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 using your MS Fed account: 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 3.1 are installed
- Ensure that you have forked the following Git repo: https://github.com/JacquiM/CMPG-323-IOT-Device-Management
- Ensure that you use the database and connection string provided to you as it is already hosted on the cloud. If you battle to connect to the database from NWUWIFI, then use a local copy of the database but ensure that your final web application uses the database hosted on 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).*

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 Devices	2
		Create a repository class that will contain all data access operations relating to Zones	2
		Create a repository class that will contain all data access operations relating to Categories	2
	Transfer data access operations	Transfer all data access operations from the Devices controller to the Devices Repository class	3
		Transfer all data access operations from the Zones controller to the Zones Repository class	3
		Transfer all data access operations from the Categories controller to the Categories Repository class	3
	Implement repository classes	Implement the use of the Device repository class in the Device controller in place of data access operations that have been transferred to the repository class	4
		Implement the use of the Zone repository class in the Zone controller in place of data access operations that have been transferred to the repository class	4
		Implement the use of the Category repository class in the Category controller 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
- ASP.NET MVC Overview | Microsoft Docs
- Secure a .NET web app with the ASP.NET Core Identity framework - Learn | Microsoft Docs
- Design Patterns In C# .NET (c-sharpcorner.com)
- Architectural Patterns in .NET (c-sharpcorner.com)

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: Ensure that your repository has been shared with the users **autoruby, JacquiM** and **marijkec** so that your project can be marked**.**

Submission: Submit your CMPG 323 Project 3 by providing the relevant information through the Project 3 Submission Form.

Deadline: 17h00 on 29 September 2022 (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. Provide the URL to your GitHub Project
3. Provide the URL to your Web App
4. Provide your reference list file

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.

Additional Guidance

We are aware that different students in the class have different skill sets and are on different levels of capability with the technology. As such, we have outlined three tiers that could be used to help evaluate your skill level and capability within the tool stack. These different tiers will assist you in understanding what we expect from you and how you can challenge yourself by moving up between the tiers.