# Ankara University

# Faculty of Engineering

# Department of Computer Engineering



# BLM4531 Project Report

# Cargo Management System

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# Abstract

Cargo Management System is a platform that helps both customers and employees of some cargo service.It has an interface available for customers that enables them to trace their cargo or to get an estimated price in case they want to send a cargo.It also contains a dashboard for employees that enables them to create, update and delete cargoes and users and perform some other operations.

In the construction of the website we used Asp.net which is an open source web framework,created by Microsoft,for building modern web apps and services with .NET and it is powerful.In this framework we write the code using c# programming language.And we also used MS-SQL which is Relational Database Management System(RDBMS) developed by Microsoft.

We talk more in details about the technologies,programming languages and tools we used in this project in the introduction chapter.

# Contents

# 1. Introduction

## 1.1 Quick overview of the project

Cargo Management System as mentioned earlier is a platform that helps both customers and employees of some cargo service.So we should have two interfaces,one for customers and the other for employees. So the project is divided into two parts the first part is the normal website which everyone can reach and consists of these pages :home page ,shipment tracking and price calculator these three pages the customers(website visitors) can reach.

-the home page is for providing basic information about the company and some links

-shipment tracking page contains a form with one field and a buttton.customers enter the id of the shipment in that field so that they can view the status of the shipment

-price calculator page contains a form using which customers can calculate the estimated price of their shipment based on its height,length and weight.

That's the first part or customers part the second part of the project is the dashboard of admin and contains the following pages:

-login page

-manage employees page contains a list of all existing employees and a form to add a new employee and using that form admin can decide the role of the new user (admin -manager – employee) and when clicking on any of the existed users the admin can update the user information or delete the user only admins can reach this page

-manage shipments page admins can either add a new shipment or edit an existing one.this page is reached by admins and managers

-update shipments page in this page users can search for a shipment and update its status this page can be reached by all types of users (admins – managers – employees).

-update profile using this page user can change user name and  password and this page also can be reached by all types of  users (admins– managers – employees).

## 1.2 Quick look at the technologies used

We will use **asp.net** to develop this project.But what is asp.net. ASP.NET is an open source web framework, created by Microsoft, for building modern web apps and services with .NET.

And as we will use asp.net we need to have some knowledge in **c#** programming language as the asp.net uses that language.

We also need to have some knowledge in **HTML and CSS** as the Front-End code will be written using them.

To start the project we need an IDE.But what is an IDE?.IDE in programming stands for Integrated Development Environment.  IDE is nothing but software that provides flexibility to computer programmers for software development by providing some excellent features and tools. An IDE typically provides three main tools: Source code editing, Build automation tools, and Debugger.and as an IDE we will be using **visual studio**.

Then we need to create a database to save our data at,So we will download an **SQL server**.SQL Server is a relational database management system, or RDBMS, developed and marketed by Microsoft.Similar to other RDBMS software, SQL Server is built on top of SQL, a standard programming language for interacting with relational databases. SQL Server is tied to Transact-SQL, or T-SQL, the Microsoft's implementation of SQL that adds a set of proprietary programming constructs.

After Downloading the SQL server we need an SQL server management studio.SQL Server Management Studio (SSMS) is an integrated environment for managing any SQL infrastructure. Use SSMS to access, configure, manage, administer, and develop all components of SQL Server.For that purpose we will use **SQL server management studio 2019**.

# 2. Used technologies and tools in details

Here we will discuss the above mentioned technologies and tools in more details.

## 2.1 Visual studio

To start the project we need to install visual studio.Microsoft Visual Studio is an IDE made by Microsoft and used for different types of software development such as computer programs,website,web apps,web services and mobile apps.

It contains completion tools,compilers and other features to facilitate the software development process.

Visual studio has many benefits like: Accurate coding,Quick debugging,Rigorous testing,team collaboration and Customization options.

We can download visual studio from the following link https://visualstudio.microsoft.com/downloads/ and from there we can choose the latest version that fits our operating system. After we download visual studio we create new project and we choose asp.net web application (.net framework).
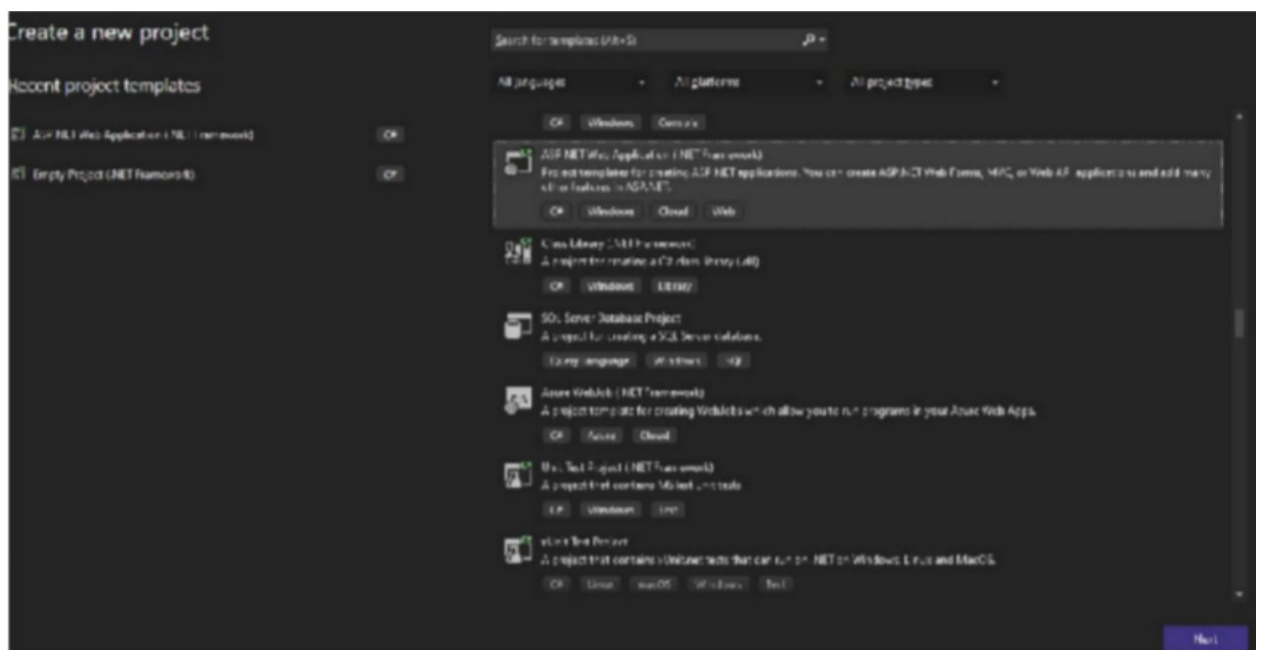


Figure 2.1 creating new project

## 2.2 Project's pages

After creating an empty project we will can now create our pages like the following.
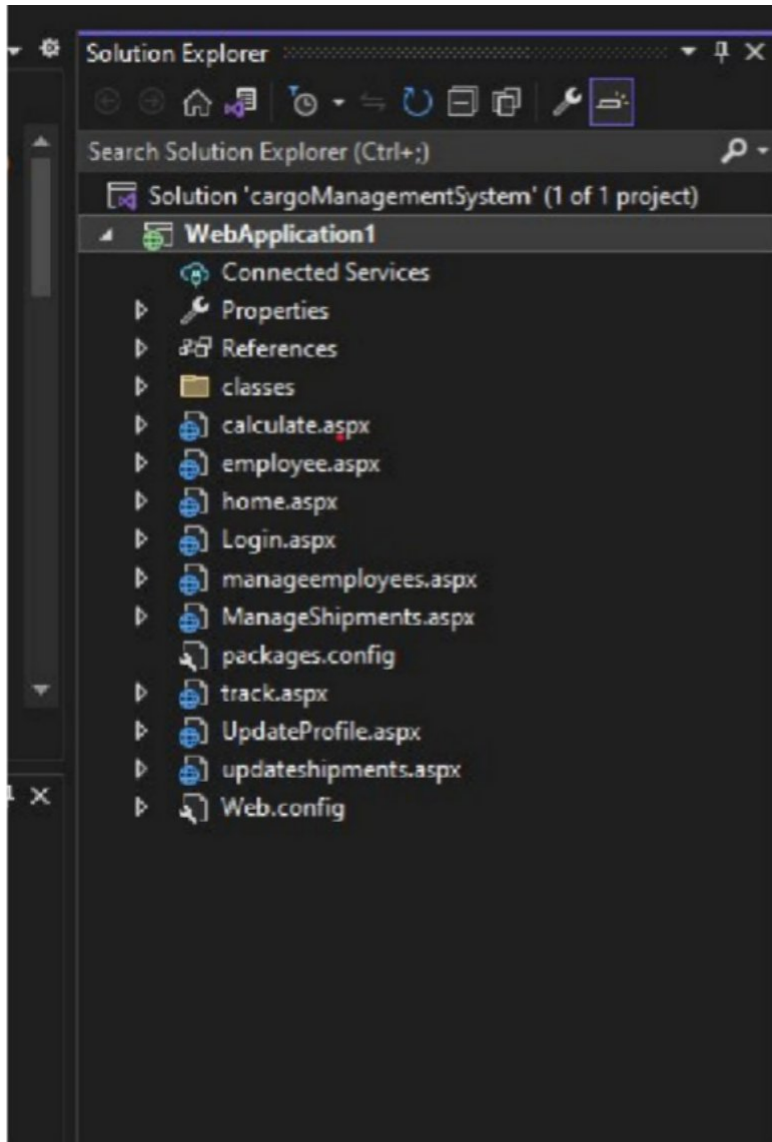


Figure 2.2  project pages

within the pages we created is the class SQL connection class which we will use to establish connection with the database.So next we are going to create the database.

## 2.3 SQL Server

 We need a database to store our data at.But what is a database?.A database is an organized collection of structured information, or data, typically stored electronically in a computer system. A database is usually controlled by a database management system (DBMS). Together, the data and the DBMS, along with the applications that are associated with them, are referred to as a database system, often shortened to just database.

  Data within the most common types of databases in operation today is typically modeled in rows and columns in a series of tables to make processing and data querying efficient. The data can then be easily accessed, managed, modified, updated, controlled, and organized. Most databases use structured query language (SQL) for writing and querying data.SQL is a programming language designed to manage data stored in a relational database management system (RDBMS).

  we need to install some database management system.So we install SQL Server which is a relational database management system, or RDBMS, developed and marketed by Microsoft.

  We can download SQL server from the following link https://www.microsoft.com/tr-tr/sql-server/sql-server-downloads

## 2.4 SQL Server Management Studio

SQL Server Management Studio (SSMS) is an integrated environment for managing any SQL infrastructure, from SQL Server to Azure SQL Database.SSMS provides tools to configure,monitor,and administer instances of SQL Server and databases.Use SSMS to deploy, monitor, and upgrade the data-tier components used by your applications, and build queries and scripts.

We can download SQL Server Management Studio from the following link https:// l earn. microsoft. com/ en- us/ sql/ ssms/ download- sql-server- management studio-ssms?view=sql-server-ver16

Now we will open SQL Server Management Studio and create our databse.
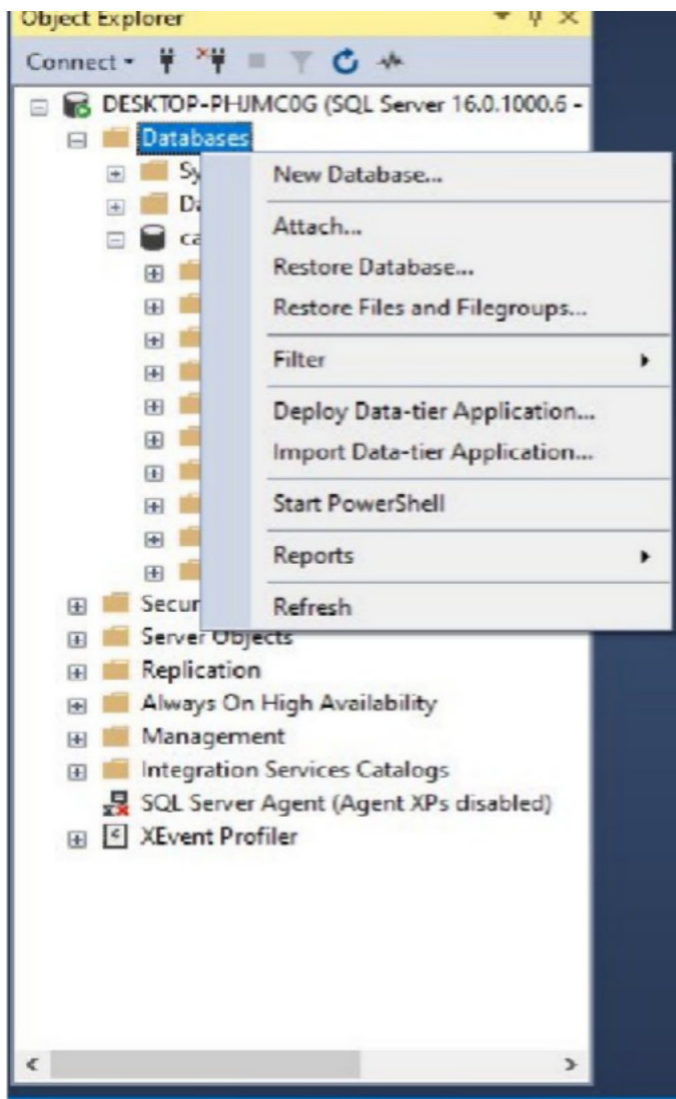


Figure 2.3 create database

Then we create the tables.
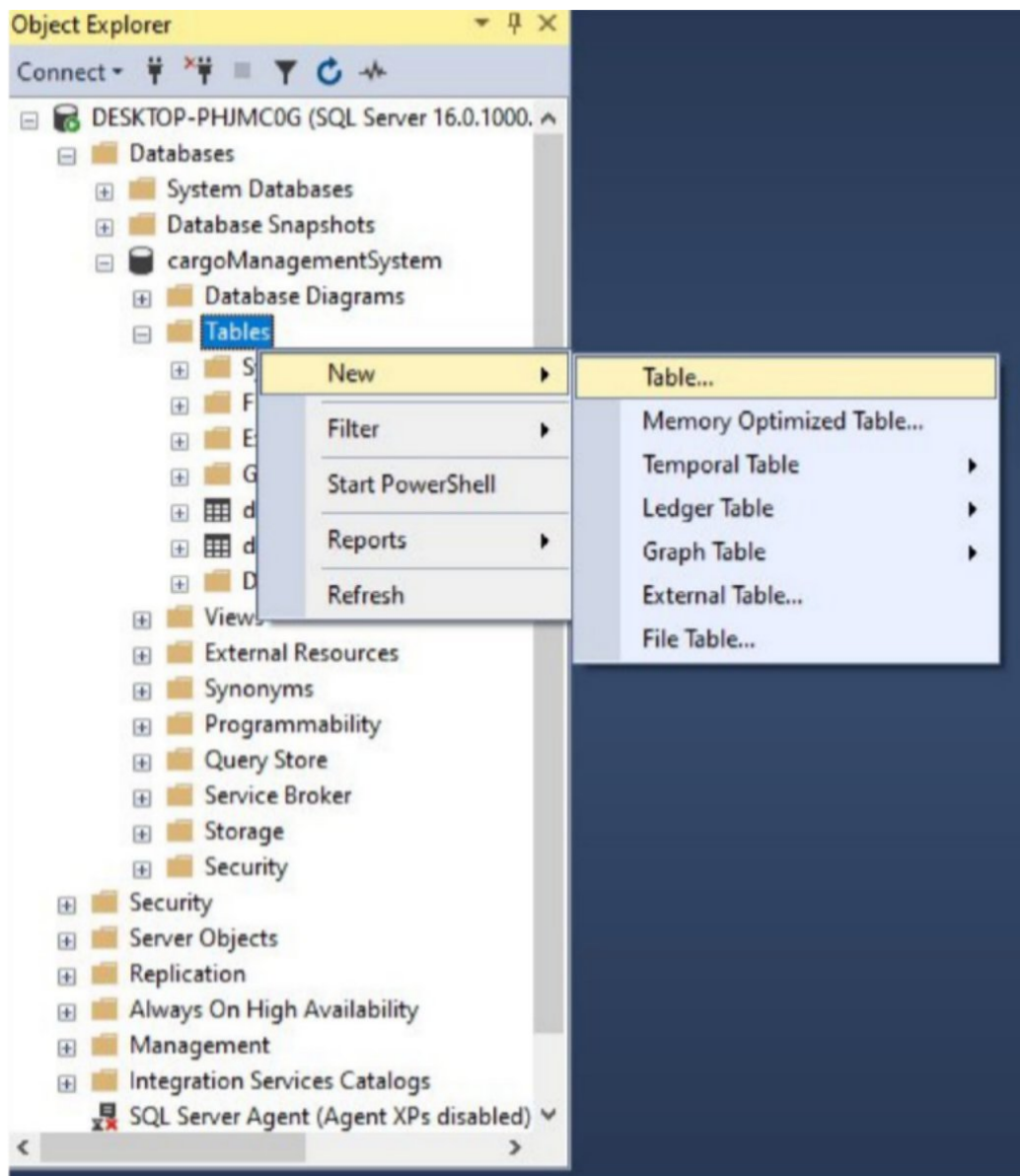


Figure 2.4 create Tables

In our case we need two tables.One for the shipments and another one for the employees with the following design as shown in figures 2.5 and 2.6 in page 8.

| DESKTOP-PHJMC0G....m - dbo.Shipment ⇄ ✕ | | |
|---|---|---|
| Column Name | Data Type | Allow Nulls |
| ▶🔑 Id | int | ☐ |
| TypeOfShipment | nvarchar(64) | ☐ |
| PackageWeight | real | ☐ |
| PackageDx | real | ☐ |
| PackageDy | real | ☐ |
| PackageDz | real | ☐ |
| Price | real | ☐ |
| SenderFirstName | nvarchar(64) | ☐ |
| SenderLastName | nvarchar(64) | ☐ |
| SenderCity | nvarchar(64) | ☐ |
| RecieverFirstName | nvarchar(64) | ☐ |
| RecieverLastName | nvarchar(64) | ☐ |
| RecieverCity | nvarchar(64) | ☐ |
| CurrentStatus | nvarchar(64) | ☐ |
| Sdate | datetime | ☑ |
| Rdate | datetime | ☑ |
| | | ☐ |

Figure 2.5 shipments table

| DESKTOP-PHJMC0G....m - dbo.employee ⇄ ✕ | DESKTOP-PHJMC0G....m - | |
|---|---|---|
| Column Name | Data Type | Allow Nulls |
| ▶🔑 Id | int | ☐ |
| LastName | nvarchar(64) | ☐ |
| FirstName | nvarchar(64) | ☐ |
| UserName | nvarchar(64) | ☐ |
| UserPassword | nvarchar(64) | ☐ |
| UserRole | nvarchar(64) | ☐ |
| | | ☐ |

Figure 2.6 employees table

## 2.5 Connecting to database

Now that we created the database we have to connect our website to it.and
that can be achieved by the following steps.
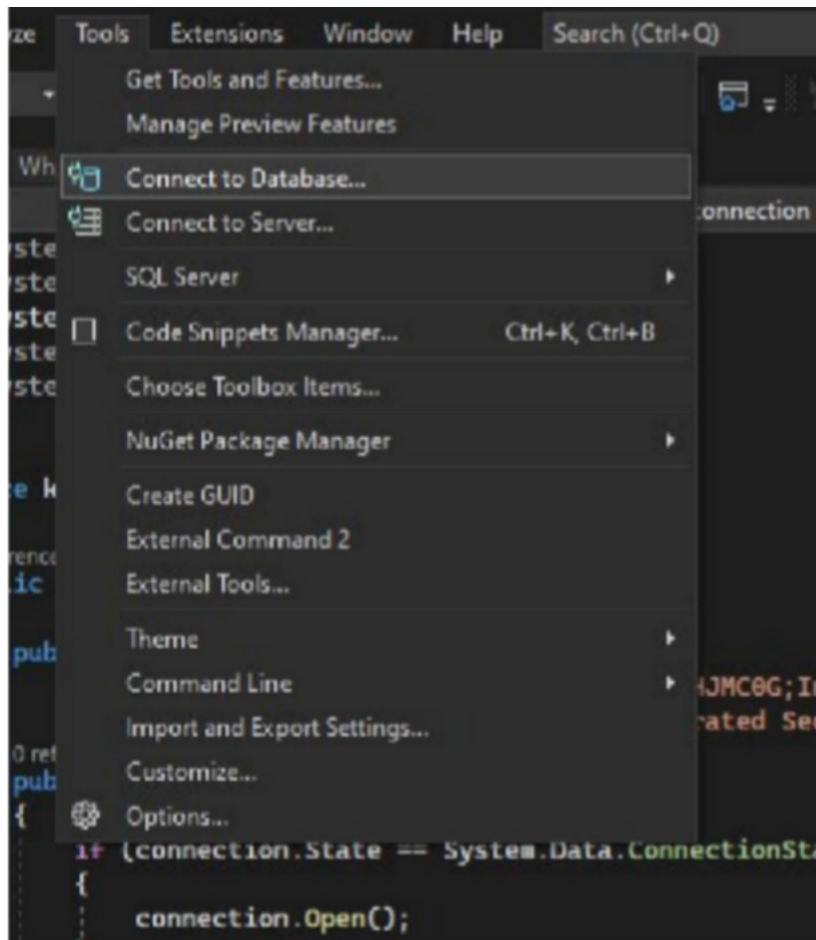


Figure 2.7 connect to database

We click on connect to database and then enter the name of the server and the
name of the database. Then we take the connection string and return to our code
and establish connection to SQL server by adding the following lines in the SQL
connection class we created earlier as shown in figure 2.8.
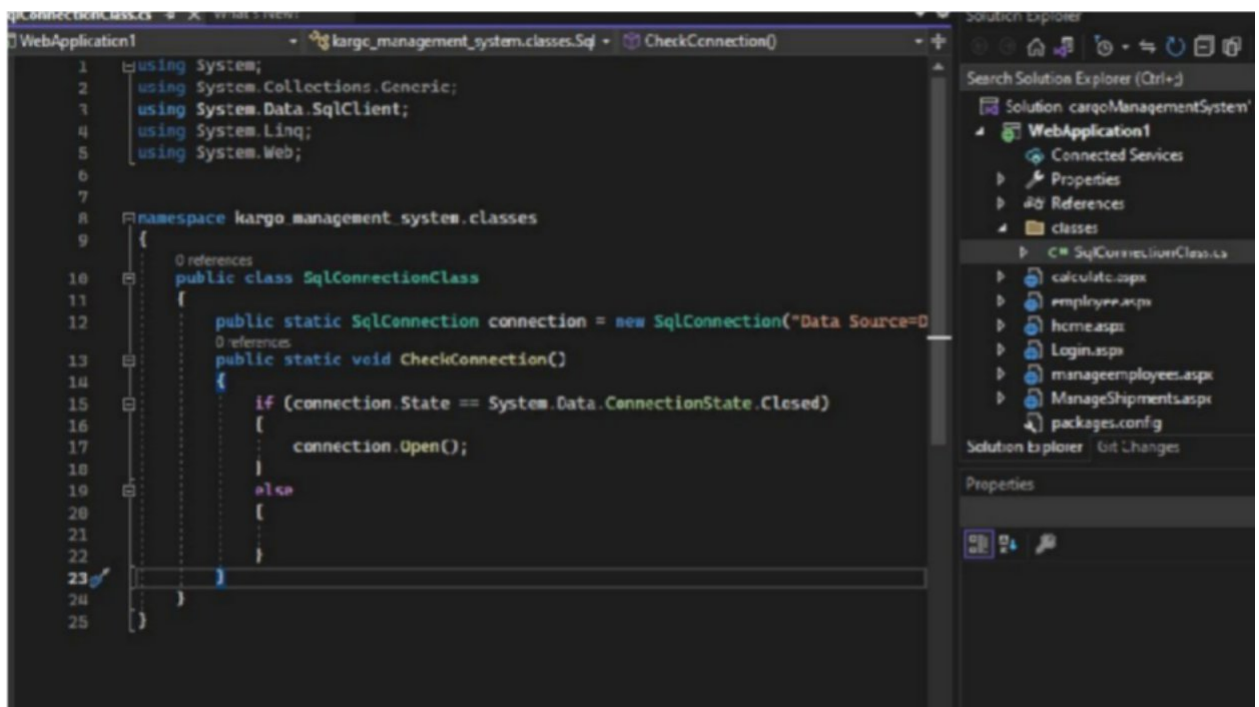
Figure 2.8 SQL connection

All done we can now code our project and add, delete and update our data using SQL commands as shown in figure 2.9.
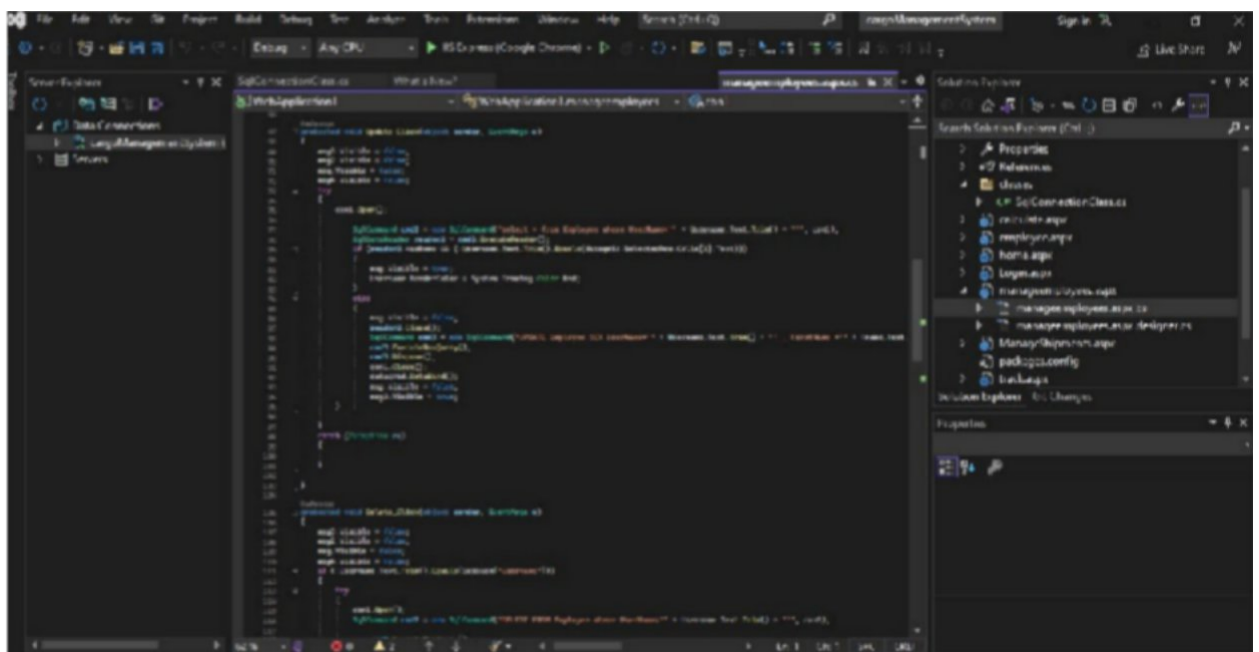


Figure 2.9 SQL commands

## 2.6 Project's interface

In order to design the interface we have to write HTML and CSS Code.HTML is short for hyper text markup language and using it we can set the structure of the web page.while CSS stands for stands for cascading style sheets and we can use it to design our web pages.

In the following figures we will show briefly how we wrote the HTML and CSS code in our project.



Figure 2.10 HTML code

Notice that in line 9 of figure 2.10 we added the following line " <link rel="stylesheet" href="/css/styles.css"/>" which is a link to our CSS code file.

```css
{
    box-sizing: border-box;
}
h1,h2,p{
    margin-block-start: .5rem;
    margin-block-end: 0;
}
body{
    margin: 0;
    padding: 0;
    font-family: sans-serif;
}
body p,body span{
    font-size: 17px;
    line-height: 30px;
    color: #34343c;
}
.container{
    width: 100%;
    max-width: 1170px;
    margin: 0 auto;
    padding: 0 10px;
}
/*navbar*/
.navbar{
    display: flex;
    align-items: center;
    justify-content: space-between;
    padding:20px 0;
}
.navbar img{
```

Figure 2.11 CSS code

The code shown in figure 2.11 is our CSS code using which we designed our wesite.

Now that we installed the tools needed and wrote the code right we can view our final result.
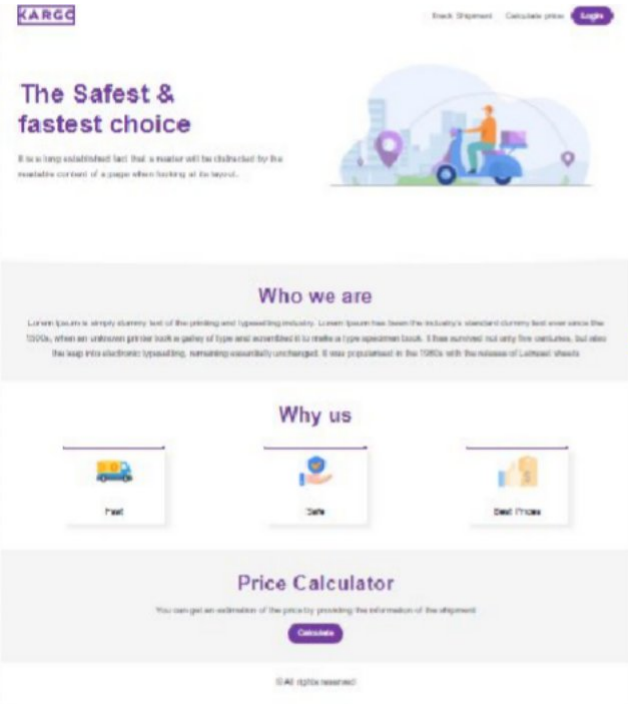
# 3.Final Result
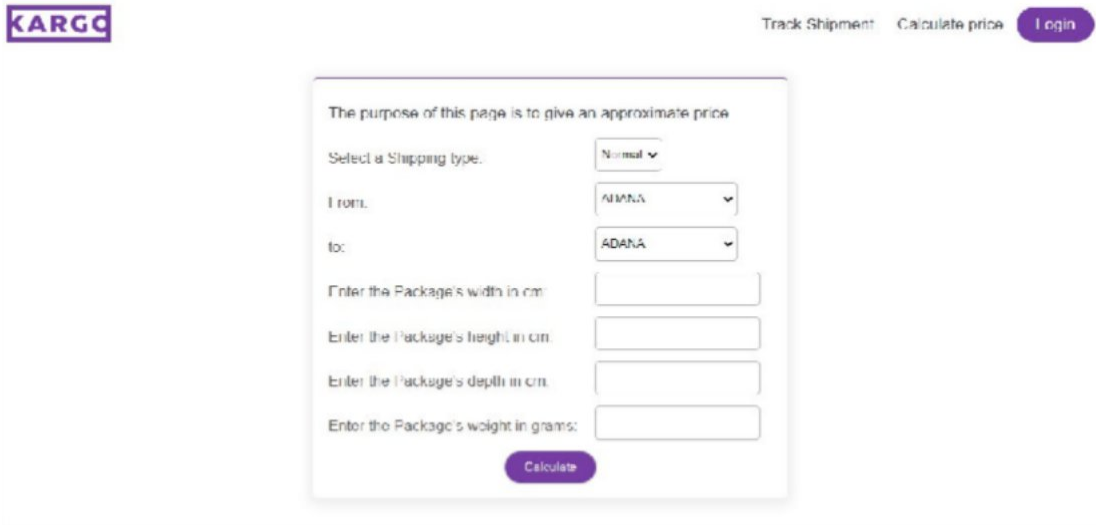


Figure 3.1 home page



Figure 3.2 track shipment



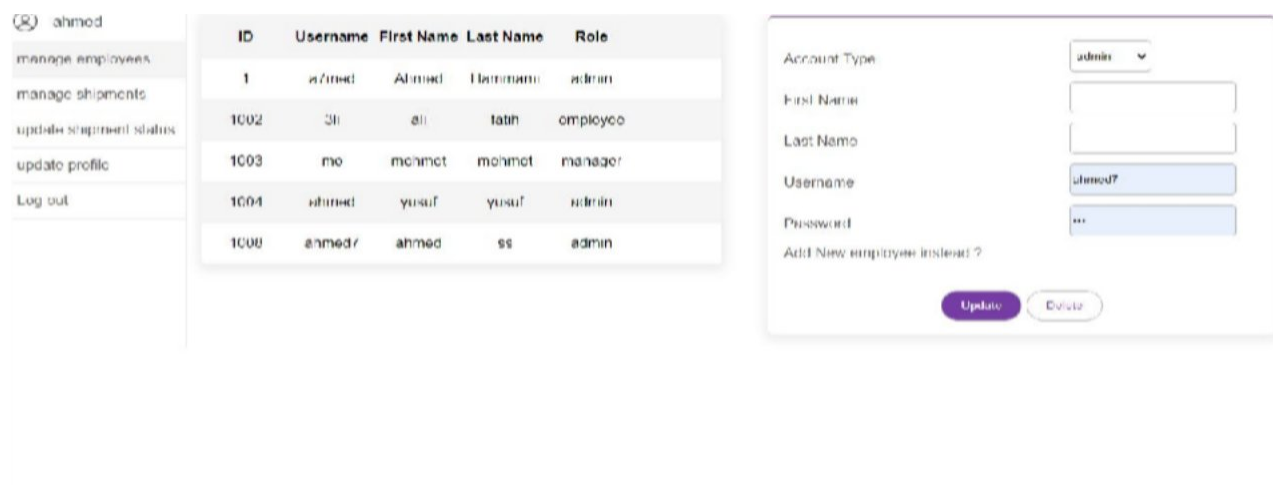Figure 3.3 calculate price

Figure 3.4 login



Figure 3.5 manage employees



Figure 3.6 manage shipments
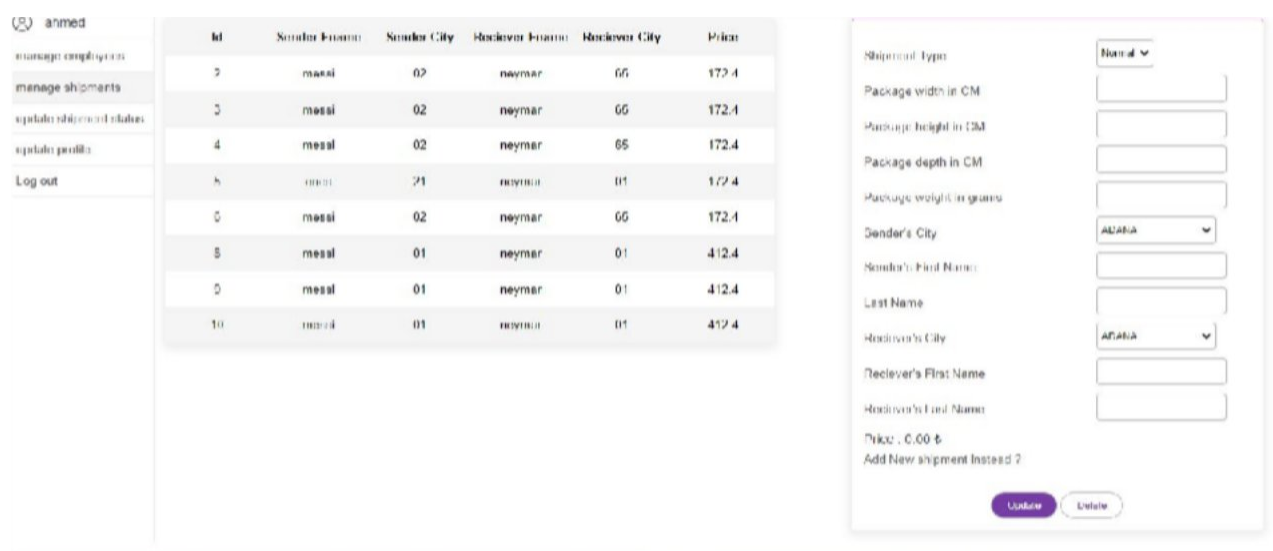
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Figure 3.7 update profile



Figure 3.8 update shipment status

# 4.Conclusion

As mentioned earlier the tools we used made things easier.And if we want to summarize the previous steps we can say the following:

1. install visual studio
2. create new asp.net web application
3. create the pages you want
4. install SQL server and SQL server studio
5. create database with tables structured as required in the project
6. establish connection
7. Do the HTML and CSS part

# 5.Bibliography

[1] Visual Studio. URL: https://visualstudio.microsoft.com/downloads/

[2] SQL Server. URL: https://www.microsoft.com/tr-tr/sql-server/sql-server-downloads

[3] SQL Server Management Studio. URL: Download SQL Server Management Studio (SSMS) - SQL Server Management Studio (SSMS) | Microsoft Learn