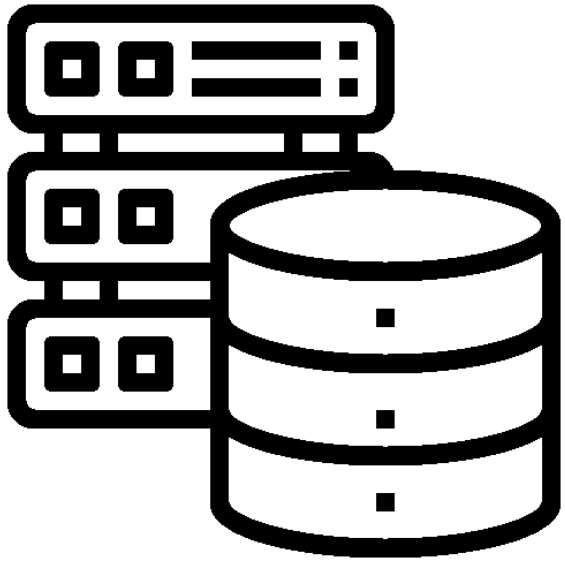

E-COMMERCE SHOP DATABASE

CSE333: DATABASE SYSTEMS MAJOR TASK

ID	NAME
17P6062	AbdulRahman Essam Sayed Heikal
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Table of Contents

Introduction

Sellers' platform, buyers (customers) platform. It will help shops (especially small shops) to provide their products online and to be known, which will boost our local economy.

The application will have a database containing the products, shops and costumers.

The application's main features are:

- Facilitate buying and selling products
- Provide products with the best prices
- Encourage competition between shops on the application
- Provide exposure to smaller shops by giving them a platform

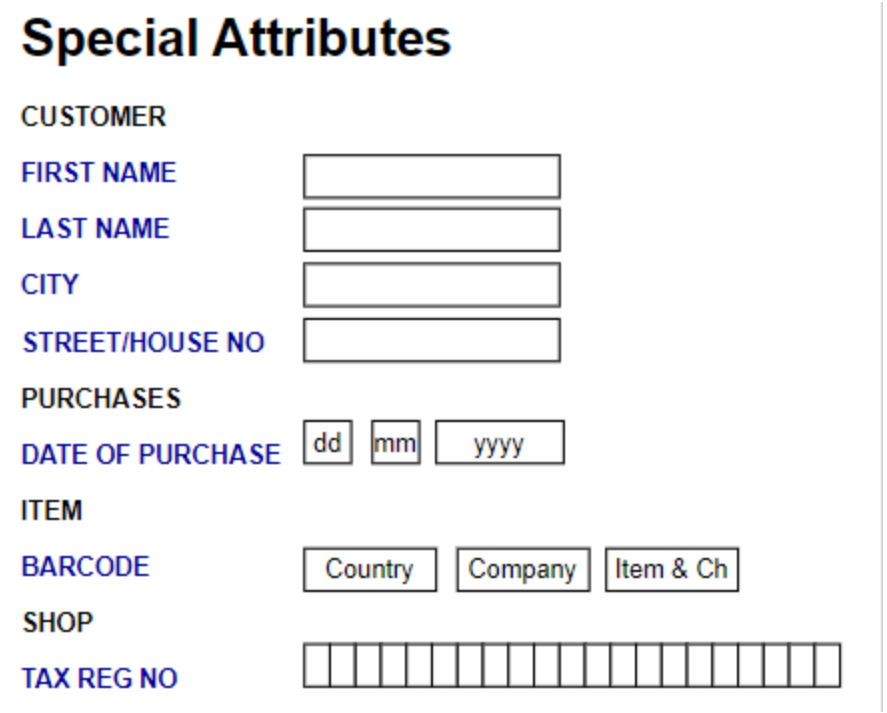
Systems Analysis

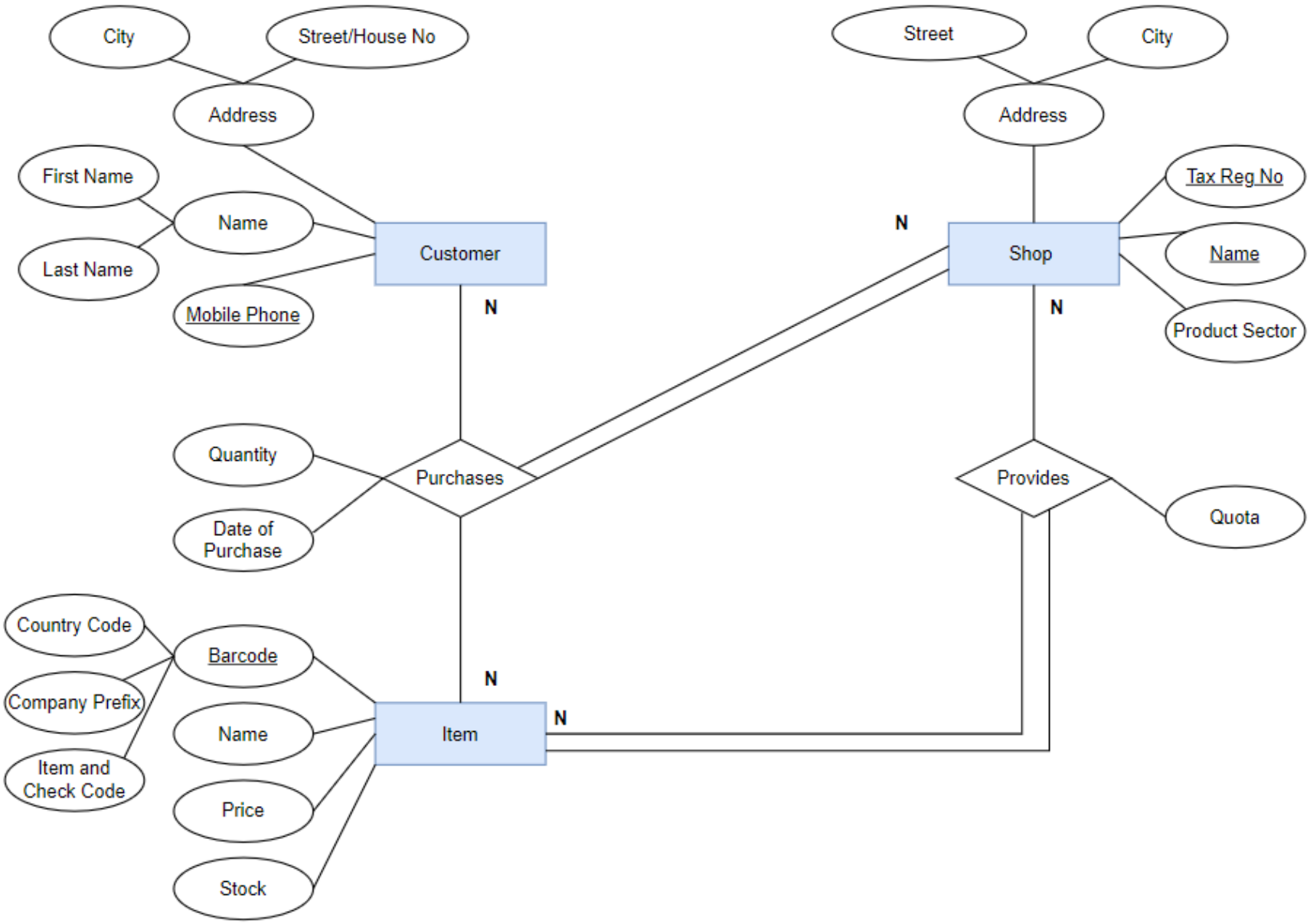
ENTITIES DATA:

1. CUSTOMER: **Mobile Phone** / Name/ Address in full (Only in Egypt) / Total amount paid on website / TOTAL PAID ON WEBSITE = (SUM)TOTAL AMT OF EACH ITEM
2. SHOP: **Tax Reg Number** / **Name** / Product Sector / Address in full
3. ITEM: Name / **Barcode** / Price / Stock

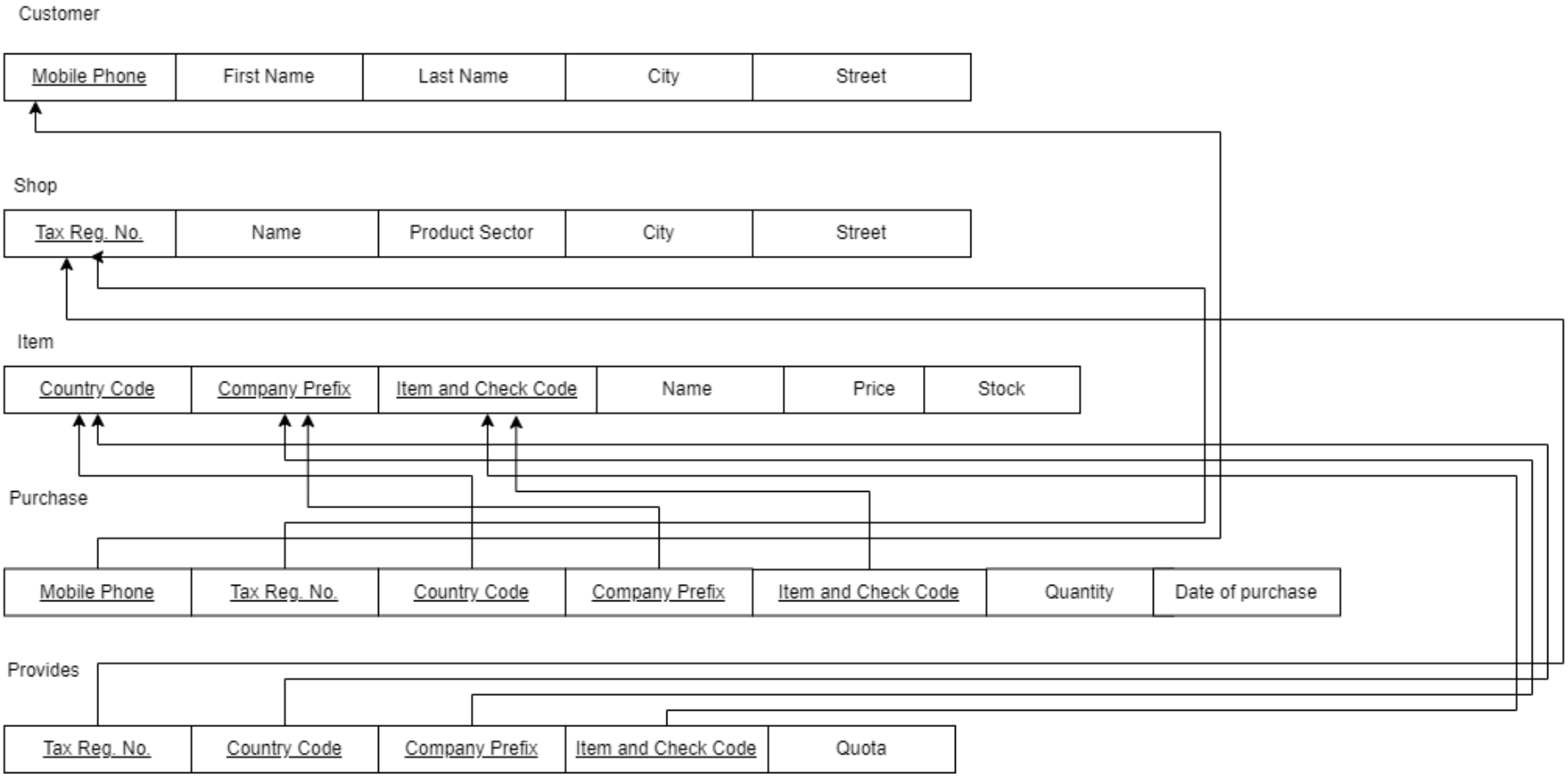
RELATIONS DATA:

1. CUSTOMER PURCHASES ITEMS: Quantity / Date of Purchase
   PURCHASED: Total Amount = Quantity Purchased*Price
2. CUSTOMER can have many orders from different shops at the same time
3. SHOP PROVIDES a specific QUOTA of ITEMS
   QUOTA is supplied at 1st day of each month
   STOCK OF ITEM fluctuates at any time of the month
4. Every ITEM is supplied by N SHOPS. Each SHOP may or may not PROVIDE many ITEMS
5. ITEMS ARE BOUGHT BY CUSTOMER: not every ITEM / not every CUSTOMER




City
Street/House No
Address
First Name
Name
Last Name
Mobile Phone
Customer
N
Street
City
Address
Tax Reg No
Name
Product Sector
Shop
N
N
Quantity
Purchases
Date of Purchase
Provides
Quota
Country Code
Barcode
Company Prefix
Item and Check Code
Name
Price
Stock
Item
N
N

Relational Model



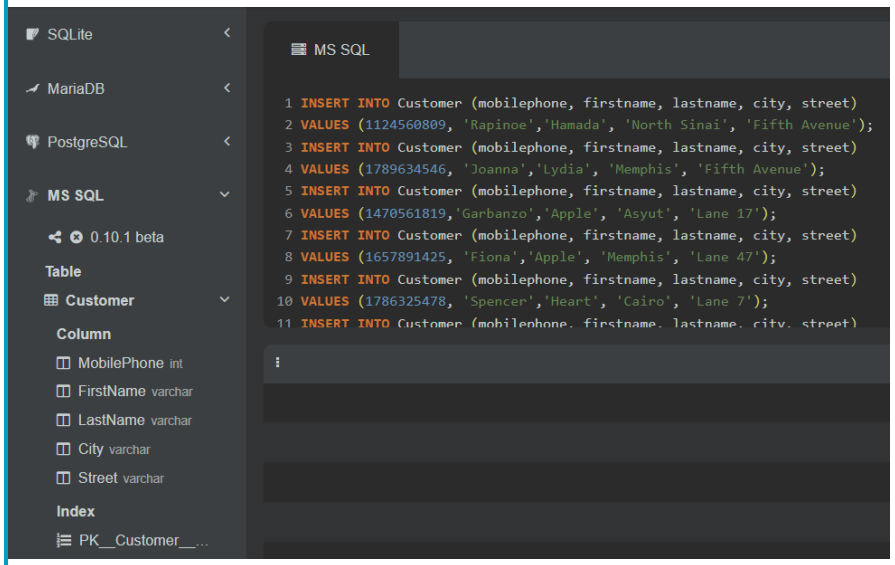
Database Implementation

SQL CODE: CREATION OF TABLES

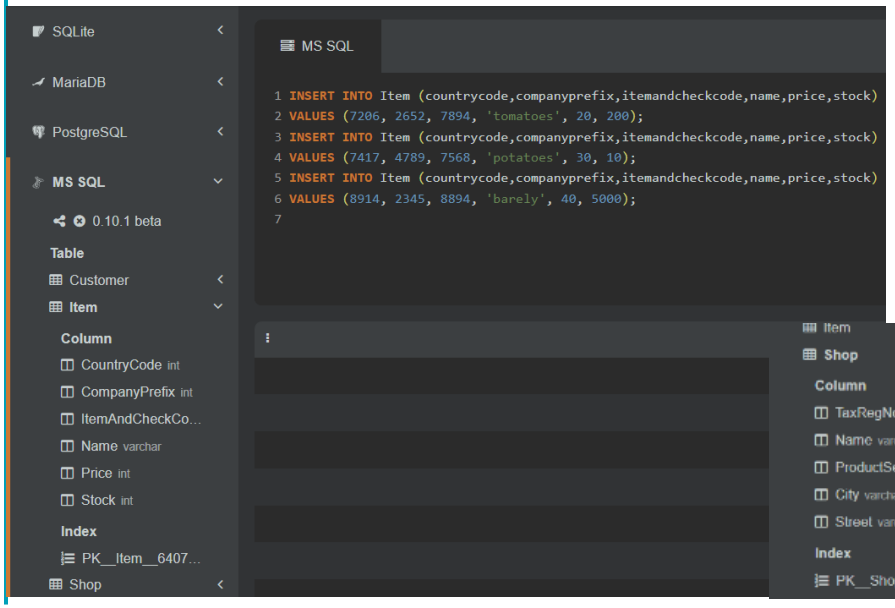
```
create table Customer
(
	MobilePhone INT NOT NULL,
	FirstName VARCHAR(64) NOT NULL,
	LastName VARCHAR(64) NOT NULL,
	City VARCHAR(64) NOT NULL,
	Street VARCHAR(64) NOT NULL,
	PRIMARY KEY (MobilePhone)
);

create table Shop
(
	TaxRegNo INT NOT NULL,
	Name VARCHAR(64) NOT NULL,
	ProductSector VARCHAR(64) NOT NULL,
	City VARCHAR(64) NOT NULL,
	Street VARCHAR(64) NOT NULL,
	PRIMARY KEY (TaxRegNo)
);

create table Item
(
	CountryCode INT NOT NULL,
	CompanyPrefix INT NOT NULL,
	ItemAndCheckCode INT NOT NULL,
	Name VARCHAR(64) NOT NULL,
	Price INT NOT NULL,
	Stock INT NOT NULL,
	PRIMARY KEY (CountryCode, CompanyPrefix,ItemAndCheckCode)
);
```

```
create table Purchase
(
        MobilePhone INT NOT NULL,
        TaxRegNo INT NOT NULL,
        CountryCode INT NOT NULL,
        CompanyPrefix INT NOT NULL,
        ItemAndCheckCode INT NOT NULL,
        Quantity INT NOT NULL,
        DateOfPurchase DATE NOT NULL,
        PRIMARY KEY (MobilePhone, TaxRegNo, CountryCode, CompanyPrefix,ItemAndCheckCode),
        FOREIGN KEY (MobilePhone) REFERENCES Customer(MobilePhone),
        FOREIGN KEY (TaxRegNo) REFERENCES Shop(TaxRegNo),
        FOREIGN KEY (CountryCode) REFERENCES Item(CountryCode),
        FOREIGN KEY (ItemAndCheckCode) REFERENCES Item(ItemAndCheckCode),
        FOREIGN KEY (CompanyPrefix) REFERENCES Item(CompanyPrefix)
);

create table Provides
(
        TaxRegNo INT NOT NULL,
        CountryCode INT NOT NULL,
        CompanyPrefix INT NOT NULL,
        ItemAndCheckCode INT NOT NULL,
        Quota INT NOT NULL,
        PRIMARY KEY (TaxRegNo, CountryCode, CompanyPrefix,ItemAndCheckCode),
        FOREIGN KEY (TaxRegNo) REFERENCES Shop(TaxRegNo),
        FOREIGN KEY (CountryCode) REFERENCES Item(CountryCode),
        FOREIGN KEY (ItemAndCheckCode) REFERENCES Item(ItemAndCheckCode),
        FOREIGN KEY (CompanyPrefix) REFERENCES Item(CompanyPrefix)
);
```

SQL CODE: INSERTION OF DATA



MobilePhone	FirstName	LastName	City	Street
1023567418	John	Smith	Giza	Fifth Avenue
1026066666	Wan	Yu	Cairo	Lane 47
1124560809	Rapinoe	Hamada	North Sinai	Fifth Avenue
1470561819	Garbanzo	Apple	Asyut	Lane 17
1471560022	Pierre	Kamel	Cairo	Lane 25
1657891425	Fiona	Apple	Memphis	Lane 47
1786325478	Spencer	Heart	Cairo	Lane 7
1789479632	Uleus	Ahmed	Suez	Lane 177
1789634546	Joanna	Lydia	Memphis	Fifth Avenue

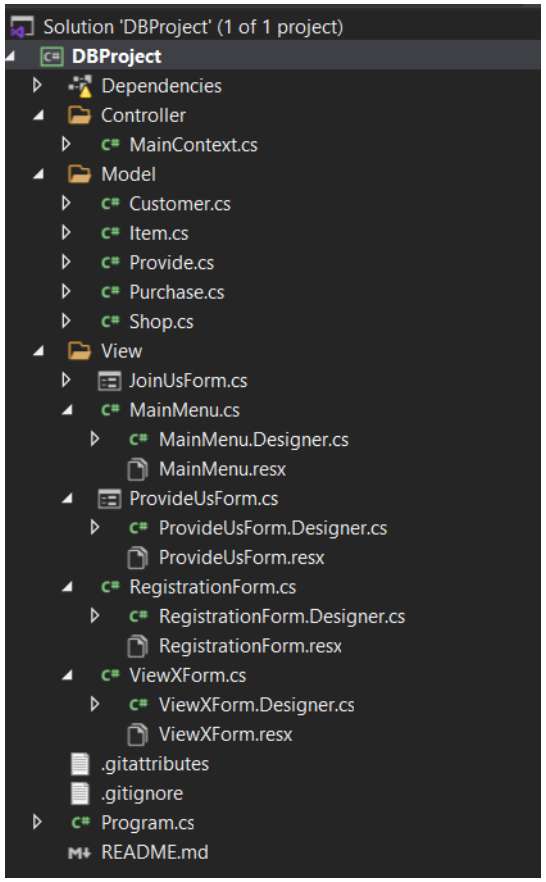


CountryCode	CompanyPrefix	ItemAndCheckCo...	Name	Price	Stock
7206	2652	7894	tomatoes	20	200
7417	4789	7568	potatoes	30	10
8914	2345	8894	barely	40	5000

TaxRegNo	Name	ProductSector	City	Street
3692	Happy Farm	Veggies	Memphis	Lnae 90
4895	WINNING	Veggies	Cairo	As Sarayat
7206	No Name	Grains	Memphis	Lane 17

Application Implementation

DATA ENTRY FORMS FOR TABLES




```
using DBProject.Model;

namespace DBProject.Controller
{
    10 references
    public class MainContext : DbContext
    {
        ////////////////////////////////////////////////////
        1 reference
        public DbSet<Customer> Customers { get; set; }
        1 reference
        public DbSet<Shop> Shops { get; set; }
        1 reference
        public DbSet<Item> Items { get; set; }
        0 references
        public DbSet<Purchase> Purchases { get; set; }
        0 references
        public DbSet<Provide> Providers { get; set; }
        ////////////////////////////////////////////////////
        2 references
        public String DbPath { get; }
        8 references
        public MainContext()
        {
            DbPath = System.IO.Path.Join(Environment.CurrentDirectory, "THEDATABASE.db");
            Database.EnsureCreated();
        }
        0 references
        protected override void OnConfiguring(DbContextOptionsBuilder optionsBuilder)
        => optionsBuilder.UseSqlite($"Data Source={DbPath}");
    }
}
```

```
partial class JoinUsForm
{
    /// <summary>
    /// Required designer variable.
    /// </summary>
    private System.ComponentModel.IContainer components = null;

    /// <summary>
    /// Clean up any resources being used.
    /// </summary>
    /// <param name="disposing">true if managed resources should
    0 references
    protected override void Dispose(bool disposing)
    {
        if (disposing && (components != null))
        {
            components.Dispose();
        }
        base.Dispose(disposing);
    }

    Windows Form Designer generated code

    private TableLayoutPanel tableLayoutPanel1;
    private Label label1;
    private TextBox textBox1;
    private Label label3;
    private TextBox textBox3;
    private Label label2;
    private TextBox textBox2;
    private Label label4;
    private TextBox textBox4;
    private Label label5;
    private TextBox textBox5;
    private Button button1;
```

SAMPLE FORM CODE

REST IS GIVEN IN THE CODE ZIP ATTACHED

SAMPLE QUERY ONE

Total sales by each shop

```
SELECT SHOP.NAME, SUM(PRICE*QUANTITY) AS TOTALSALES

FROM PURCHASE, SHOP, ITEM

WHERE PURCHASE.TAXREGNO=SHOP.TAXREGNO AND
ITEM.ITEMANDCHECKCODE=PURCHASE.ITEMANDCHECKCODE

GROUPBY SHOP.NAME
```

SAMPLE QUERY TWO

Highest selling product sector

```
SELECT PRODUCTSECTOR, MAX (SALESPERSECTOR)

FROM (SELECT PRODUCTSECTOR, SUM (PRICE*QUANTITY) AS SALESPERSECTOR

        FROM SHOP, ITEM, PURCHASE

        WHERE SHOP.TAXREGNO = PURCHASE.TAXREGNO AND
        ITEM.ITEMANDCHECKCODE=PURCHASE.ITEMANDCHECKCODE

        GROUPBY PRODUCTSECTOR)
```

SAMPLE QUERY THREE

Items with 0 sales

```
SELECT ITEMANDCHECKCODE
FROM ITEM
        MINUS
SELECT DISTINCT ITEMANDCHECKCODE
FROM PURCHASE
```