

digital 

E-Commerce Web Application  
Documentation

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# Summary and Requirements

DigitalX is a shop for music, movies, and video games in Auckland. The old website of DigitalX was developed using PHP and only supports static HTML web. The website needed to be upgraded to an e-commerce website using .NET Framework and related technologies (ASP.NET, WCF, SQL Server).

The new website provides online-shopping functionalities for all registered customers. All data related to the business operation is saved to the database safely.

This project consists of a Visual Studio solution with three projects. These three projects are ClassLibrary, WcfDigitalX, and DigitalX.

## Requirements

### I. Programming Technologies

Apply the following techniques to your project:

1. Entity data model / LINQ
2. HTML5, CSS3, jQuery
3. Authentication/Authorisation
4. WCF

### II. Main Page

The web application shall contain a main page. This page shall at least show the following information:

1. Five most popular products: Product name, price and photo must be displayed
2. Links or menus for viewing more products
3. Login status of the current user
4. A link to a page showing order status for member

### III. Membership

Implement a membership system for users. "Login" is required before placing an order. Username must start with a letter, be a minimum of three characters, and a maximum of eight characters. The password can contain any six to twelve characters. Input validation is required.

## **IV. Shopping Cart**

The web application shall have a shopping cart page showing all products selected by user as a list. User should be able to choose “Checkout” or “Return to shopping”.

The “Checkout” page shows the details of an order and the shipping address of the current customer. If the customer does not have a valid address, ask the customer to type in a new address.

## **V. Product Information**

Use a reasonable number of pages for presenting products. A “Detail” page showing all details of a particular product is required.

# Solution Projects

This project consists of a Visual Studio solution with three projects. These three projects are ClassLibrary, WcfDigitalX, and DigitalX.

### **I. ClassLibrary**

The ClassLibrary project includes all our models for the application. These models were created by using the Entity Framework database first approach with the DigitalXDB database that we were provided. The ClassLibrary also includes the DigitalXDBEntities.

### **II. WcfDigitalX**

The WcfDigitalX project is a WCF Service Library that connects to our database through a connection string to DigitalXDBEntities. WcfDigitalX includes our Service Contract and Operation Contracts to allow CRUD operations with the database. These operations include getting a list of products, adding customer and address information to the database, and producing a list of the customer's prior orders. WcfDigitalX also exposes endpoints that the DigitalX project can consume.

### **III. DigitalX**

The DigitalX project is an ASP.NET MVC Web Application. This application builds our e-commerce website. DigitalX connects to the WCF Service using a service reference. This allows us to call methods in our controllers to access and edit the database.

The DigitalX project has the following controllers: Account, Home, and Product.

### **I. AccountController**

The Account controller allows a user to register and log into their account on the website.

### **II. HomeController**

The Home controller is used to create the home page of the DigitalX website.

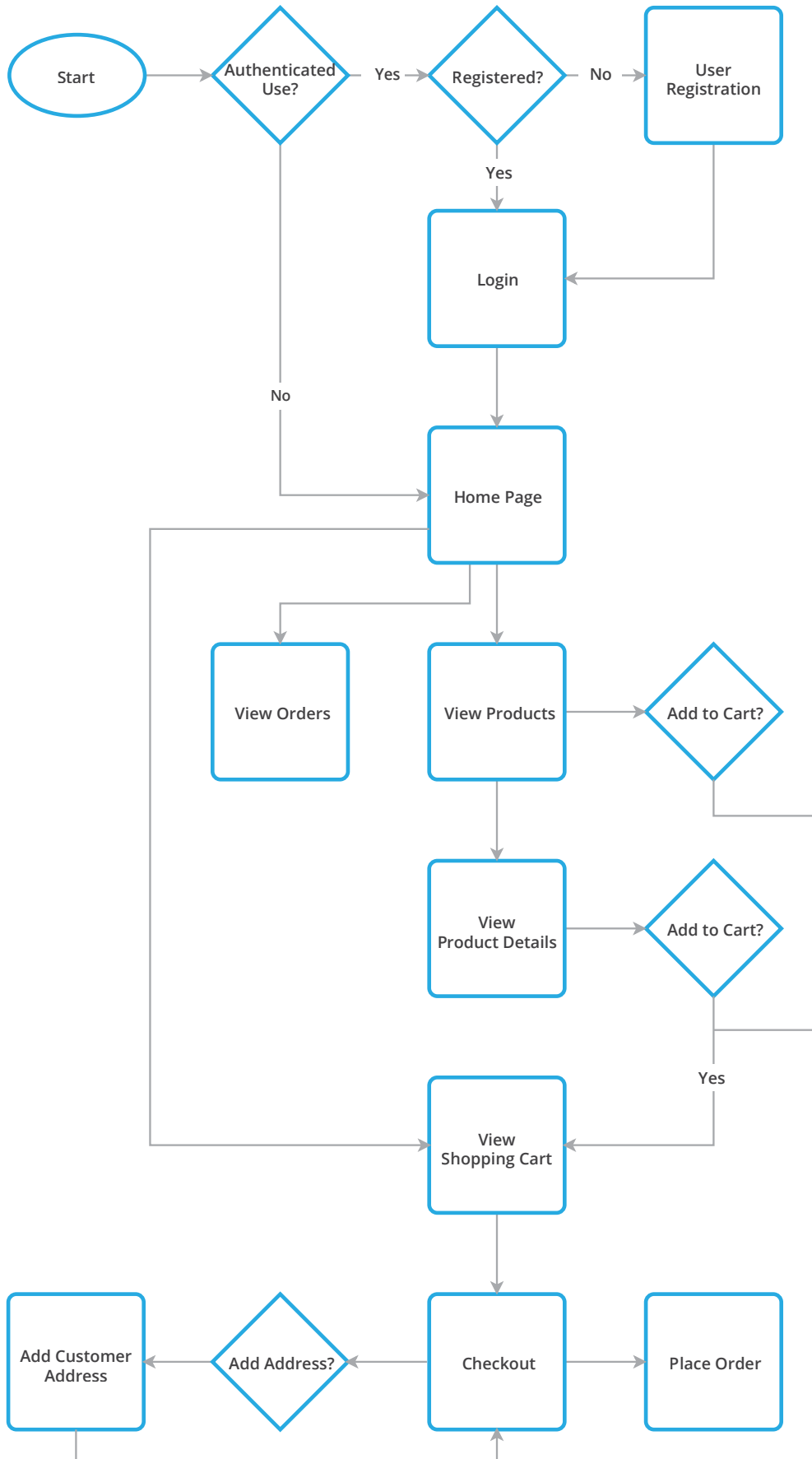
### **III. ProductController**

The Product controller comprises most of the actions that let users interact with the application. The user can retrieve a list of products on the Products page and retrieve a single product's details on its respective Product Details page. It also has actions to create a shopping cart, add products to the shopping cart, change the quantity of products in the shopping cart, and delete products from the shopping cart. Additionally, the Product controller has actions to create the Checkout page and allows a user to add their shipping address.

## Design

The design of the DigitalX website was created using an ASP.NET MVC Web Application, the Bootstrap framework, HTML, CSS, and JavaScript.

# UI Flow Diagram



## Final Summary

While working on building this website there were a few roadblocks that I ran into and therefore my application has a few limitations compared to the project requirements.

The requirements asked us to list the top five products based on quantity sold on the home page. However, the database only has one order at the moment and this order has no corresponding order details, which would be needed to link the OrderID to the ProductID. Consequentially, I would not be able to display the top five products by quantity ordered using the existing database as it would return nothing. Therefore, I decided to list the top five products based on price instead.

Another limitation I encountered was that I wanted to add pagination for the Product page but I was not able to find a solution that I could implement with having to use both WCF and MVC.

Overall this was a good project to work on implementing. It uses a lot of technologies and techniques that are beneficial to know for building applications of all types, including e-commerce web applications.