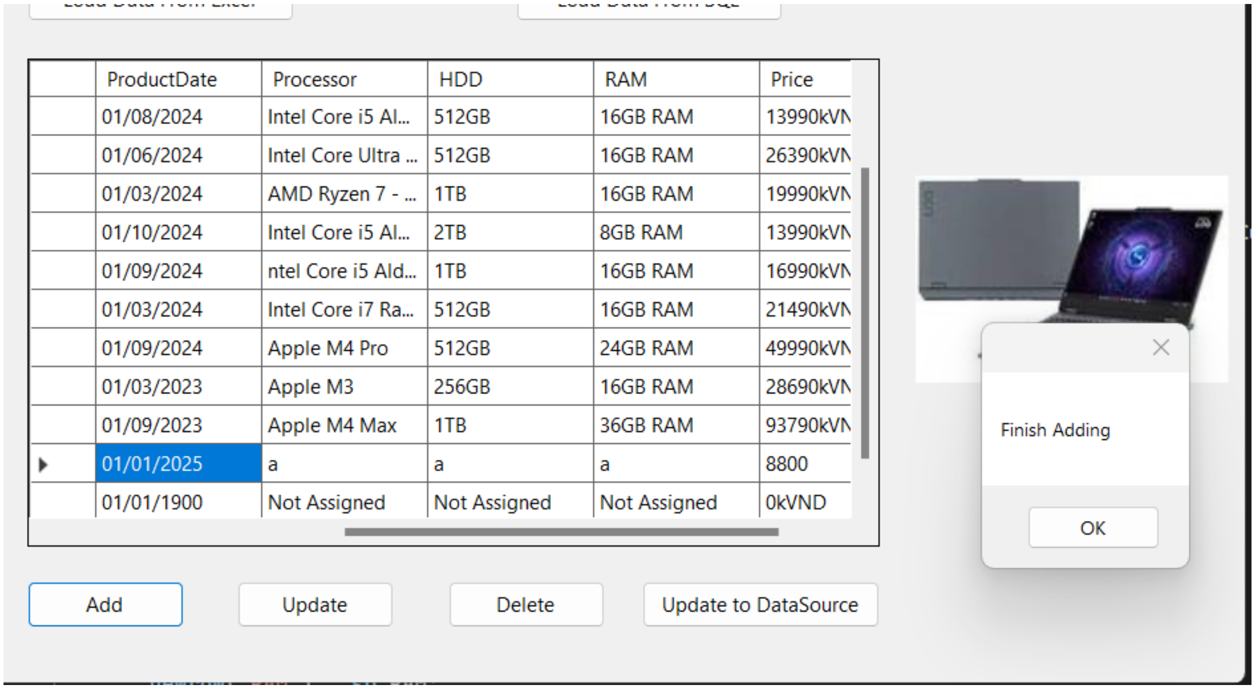


	LaptopID	LaptopName	LaptopType	ProductDate	Processo
▶	ACER001	Acer Aspire Lite...	Acer	01/08/2024	Intel Core
	ACER002	Acer Aspire 7	Acer	01/02/2024	Intel Core
	ACER003	Acer Swift Go 14	Acer	01/08/2024	AMD Ryze
	ASUS001	Asus Vivobook ...	Asus	01/08/2024	Intel Core
	ASUS002	Asus Zenbook 1...	Asus	01/06/2024	Intel Core
	ASUS003	Asus TUF Gamin...	Asus	01/03/2024	AMD Ryze
	DELL001	Dell Vostro 3420	Dell	01/10/2024	Intel Core
	DELL002	Dell Latitude 34...	Dell	01/09/2024	ntel Core
	DELL003	Dell Inspiron 15	Dell	01/03/2024	Intel Core
	MAC001	MacBook Pro 1...	Apple	01/09/2024	Apple M4
	MAC002	MacBook Air 13...	Apple	01/03/2023	Apple M3

a. Thêm



```
1 reference
private void btnAdd_Click(object sender, EventArgs e)
{
    Laptop sp = new Laptop();
    sp.LaptopID = "Not Assigned";
    sp.LaptopName = "Not Assigned";
    sp.LaptopType = "Not Assigned";
    sp.ProductDate = DateTime.ParseExact("01/01/1900", "dd/MM/yyyy", CultureInfo.InvariantCulture);
    sp.Processor = "Not Assigned";
    sp.HDD = "Not Assigned";
    sp.RAM = "Not Assigned";
    sp.Price = 0;
    sp.Avatar = "images.jpg";
    SPList.Add(sp);

    DataRow newrow;
    newrow = datatable.NewRow();
    newrow["LaptopID"] = sp.LaptopID;
    newrow["LaptopName"] = sp.LaptopName;
    newrow["LaptopType"] = sp.LaptopType;
    newrow["ProductDate"] = sp.ProductDate.ToString("dd/MM/yyyy");
    newrow["Processor"] = sp.Processor;
    newrow["HDD"] = sp.HDD;
    newrow["RAM"] = sp.RAM;
    newrow["Price"] = sp.Price.ToString() + "kVND";
    datatable.Rows.Add(newrow);
    datatable.AcceptChanges();

    MessageBox.Show("Finish Adding");

}
```

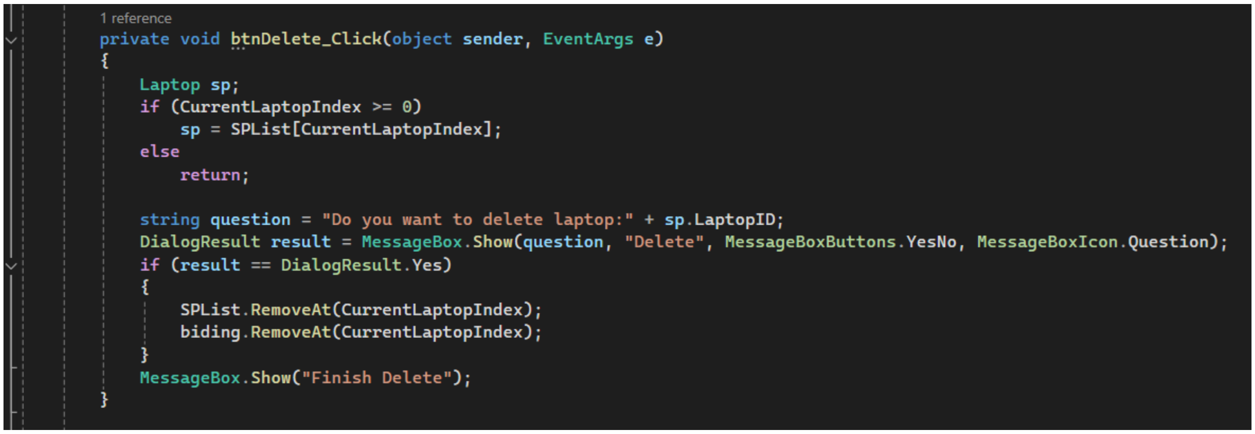


	ProductDate	Processor	HDD	RAM	Price
	01/08/2024	Intel Core i5 Al...	512GB	16GB RAM	13990kVN
	01/06/2024	Intel Core Ultra ...	512GB	16GB RAM	26390kVN
	01/03/2024	AMD Ryzen 7 - ...	1TB	16GB RAM	19990kVN
	01/10/2024	Intel Core i5 Al...	2TB	8GB RAM	13990kVN
	01/09/2024	ntel Core i5 Ald...	1TB	16GB RAM	16990kVN
	01/03/2024	Intel Core i7 Ra...	512GB	16GB RAM	21490kVN
	01/09/2024	Apple M4 Pro	512GB	24GB RAM	49990kVN
	01/03/2023	Apple M3	256GB	16GB RAM	28690kVN
	01/09/2023	Apple M4 Max	1TB	36GB RAM	93790kVN
▶	01/01/2025	a	a	a	8800
	01/01/1900	Not Assigned	Not Assigned	Not Assigned	0kVND

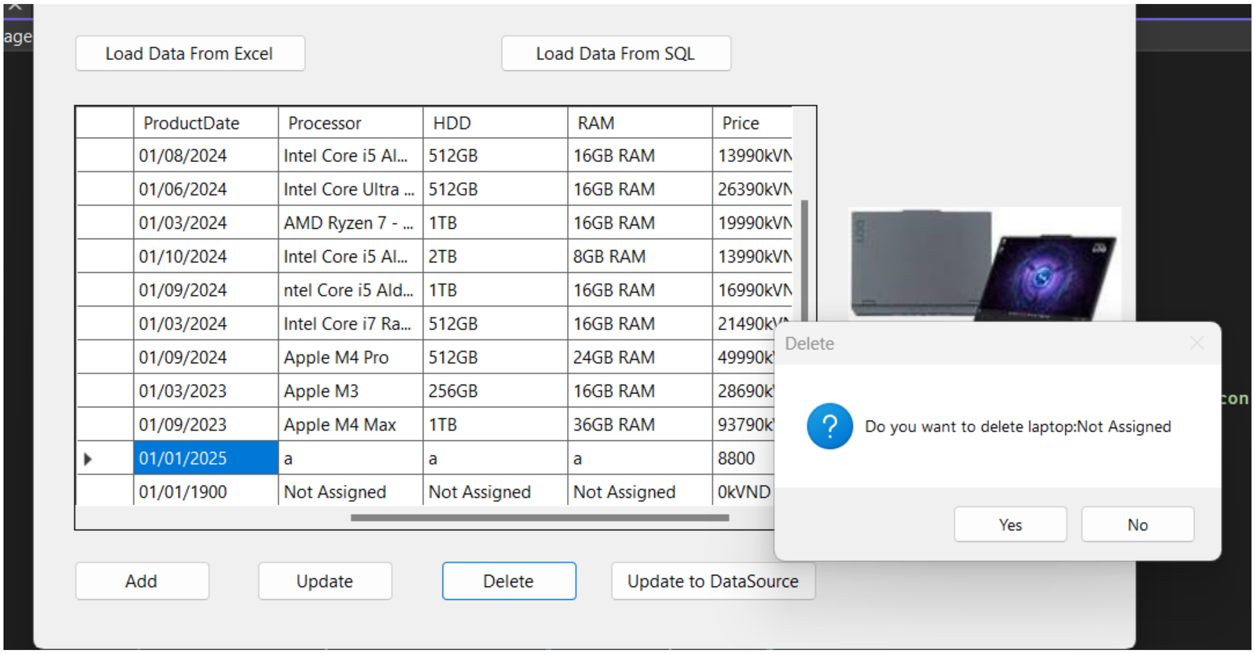
Finish Adding

Thêm thành công

b. Xóa



```
private void btnDelete_Click(object sender, EventArgs e)
{
    Laptop sp;
    if (CurrentLaptopIndex >= 0)
        sp = SPList[CurrentLaptopIndex];
    else
        return;

    string question = "Do you want to delete laptop:" + sp.LaptopID;
    DialogResult result = MessageBox.Show(question, "Delete", MessageBoxButtons.YesNo, MessageBoxIcon.Question);
    if (result == DialogResult.Yes)
    {
        SPList.RemoveAt(CurrentLaptopIndex);
        biding.RemoveAt(CurrentLaptopIndex);
    }
    MessageBox.Show("Finish Delete");
}
```

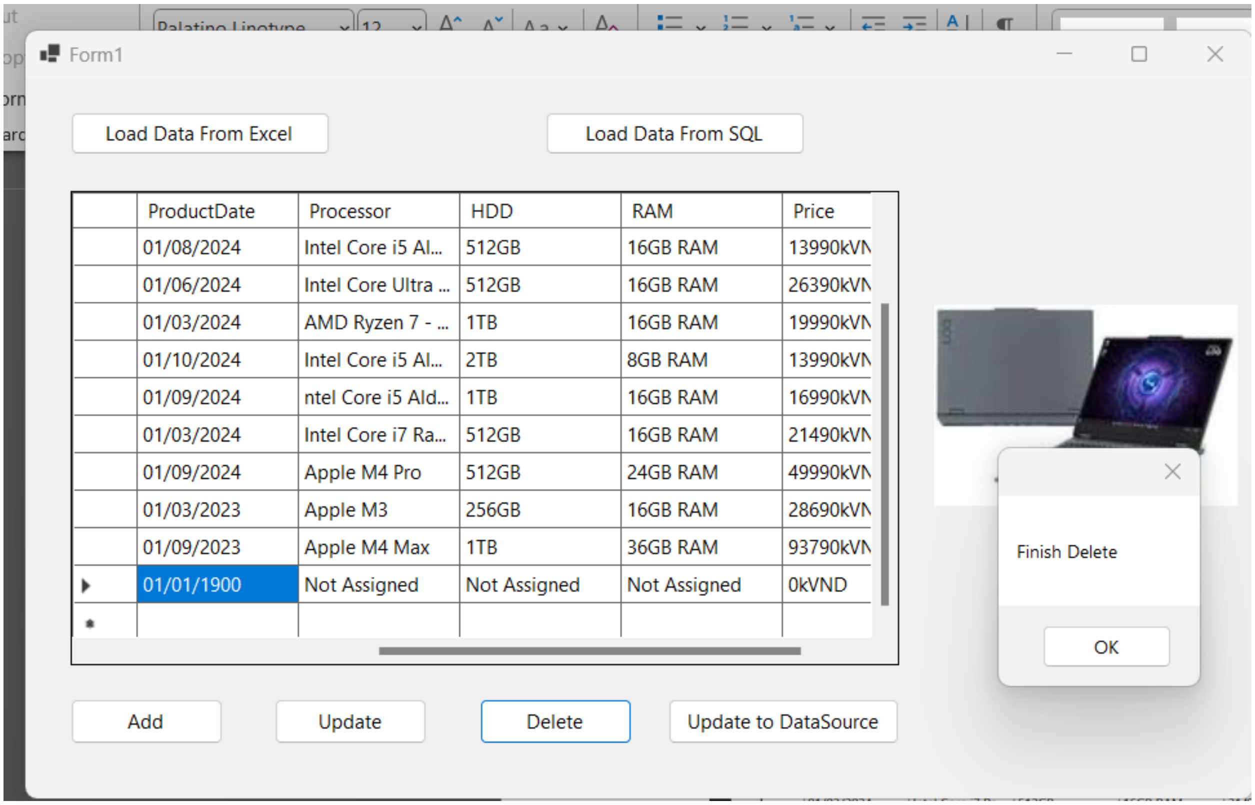


	ProductDate	Processor	HDD	RAM	Price
	01/08/2024	Intel Core i5 Al...	512GB	16GB RAM	13990kVN
	01/06/2024	Intel Core Ultra ...	512GB	16GB RAM	26390kVN
	01/03/2024	AMD Ryzen 7 - ...	1TB	16GB RAM	19990kVN
	01/10/2024	Intel Core i5 Al...	2TB	8GB RAM	13990kVN
	01/09/2024	ntel Core i5 Ald...	1TB	16GB RAM	16990kVN
	01/03/2024	Intel Core i7 Ra...	512GB	16GB RAM	21490kV
	01/09/2024	Apple M4 Pro	512GB	24GB RAM	49990k
	01/03/2023	Apple M3	256GB	16GB RAM	28690k
	01/09/2023	Apple M4 Max	1TB	36GB RAM	93790k
▶	01/01/2025	a	a	a	8800
	01/01/1900	Not Assigned	Not Assigned	Not Assigned	0kVND

Delete

Do you want to delete laptop:Not Assigned

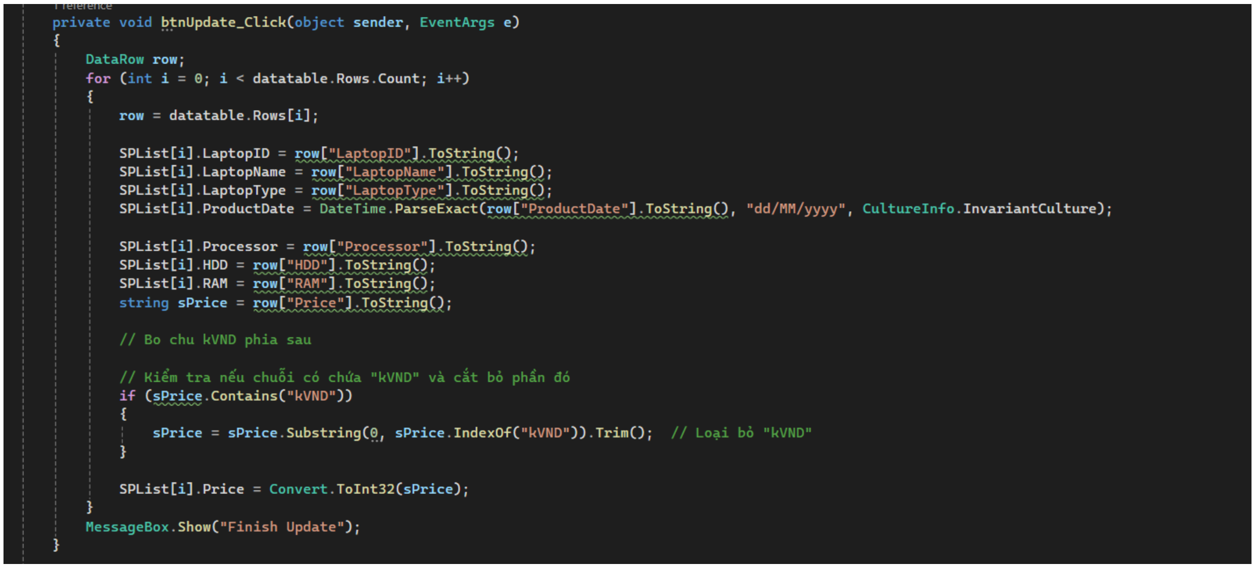
Khi nhấn Yes



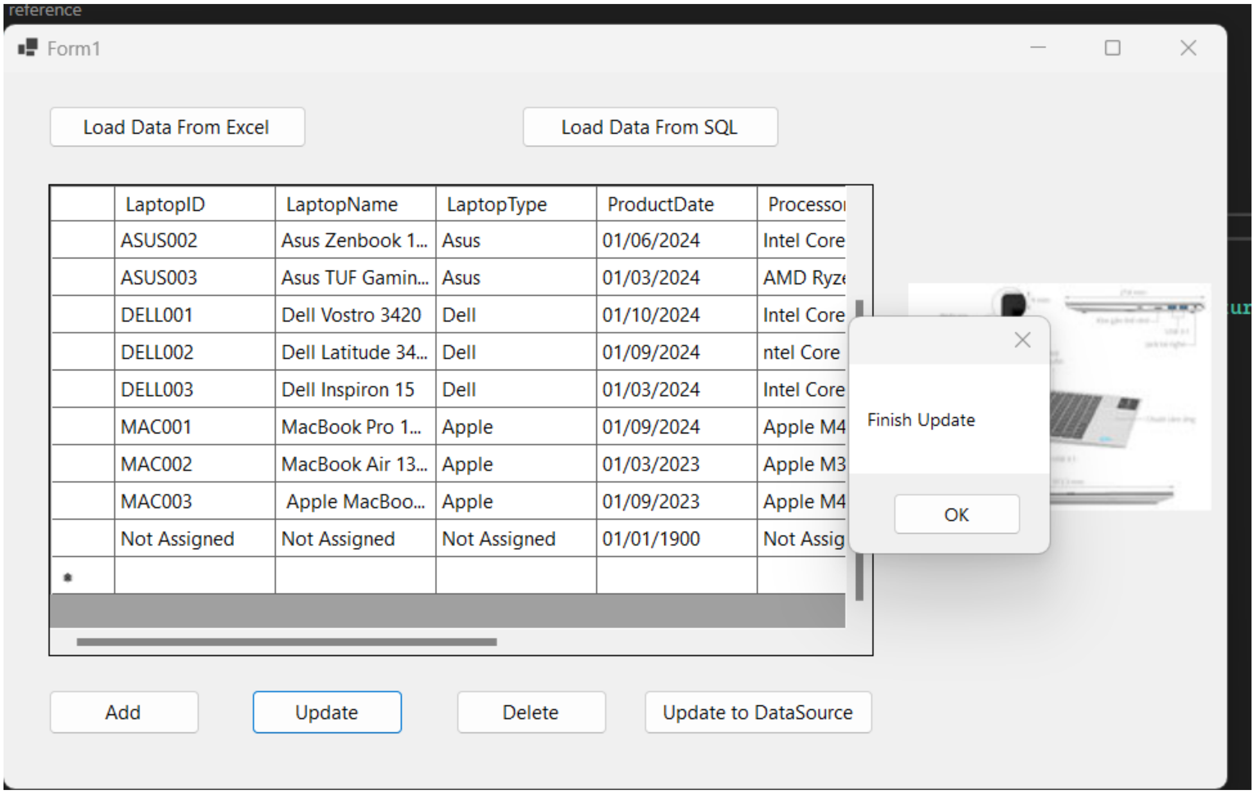
	ProductDate	Processor	HDD	RAM	Price
	01/08/2024	Intel Core i5 Al...	512GB	16GB RAM	13990kVN
	01/06/2024	Intel Core Ultra ...	512GB	16GB RAM	26390kVN
	01/03/2024	AMD Ryzen 7 - ...	1TB	16GB RAM	19990kVN
	01/10/2024	Intel Core i5 Al...	2TB	8GB RAM	13990kVN
	01/09/2024	ntel Core i5 Ald...	1TB	16GB RAM	16990kVN
	01/03/2024	Intel Core i7 Ra...	512GB	16GB RAM	21490kVN
	01/09/2024	Apple M4 Pro	512GB	24GB RAM	49990kVN
	01/03/2023	Apple M3	256GB	16GB RAM	28690kVN
	01/09/2023	Apple M4 Max	1TB	36GB RAM	93790kVN
▶	01/01/1900	Not Assigned	Not Assigned	Not Assigned	0kVND
*					

Finish Delete

c. Sửa



```
1 reference
private void btnUpdate_Click(object sender, EventArgs e)
{
    DataRow row;
    for (int i = 0; i < datatable.Rows.Count; i++)
    {
        row = datatable.Rows[i];

        SPList[i].LaptopID = row["LaptopID"].ToString();
        SPList[i].LaptopName = row["LaptopName"].ToString();
        SPList[i].LaptopType = row["LaptopType"].ToString();
        SPList[i].ProductDate = DateTime.ParseExact(row["ProductDate"].ToString(), "dd/MM/yyyy", CultureInfo.InvariantCulture);

        SPList[i].Processor = row["Processor"].ToString();
        SPList[i].HDD = row["HDD"].ToString();
        SPList[i].RAM = row["RAM"].ToString();
        string sPrice = row["Price"].ToString();

        // Bo chu kVND phia sau

        // Kiểm tra nếu chuỗi có chứa "kVND" và cắt bỏ phần đó
        if (sPrice.Contains("kVND"))
        {
            sPrice = sPrice.Substring(0, sPrice.IndexOf("kVND")).Trim();  // Loại bỏ "kVND"
        }

        SPList[i].Price = Convert.ToInt32(sPrice);
    }
    MessageBox.Show("Finish Update");
}
```

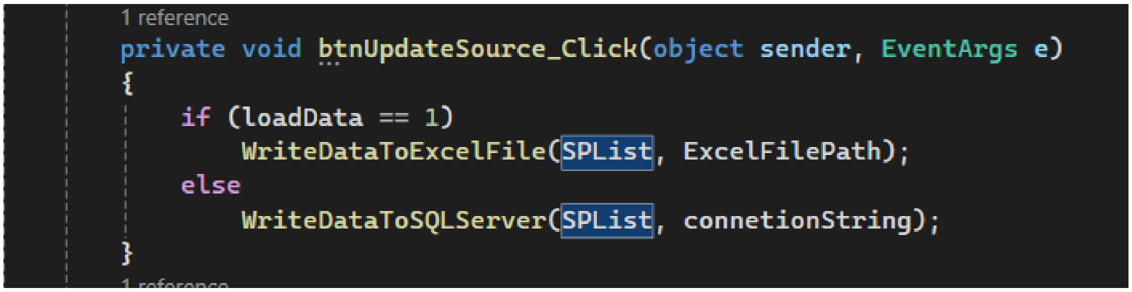


	LaptopID	LaptopName	LaptopType	ProductDate	Processoı
	ASUS002	Asus Zenbook 1...	Asus	01/06/2024	Intel Core
	ASUS003	Asus TUF Gamin...	Asus	01/03/2024	AMD Ryz
	DELL001	Dell Vostro 3420	Dell	01/10/2024	Intel Core
	DELL002	Dell Latitude 34...	Dell	01/09/2024	ntel Core
	DELL003	Dell Inspiron 15	Dell	01/03/2024	Intel Core
	MAC001	MacBook Pro 1...	Apple	01/09/2024	Apple M4
	MAC002	MacBook Air 13...	Apple	01/03/2023	Apple M3
	MAC003	Apple MacBoo...	Apple	01/09/2023	Apple M4
	Not Assigned	Not Assigned	Not Assigned	01/01/1900	Not Assig
*					

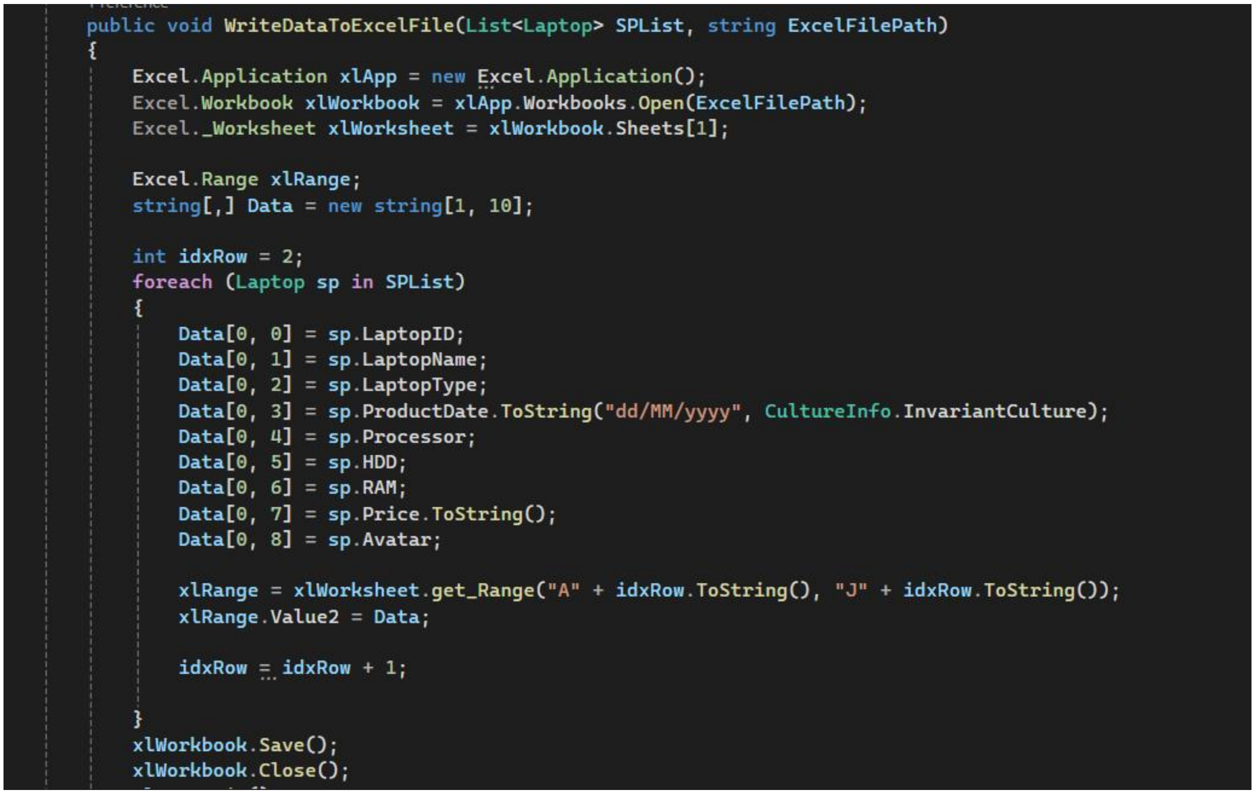
Finish Update

5. Thực hiện thao tác UpdateToSource cho cả Excel và SQL

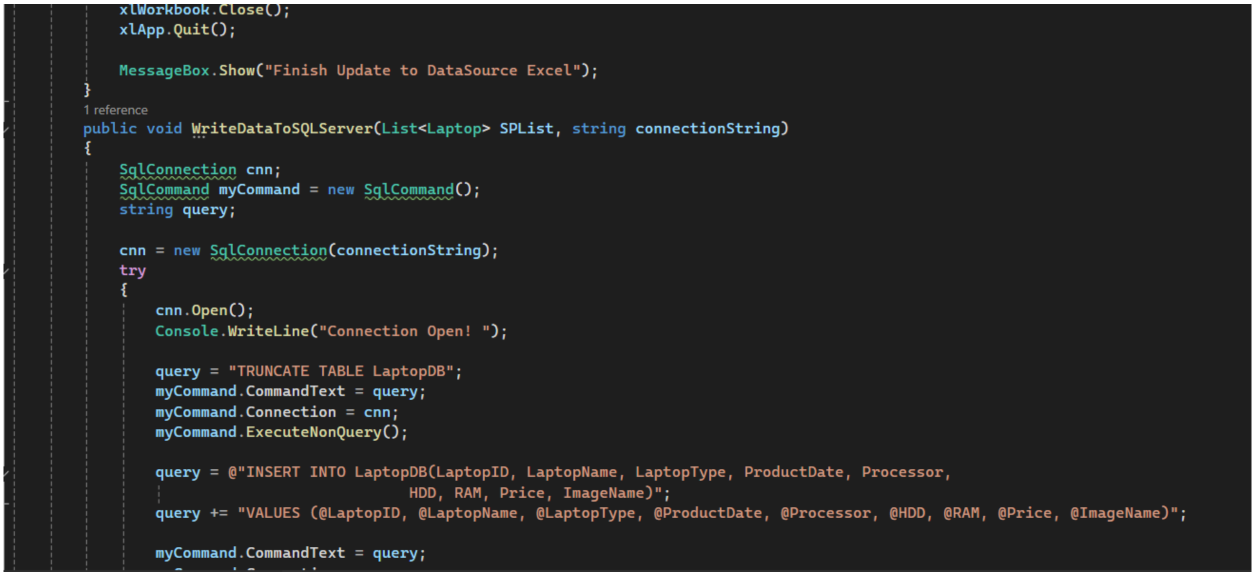
Excel



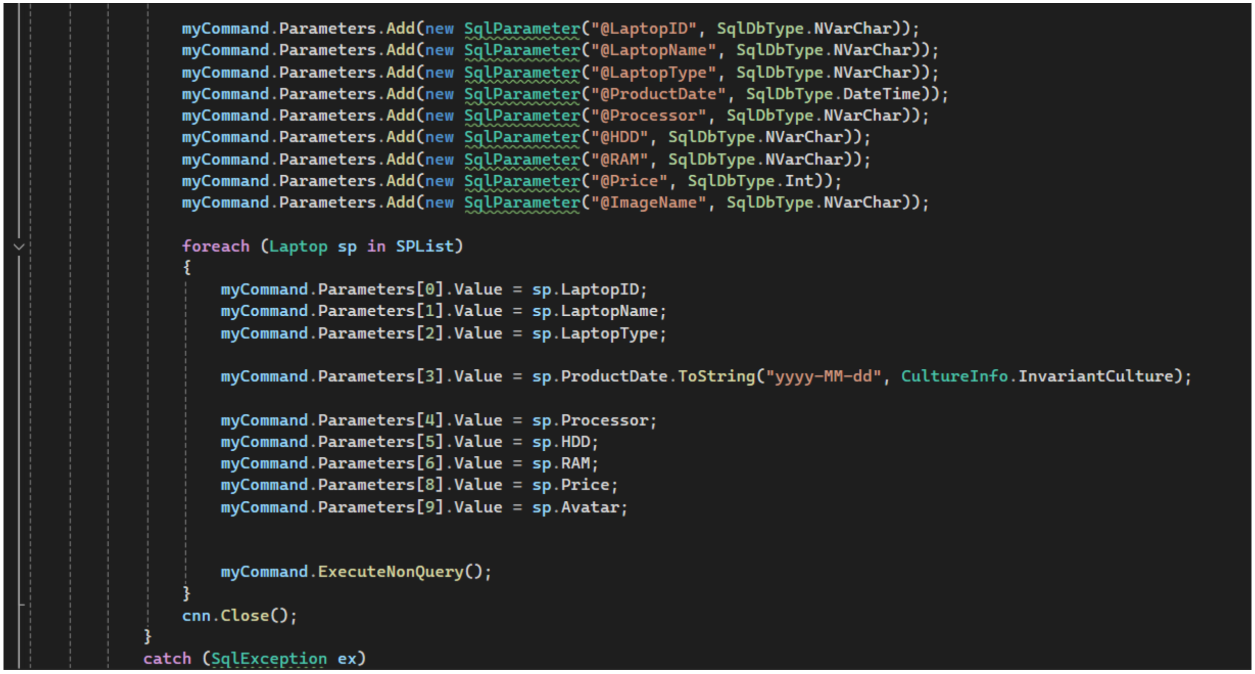
```
1 reference
private void btnUpdateSource_Click(object sender, EventArgs e)
{
    if (loadData == 1)
        WriteDataToExcelFile(SPList, ExcelFilePath);
    else
        WriteDataToSQLServer(SPList, connetionString);
}
1 reference
```



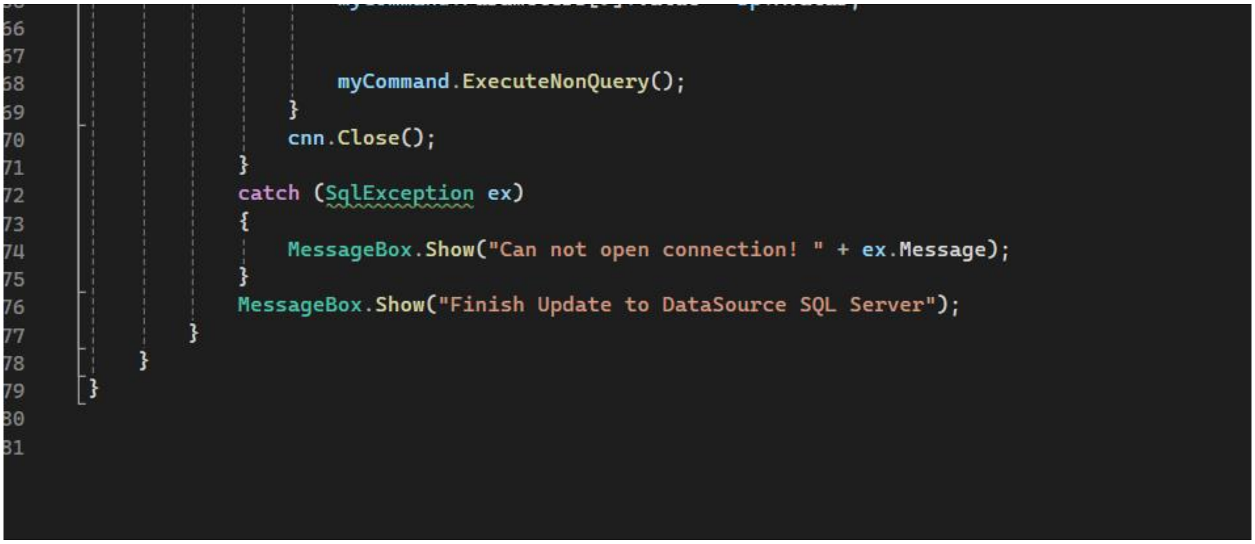
```
public void WriteDataToExcelFile(List<Laptop> SPList, string ExcelFilePath)
{
    Excel.Application xlApp = new Excel.Application();
    Excel.Workbook xlWorkbook = xlApp.Workbooks.Open(ExcelFilePath);
    Excel._Worksheet xlWorksheet = xlWorkbook.Sheets[1];

    Excel.Range xlRange;
    string[,] Data = new string[1, 10];

    int idxRow = 2;
    foreach (Laptop sp in SPList)
    {
        Data[0, 0] = sp.LaptopID;
        Data[0, 1] = sp.LaptopName;
        Data[0, 2] = sp.LaptopType;
        Data[0, 3] = sp.ProductDate.ToString("dd/MM/yyyy", CultureInfo.InvariantCulture);
        Data[0, 4] = sp.Processor;
        Data[0, 5] = sp.HDD;
        Data[0, 6] = sp.RAM;
        Data[0, 7] = sp.Price.ToString();
        Data[0, 8] = sp.Avatar;

        xlRange = xlWorksheet.get_Range("A" + idxRow.ToString(), "J" + idxRow.ToString());
        xlRange.Value2 = Data;

        idxRow = idxRow + 1;

    }
    xlWorkbook.Save();
    xlWorkbook.Close();
```



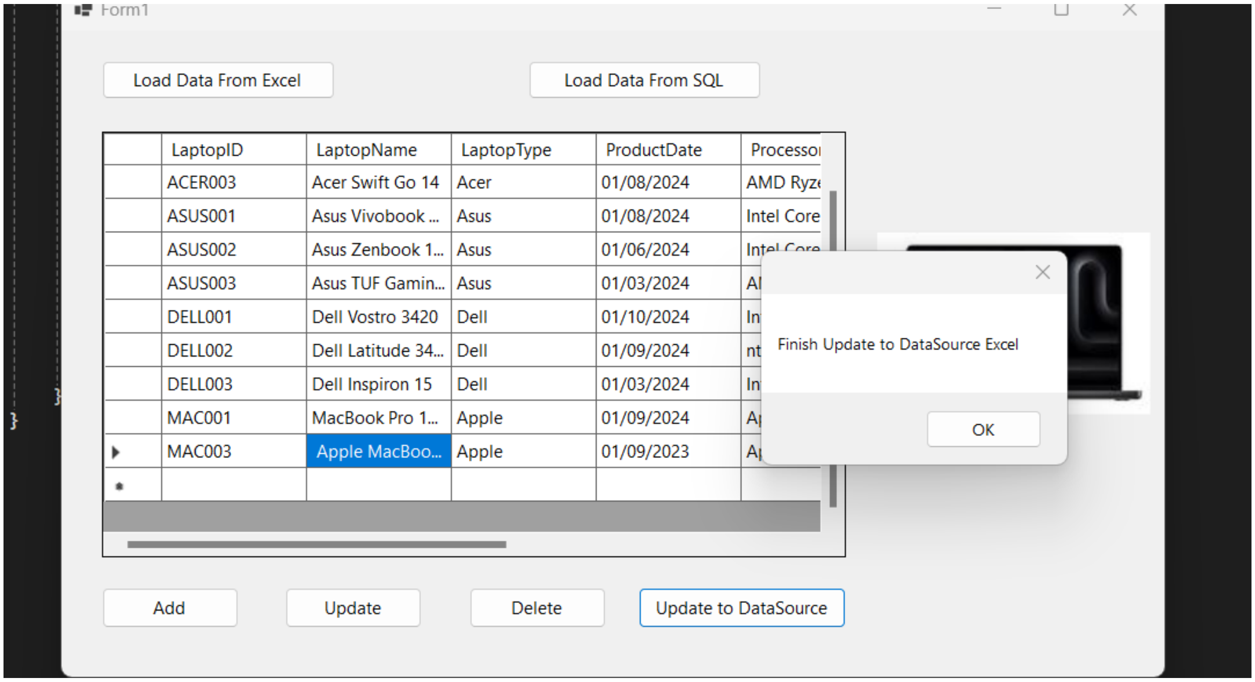
```
        xlWorkbook.Close();
        xlApp.Quit();

        MessageBox.Show("Finish Update to DataSource Excel");
    }
    1 reference
    public void WriteDataToSQLServer(List<Laptop> SPList, string connectionString)
    {
        SqlConnection cnn;
        SqlCommand myCommand = new SqlCommand();
        string query;

        cnn = new SqlConnection(connectionString);
        try
        {
            cnn.Open();
            Console.WriteLine("Connection Open! ");

            query = "TRUNCATE TABLE LaptopDB";
            myCommand.CommandText = query;
            myCommand.Connection = cnn;
            myCommand.ExecuteNonQuery();

            query = @"INSERT INTO LaptopDB(LaptopID, LaptopName, LaptopType, ProductDate, Processor,
                                    HDD, RAM, Price, ImageName)";
            query += "VALUES (@LaptopID, @LaptopName, @LaptopType, @ProductDate, @Processor, @HDD, @RAM, @Price, @ImageName)";

            myCommand.CommandText = query;
```



```
            myCommand.Parameters.Add(new SqlParameter("@LaptopID", SqlDbType.NVarChar));
            myCommand.Parameters.Add(new SqlParameter("@LaptopName", SqlDbType.NVarChar));
            myCommand.Parameters.Add(new SqlParameter("@LaptopType", SqlDbType.NVarChar));
            myCommand.Parameters.Add(new SqlParameter("@ProductDate", SqlDbType.DateTime));
            myCommand.Parameters.Add(new SqlParameter("@Processor", SqlDbType.NVarChar));
            myCommand.Parameters.Add(new SqlParameter("@HDD", SqlDbType.NVarChar));
            myCommand.Parameters.Add(new SqlParameter("@RAM", SqlDbType.NVarChar));
            myCommand.Parameters.Add(new SqlParameter("@Price", SqlDbType.Int));
            myCommand.Parameters.Add(new SqlParameter("@ImageName", SqlDbType.NVarChar));

            foreach (Laptop sp in SPList)
            {
                myCommand.Parameters[0].Value = sp.LaptopID;
                myCommand.Parameters[1].Value = sp.LaptopName;
                myCommand.Parameters[2].Value = sp.LaptopType;

                myCommand.Parameters[3].Value = sp.ProductDate.ToString("yyyy-MM-dd", CultureInfo.InvariantCulture);

                myCommand.Parameters[4].Value = sp.Processor;
                myCommand.Parameters[5].Value = sp.HDD;
                myCommand.Parameters[6].Value = sp.RAM;
                myCommand.Parameters[8].Value = sp.Price;
                myCommand.Parameters[9].Value = sp.Avatar;


                myCommand.ExecuteNonQuery();
            }
            cnn.Close();
        }
        catch (SqlException ex)
```



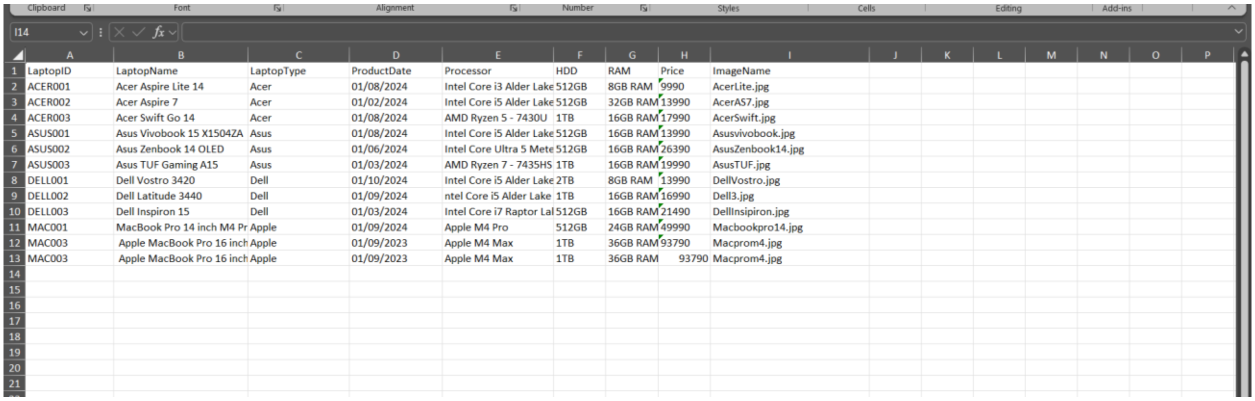
```
                        myCommand.ExecuteNonQuery();
                    }
                    cnn.Close();
                }
                catch (SqlException ex)
                {
                    MessageBox.Show("Can not open connection! " + ex.Message);
                }
                MessageBox.Show("Finish Update to DataSource SQL Server");
            }
        }
    }
```



	LaptopID	LaptopName	LaptopType	ProductDate	Processor
	ACER003	Acer Swift Go 14	Acer	01/08/2024	AMD Ryz
	ASUS001	Asus Vivobook ...	Asus	01/08/2024	Intel Core
	ASUS002	Asus Zenbook 1...	Asus	01/06/2024	Intel Core
	ASUS003	Asus TUF Gamin...	Asus	01/03/2024	Al
	DELL001	Dell Vostro 3420	Dell	01/10/2024	In
	DELL002	Dell Latitude 34...	Dell	01/09/2024	nt
	DELL003	Dell Inspiron 15	Dell	01/03/2024	In
	MAC001	MacBook Pro 1...	Apple	01/09/2024	Ap
▶	MAC003	Apple MacBoo...	Apple	01/09/2023	Ap
*					

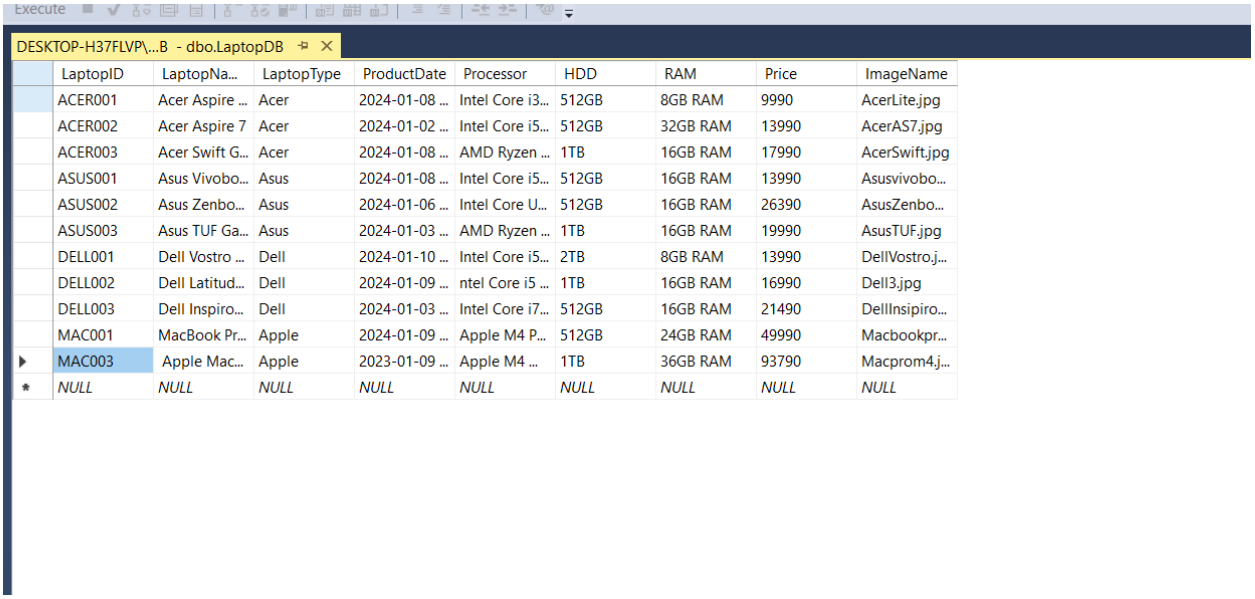
Finish Update to DataSource Excel

Sau khi xóa MAC002, file excel khi này



LaptopID	LaptopName	LaptopType	ProductDate	Processor	HDD	RAM	Price	ImageName
ACER001	Acer Aspire Lite 14	Acer	01/08/2024	Intel Core i3 Alder Lake	512GB	8GB RAM	9990	AcerLite.jpg
ACER002	Acer Aspire 7	Acer	01/02/2024	Intel Core i5 Alder Lake	512GB	32GB RAM	13990	AcerAS7.jpg
ACER003	Acer Swift Go 14	Acer	01/08/2024	AMD Ryzen 5 - 7430U	1TB	16GB RAM	17990	AcerSwift.jpg
ASUS001	Asus Vivobook 15 X1504ZA	Asus	01/08/2024	Intel Core i5 Alder Lake	512GB	16GB RAM	13990	Asusvivobook.jpg
ASUS002	Asus Zenbook 14 OLED	Asus	01/06/2024	Intel Core Ultra 5 Mete	512GB	16GB RAM	26390	AsusZenbook14.jpg
ASUS003	Asus TUF Gaming A15	Asus	01/03/2024	AMD Ryzen 7 - 7435HS	1TB	16GB RAM	19990	AsusTUF.jpg
DELL001	Dell Vostro 3420	Dell	01/10/2024	Intel Core i5 Alder Lake	2TB	8GB RAM	13990	DellVostro.jpg
DELL002	Dell Latitude 3440	Dell	01/09/2024	ntel Core i5 Alder Lake	1TB	16GB RAM	16990	Dell3.jpg
DELL003	Dell Inspiron 15	Dell	01/03/2024	Intel Core i7 Raptor Lal	512GB	16GB RAM	21490	DellInsipiron.jpg
MAC001	MacBook Pro 14 inch M4 Pr	Apple	01/09/2024	Apple M4 Pro	512GB	24GB RAM	49990	Macbookpro14.jpg
MAC003	Apple MacBook Pro 16 inch	Apple	01/09/2023	Apple M4 Max	1TB	36GB RAM	93790	Macprom4.jpg
MAC003	Apple MacBook Pro 16 inch	Apple	01/09/2023	Apple M4 Max	1TB	36GB RAM	93790	Macprom4.jpg

Và file SQL



LaptopID	LaptopNa...	LaptopType	ProductDate	Processor	HDD	RAM	Price	ImageName
ACER001	Acer Aspire ...	Acer	2024-01-08 ...	Intel Core i3...	512GB	8GB RAM	9990	AcerLite.jpg
ACER002	Acer Aspire 7	Acer	2024-01-02 ...	Intel Core i5...	512GB	32GB RAM	13990	AcerAS7.jpg
ACER003	Acer Swift G...	Acer	2024-01-08 ...	AMD Ryzen ...	1TB	16GB RAM	17990	AcerSwift.jpg
ASUS001	Asus Vivobo...	Asus	2024-01-08 ...	Intel Core i5...	512GB	16GB RAM	13990	Asusvivobo...
ASUS002	Asus Zenbo...	Asus	2024-01-06 ...	Intel Core U...	512GB	16GB RAM	26390	AsusZenbo...
ASUS003	Asus TUF Ga...	Asus	2024-01-03 ...	AMD Ryzen ...	1TB	16GB RAM	19990	AsusTUF.jpg
DELL001	Dell Vostro ...	Dell	2024-01-10 ...	Intel Core i5...	2TB	8GB RAM	13990	DellVostro.j...
DELL002	Dell Latitud...	Dell	2024-01-09 ...	ntel Core i5 ...	1TB	16GB RAM	16990	Dell3.jpg
DELL003	Dell Inspiro...	Dell	2024-01-03 ...	Intel Core i7...	512GB	16GB RAM	21490	DellInsipiro...
MAC001	MacBook Pr...	Apple	2024-01-09 ...	Apple M4 P...	512GB	24GB RAM	49990	Macbookpr...
MAC003	Apple Mac...	Apple	2023-01-09 ...	Apple M4 ...	1TB	36GB RAM	93790	Macprom4.j...
NULL	*NULL*	*NULL*	*NULL*	*NULL*	*NULL*	*NULL*	*NULL*	*NULL*