# **Project 3** (Due 21 September)

# Overview

In this day and age, there are millions of applications that have been created and are widely used. A developer’s ability to read and understand code is even more important than their ability to write code. As such, you will be given an existing ASP.NET Core MVC Web Application that will need to be enhanced and improved.

As part of this project, you will be expected to understand architectural patterns as well as pay specific attention to implementing coding principles and design patterns – aligning to the requirements of the project.

# Prerequisites

Before executing on this project, you will need to take the following into account and action the items appropriately:

* Ensure you can access the NWU Azure tenant by logging into the [Azure Portal](https://portal.azure.com) using your MS Fed account: [12345678@student365.msfed.nwu.ac.za](mailto:12345678@student365.msfed.nwu.ac.za)
* Ensure that you have created a resource group to logically group your work. Use the appropriate naming convention
* Ensure that Visual Studios 2022 Community edition and .NET Core 6 are installed
* Ensure that the database required in Project 2 has been created and is accessible in Azure

# Requirements

Functional requirements refer to the functionality that a system must have and how the functions should be performed. Non-functional requirements refer to the aspects of a solution that have an impact on the quality attributes of a system (or platform). These non-functional requirements are deemed as supportive requirements to ensure that the functional requirements are implemented appropriately and according to good software practices.

***Please note:*** *it will be important for you to keep the Overview Repository Readme file updated throughout the semester as you will be evaluated on the content of the Readme file as part of your Portfolio of Evidence (POE).*

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| **Feature** | **Stories** | **Tasks (to be broken down further)** | **Priority** |
| GitHub Administration | Create and Configure GitHub Repository | Create a repository named ‘CMPG 323 Project 3 - <add your student number>’ | 1 |
|  |  | Create a ReadME.md file that will be used to describe your project and how stakeholders are to use the report that you have developed | 1 |
|  | Project Progress | Ensure that the solution has been committed and pushed to source control throughout the project | 1 |
|  |  | Ensure that the GitHub project has been updated iteratively throughout the project to demonstrate how progress was made | 1 |
| Project Setup | Access the existing project | Fork the existing GitHub repository | 1 |
|  |  | Create a new development branch | 2 |
|  | Connect the Web App to the data source | Add the connection string to your hosted database in the appsettings.json file | 1 |
| Design Pattern Implementation | Create Repository Classes | Create a repository class that will contain all data access operations relating to Orders | 2 |
|  |  | Create a repository class that will contain all data access operations relating to Customers | 2 |
|  |  | Create a repository class that will contain all data access operations relating to Products | 2 |
|  | Transfer data access operations | Transfer all data access operations from the Devices controller to the Orders Repository class | 3 |
|  |  | Transfer all data access operations from the Zones controller to the Customers Repository class | 3 |
|  |  | Transfer all data access operations from the Categories controller to the Products Repository class | 3 |
|  | Implement repository classes | Implement the use of the Customer repository class in the Orders controller in place of data access operations that have been transferred to the repository class | 4 |
|  |  | Implement the use of the Products repository class in the Orderscontroller in place of data access operations that have been transferred to the repository class | 4 |
| Project Close-out | Security | Ensure that no credentials are stored on GitHub | 1 |
|  | Web API Cloud Hosting | Create an App Service (connected to an F1 tier (free) service plan) | 4 |
|  |  | Publish your App to the service hosted on Azure and ensure the App is secure and accessible | 4 |
|  | Project Documentation | Ensure that the ReadMe.md file in the GitHub repository explains how the user would use the App | 1 |
|  |  | Create a reference list document that contains all sites visited and used to complete the project | 1 |

Reading Materials

There are multiple aspects of the abovementioned scope that may be covered by

* [Build web apps with ASP.NET Core for beginners - Learn | Microsoft Docs](https://docs.microsoft.com/en-us/learn/paths/aspnet-core-web-app/)
* [ASP.NET MVC Overview | Microsoft Docs](https://docs.microsoft.com/en-us/aspnet/mvc/overview/older-versions-1/overview/asp-net-mvc-overview)
* [Secure a .NET web app with the ASP.NET Core Identity framework - Learn | Microsoft Docs](https://docs.microsoft.com/en-us/learn/modules/secure-aspnet-core-identity/)
* [Design Patterns In C# .NET (c-sharpcorner.com)](https://www.c-sharpcorner.com/UploadFile/bd5be5/design-patterns-in-net/)
* [Architectural Patterns in .NET (c-sharpcorner.com)](https://www.c-sharpcorner.com/uploadfile/babu_2082/architectural-patterns-in-net/)

Community Engagement

There are many different communities available for you to engage with if you are experiencing any challenges or if you would like to learn more about the technology and possibilities of API Development and Integration:

* LinkedIn Groups
* Stack Overflow
* Microsoft Developer Community User Groups
* YouTube Microsoft Development Influencers

# Submission Details

The scope of this project has been issued as an **individual** assignment. Please note that you will need to use GitHub for this project.

**Please Note:** Your repository must be set as *private* and only shared with the users **autoruby, JacquiM** and **marijkec** to mark your project**.**

**Submission**: Submit your CMPG 323 Project 3 by providing the relevant information through the form to be provided.

**Deadline**: 17h00 on 21 September 2023 (please note there are no alternative or late submission dates – if you miss this deadline you will forfeit the opportunity)

**What to submit**:

1. Provide the URL to your GitHub Repository
2. Credentials to connect to your data source(s)
3. Provide the URL to your Web App

**Warning:**

In no circumstance should you ever make your GitHib repository or Kanban project *public*. Any student caught doing this will get 0%. The student sharing his code and work is as guilty and the one doing the copying.

# Marking Considerations

Please take note of the following considerations that will form part of the marking and moderation process:

* A rubric will be provided separately
* Failure to upload any of the requirements for submission will result in 0
* Failure to complete this as an individual assignment will result in 0
* Failure to use the existing, provided solution will result in 0.