**Objectives**

1. To build an Inventory Management System with ASP.NET Core, Html, CSS, JavaScript and SQL.
2. To add database in this project and learn data manipulation for the project.
3. To learn how to integrate them together in a website.

**Introduction**

A **website** (also written as **web site**) is a collection of web pages and related content that is identified by a common domain name and published on at least one web server. Examples of notable websites are [Google](https://en.wikipedia.org/wiki/Google_Search), [Facebook](https://en.wikipedia.org/wiki/Facebook), [Amazon](https://en.wikipedia.org/wiki/Amazon_(website)), and [Wikipedia](https://en.wikipedia.org/wiki/Wikipedia). Websites are typically dedicated to a particular topic or purpose, such as news, education, commerce, entertainment, or Social Networking. Hyperlinking between web pages guides the navigation of the site, which often starts with a home page. Users can access websites on a range of devices, including desktops, laptops, tablets, and smartphones. The app used on these devices is called a web browser.

The **HyperText Markup Language** or **HTML** is the standard markup language for documents designed to be displayed in a web browser. It can be assisted by technologies such as [Cascading Style Sheets](https://en.wikipedia.org/wiki/Cascading_Style_Sheets) (CSS) and scripting such as JavaScript.

Web browsers receive HTML documents from a web server or from local storage and render the documents into multimedia web pages. HTML describes the structure of a web page semantically and originally included cues for the appearance of the document.

**Cascading Style Sheets** (**CSS**) is a [style sheet language](https://en.wikipedia.org/wiki/Style_sheet_language) used for describing the [presentation](https://en.wikipedia.org/wiki/Presentation_semantics) of a document written in a [markup language](https://en.wikipedia.org/wiki/Markup_language) such as [HTML](https://en.wikipedia.org/wiki/HTML) or [XML](https://en.wikipedia.org/wiki/XML) (including XML dialects such as SVG, MathML or XHTML). CSS is a cornerstone technology of the [World Wide Web](https://en.wikipedia.org/wiki/World_Wide_Web), alongside HTML and [JavaScript](https://en.wikipedia.org/wiki/JavaScript).

CSS is designed to enable the separation of presentation and content, including [layout](https://en.wikipedia.org/wiki/Page_layout), [colors](https://en.wikipedia.org/wiki/Color), and [fonts](https://en.wikipedia.org/wiki/Typeface). This separation can improve content [accessibility](https://en.wikipedia.org/wiki/Accessibility); provide more flexibility and control in the specification of presentation characteristics; enable multiple [web pages](https://en.wikipedia.org/wiki/Web_page) to share formatting by specifying the relevant CSS in a separate .css file, which reduces complexity and repetition in the structural content; and enable the .css file to be [cached](https://en.wikipedia.org/wiki/Cache_(computing)) to improve the page load speed between the pages that share the file and its formatting.

**JavaScript** often abbreviated **JS**, is a [programming language](https://en.wikipedia.org/wiki/Programming_language) that is one of the core technologies of the [World Wide Web](https://en.wikipedia.org/wiki/World_Wide_Web), alongside [HTML](https://en.wikipedia.org/wiki/HTML) and [CSS](https://en.wikipedia.org/wiki/CSS). As of 2022, 98% of [websites](https://en.wikipedia.org/wiki/Website) use JavaScript on the [client](https://en.wikipedia.org/wiki/Client_(computing)) side for [web page](https://en.wikipedia.org/wiki/Web_page) behavior, often incorporating third-party [libraries](https://en.wikipedia.org/wiki/Library_(computing)). All major [web browsers](https://en.wikipedia.org/wiki/Web_browser) have a dedicated [JavaScript engine](https://en.wikipedia.org/wiki/JavaScript_engine) to execute the [code](https://en.wikipedia.org/wiki/Source_code) on [users](https://en.wikipedia.org/wiki/User_(computing))' devices.

JavaScript is a [high-level](https://en.wikipedia.org/wiki/High-level_programming_language), often [just-in-time compiled](https://en.wikipedia.org/wiki/Just-in-time_compilation) language that conforms to the [ECMAScript](https://en.wikipedia.org/wiki/ECMAScript) standard. It has [dynamic typing](https://en.wikipedia.org/wiki/Dynamic_typing), [prototype-based](https://en.wikipedia.org/wiki/Prototype-based_programming) [object-orientation](https://en.wikipedia.org/wiki/Object-oriented_programming), and [first-class functions](https://en.wikipedia.org/wiki/First-class_function). It is [multi-paradigm](https://en.wikipedia.org/wiki/Programming_paradigm), supporting [event-driven](https://en.wikipedia.org/wiki/Event-driven_programming), [functional](https://en.wikipedia.org/wiki/Functional_programming), and [imperative](https://en.wikipedia.org/wiki/Imperative_programming) [programming styles](https://en.wikipedia.org/wiki/Programming_paradigm). It has [application programming interfaces](https://en.wikipedia.org/wiki/Application_programming_interface) (APIs) for working with text, dates, [regular expressions](https://en.wikipedia.org/wiki/Regular_expression), standard [data structures](https://en.wikipedia.org/wiki/Data_structure), and the [Document Object Model](https://en.wikipedia.org/wiki/Document_Object_Model) (DOM).

**ASP.NET Core** is a [free and open-source](https://en.wikipedia.org/wiki/Free_and_open-source) [web framework](https://en.wikipedia.org/wiki/Web_framework) and successor to [ASP.NET](https://en.wikipedia.org/wiki/ASP.NET), developed by [Microsoft](https://en.wikipedia.org/wiki/Microsoft). It is a modular framework that runs on both the full [.NET Framework](https://en.wikipedia.org/wiki/.NET_Framework), on [Windows](https://en.wikipedia.org/wiki/Windows), and the [cross-platform](https://en.wikipedia.org/wiki/Cross-platform) [.NET](https://en.wikipedia.org/wiki/.NET). However ASP.NET Core version 3 works only on .NET Core dropping support of the .NET Framework.

The framework is a complete rewrite that unites the previously separate [ASP.NET MVC](https://en.wikipedia.org/wiki/ASP.NET_MVC) and [ASP.NET Web API](https://en.wikipedia.org/wiki/ASP.NET_Web_API) into a single [programming model](https://en.wikipedia.org/wiki/Programming_model).

Despite being a new framework, built on a new web stack, it does have a high degree of concept compatibility with ASP.NET. The ASP.NET Core framework supports side-by-side versioning so that different applications being developed on a single machine can target different versions of ASP.NET Core. This is not possible with previous versions of ASP.NET.

[Blazor](https://en.wikipedia.org/wiki/Blazor) is a recent (optional) component to support [WebAssembly](https://en.wikipedia.org/wiki/WebAssembly" \o "WebAssembly) and since version 5.0 it is dropping support for some old web browsers. While current [Microsoft Edge](https://en.wikipedia.org/wiki/Microsoft_Edge) works, the [legacy version](https://en.wikipedia.org/wiki/Legacy_system) of it, i.e. "[Microsoft Edge Legacy](https://en.wikipedia.org/wiki/Microsoft_Edge)" and [Internet Explorer 11](https://en.wikipedia.org/wiki/Internet_Explorer_11) are dropped when you use Blazor.

**SQL** (**Structured Query Language**) is a [domain-specific language](https://en.wikipedia.org/wiki/Domain-specific_language) used in programming and designed for managing data held in a [relational database management system](https://en.wikipedia.org/wiki/Relational_database_management_system) (RDBMS), or for stream processing in a [relational data stream management system](https://en.wikipedia.org/wiki/Relational_data_stream_management_system) (RDSMS). It is particularly useful in handling [structured data](https://en.wikipedia.org/wiki/Data_model), i.e. data incorporating relations among entities and variables.

SQL offers two main advantages over older read–write [APIs](https://en.wikipedia.org/wiki/API) such as [ISAM](https://en.wikipedia.org/wiki/ISAM) or [VSAM](https://en.wikipedia.org/wiki/VSAM). Firstly, it introduced the concept of accessing many records with one single command. Secondly, it eliminates the need to specify how to reach a record, e.g. with or without an [index](https://en.wikipedia.org/wiki/Database_index).

**Features**

1. Registration with email confirmation.
2. Login/ Logout with Remember me option.
3. Inventory list with add/edit inventory, purchase inventory.
4. Product list with add/edit/delete product, produce product, sell product.
5. Inventory Transaction Report from any date to any date.
6. Product Transaction Report from any date to any date.
7. The reports can be printed.

Project Description

The project is about the management of inventories. The users work as suppliers of some product for some companies or any industries. Now they can use their whole management system in this website. In this project, I use html as frontend and asp.net core as backend. I have made page for inventories and its functions.

A screenshot of a computer

Description automatically generated

Figure: Inventory Page

Then I made page for Products and all its functionalities.

A screenshot of a computer

Description automatically generated

Figure: Product Page

After that, the activities like produce, purchase and sell are done.

Graphical user interface, application

Description automatically generated

Figure: Produce Activity

Graphical user interface, text, application

Description automatically generated

Figure: Purchase Activity

Graphical user interface, text, application

Description automatically generated

Figure: Sell Activity

At last, I added the Inventory Transaction Report Page and Product Transaction Report Page.

Graphical user interface, table, website

Description automatically generated

Figure: Inventory Transaction Report Page

Graphical user interface, application, website

Description automatically generated

Figure: Product Transaction Report Page

**Discussion**

Inventory Management is a web-based management system where suppliers manage and maintain all kinds of information for their inventories. The main goal of the project is to make a platform for the suppliers and other users to easily manage their inventories and deal with the dealers. The database is connected and working fine. Sql server is also working fine. And the other functionalities. In this project, I use some tables in database to store data like Inventories, InventoriesTransactions, Products, ProductInventory and ProductTransactions.

**Conclusion**

The system is developed using ASP.NET Core and SQL. In future some features may be added. Some errors have been showed when connecting to database and some other functionalities and I fix them. All codes are written in VS Code 2022.

**References**

1. Wikipedia.com
2. w3schools.com