COS30043 – Interface Design and Development

Learning Summary Report

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Self-Assessment Details

The following checklists provide an overview of my self-assessment for this unit.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Pass (D) | Credit (C) | Distinction (D) | High Distinction (HD) |
| Self-Assessment (please tick) |  |  |  | X |

*Self-assessment Statement*

|  |  |
| --- | --- |
|  | Included (please tick) |
| Learning Summary Report | X |
| Use of Bootstrap that demonstrate coverage of core concepts | X |
| Use of VueJS that demonstrate coverage of core concepts | X |

*Minimum Pass Checklist*

|  |  |
| --- | --- |
|  | Included (please tick) |
| Progress on Credit Tasks | X |
| All Pass Tasks signed off | X |

*Minimum Credit Checklist, in addition to Pass Checklist*

|  |  |
| --- | --- |
|  | Included (please tick) |
| Credit and Pass Tasks done, and Progress on Distinction Tasks. | X |
| Custom program meets Distinction criteria | X |
| Design report with screenshots for custom program | X |

*Minimum Distinction Checklist, in addition to Credit Checklist*

|  |  |
| --- | --- |
|  | Included (please tick) |
| Research report, and associated pieces | X |
| Custom project meets HD requirements | X |

*Minimum High Distinction Checklist, in addition to Distinction Checklist*

# Declaration

I declare that this portfolio is my individual work. I have not copied from any other student’s work or from any other source except where due acknowledgment is made explicitly in the text, nor has any part of this submission been written for me by another person.

Signature: Dang Khoa Le

# Introduction

This report summarises what I learnt in COS30043 – Interface Design and Development. It includes a self-assessment against the criteria described in the unit outline, a justification of the pieces included details of the coverage of the unit’s intended learning outcomes, and a reflection on my learning.

# Overview of Pieces Included

This section outlines the pieces that I have included in my portfolio:

**1. Weekly Learning:**

# Introduction: Introduce the web design principle, the language, interface, validator, and table.

# Layout and Grid System: Understanding and implementation of grid and layout concepts using Bootstrap CSS and JavaScript, HTML, and responsive design principles.

# VueJS Data Binding and Directives: Evaluate proficiency in using Vue constructor to create single-page applications (SPA), data binding, utilization of directives such as v-if, v-else-if, v-else, v-show, v-button, etc, look up (tick-box, text input) functionalities, and compute.

# View and ViewModel: Assess the ability to view webpage application and construct tables using Vue.js and Bootstrap for effective presentation of data.

# Components and Router: Review the usage of Vue.js and Bootstrap for reading data from the server and routing between different components.

# Forms and Validation: Evaluate the handling of form functionalities and validation using Vue.js and Bootstrap.

# API: Assess the capability to design and implement web applications that interact with APIs, meeting functional requirements.

# API and Pagination: Evaluate the implementation of pagination functionality in API web design using Vue.js and Bootstrap.

# Single Page Application: Review the handling of View-Post-Update-Delete data functions and parsing data from SQL tables (MariaDB, Mercury server) in a single-page application context using Vue.js and Bootstrap.

# Vue CLI and Single Page Applications: Assess the usage of Vue CLI for API integration and single-page application web design.

**2. Task Learning:**

Lab 1:

1.1P: Understanding of website design application before taking this unit.

1.2P: Hello World, introduction to the language and design.  
1.3P: Form accessibility and validator.

1.4P: Introduce table, with caption, ‘td’ and ‘th’ elements, scope, ‘id’, ‘header’, ‘thead’ and ‘tbody’ attributes.

Lab 2:

2.1P: Usage of container, introduce Bootstrap framework (CSS and JavaScript).

2.2P: Create a Calculator design, get familiar with Bootstrap framework and attributes.

2.3P: Use Bootstrap framework to create a website interface design (UI).

Lab 3:

3.1P: String Test, apply Vue.js directives (v-if, v-else-if, v-else, v-show, v-button…) and operators

3.2P: Unit Information, apply data binding, initialise a table from data array using Vue.js, perform look up function (tick-box and text input)

3.3P: Compute BMI, compute data using mathematic formula application.

3.4C: Registration, apply credential application with Vue.js validation from text input field, usage of dropdown box filtrating data.

Lab 4:

4.1P: Guessing game, applying Math.random functionality for random number generation and compute data.

Lab 5:  
5.1P: Backend application using Vue.js to post and delete a status.

5.2P: Website menu design handling switches across different applications.

5.3C: Applying router using Vue.js framework to align web application.

Lab 6:

6.1C: Form Validation, applying credential application using Vue.js validation, adding conditional requirement to the text entry and proceed to submission of credential information.

6.2 HD: Draft design for the custom project webpage.

Lab 7:  
7.1P: Using Vue app to retrieve data from JSON format.

7.2C: Using Vue app, retrieve data with fetch method, read data from server to construct table, apply look up for data field (Units).

Lab 8:  
8.1P: Using Vue app, apply pagination using Vue app to reconstruct table from array data.

8.2C: Using Vue app, retrieve data from server to construct table, applying look up and pagination.

Lab 9:

9.1P: Create a Single Page Application (SPA), with menu redirect to different Vue application, showing String Test (from 3.1P), Status Posting (from 5.1P), and Student Marks with pagination (from 9.2C).

9.2C: Applying SPA, retrieve data from Mercury server (SQL table), initialise Validation application using Vue validation, and construct Units table with View – Post – Update and Delete functions.

Lab 10:  
10.1P: Using Vue CLI framework to create a SPA design.

# Coverage of the Intended Learning Outcomes

This section outlines how the pieces I have included demonstrate the depth of my understanding in relation to each of the unit’s intended learning outcomes.

## ILO 1: Apply Design

Apply fundamental design concepts and standards to the development of user interfaces

The following pieces demonstrate my ability in relation to this ILO:

## Lab 1.4: Table Design: Introducing table elements, such as td, th, thead, and tbody, and understanding the importance of semantic HTML for accessibility and usability.

## Lab 2.3: Bootstrap Interface Design: Utilizing Bootstrap to create responsive and visually appealing website interfaces. This includes understanding grid systems, layout management, and the implementation of design principles such as consistency and spacing.

## Lab 3.3: Compute BMI Application: Designing an intuitive user interface that allows users to compute their BMI. This task demonstrates the application of form design and data validation standards.

## Lab 4.1: Guessing Game: Implementing an engaging and user-friendly game interface using JavaScript and Vue.js, focusing on user interaction and feedback.

* Lab 5.2 and 5.3: Menu: Website with menu and router implementation handling switches across different applications.
* Lab 6.1: Form Validation: Apply credential application using Vue.js.

## Lab 9.2: SPA with CRUD Functionality: Creating a Single Page Application (SPA) with Vue.js that incorporates Create, Read, Update, and Delete (CRUD) operations, demonstrating the application of design principles in a complex, interactive user interface.

* Custom Program task 6.2: The Custom Program (Education website) has demonstrated these fields effectively, demonstrate my understanding with these ILO1 pieces.

## ILO 2: Use Frameworks

Use contemporary frameworks to create dynamic user interfaces.

## Lab 2.1: Bootstrap Framework: Introducing and using the Bootstrap CSS framework to enhance the aesthetics and functionality of web interfaces.

## Lab 3.1: Vue.js Directives: Applying Vue.js directives (v-if, v-else-if, v-show, etc.) to create reactive user interfaces.

## Lab 5.1: Backend Application: Implementing Vue.js to handle backend operations such as posting and deleting data, showcasing dynamic data binding and reactivity.

## Lab 7.2: Fetching Data with Vue.js: Using Vue.js to fetch data from a server and display it dynamically, demonstrating the integration of frontend frameworks with backend data sources.

## Lab 8.1 and 8.2: Pagination with Vue.js: Implementing pagination functionality in a Vue.js application, allowing for dynamic and efficient data presentation.

## Lab 9.1 and 9.2: Apply SPA website design using Vue.js, demonstrating the application of design principles in a complex, interactive user interface.

## Lab 10.1P: Vue CLI Framework: Utilizing the Vue CLI to create a structured and scalable SPA, showcasing the use of a contemporary framework for complex application development.

## ILO 3: Develop User Interfaces

Design and develop user interfaces optimised for a range of devices and platforms.

## Lab 2.1: Bootstrap Framework: Introducing and using the Bootstrap CSS framework to enhance the aesthetics and functionality of web interfaces.

* Lab 2.2: Calculator Design with Bootstrap: Developing a responsive calculator interface using Bootstrap, ensuring compatibility across various devices and screen sizes.
* Lab 6.1: Form Validation: Creating forms with Vue.js that include conditional requirements and validation, enhancing the user experience across different devices.
* Lab 7.2: Retrieving JSON Data: Designing interfaces that can dynamically display data retrieved from JSON, ensuring optimal performance and usability.
* Lab 9.2: SPA Design with Vue Router: Developing a SPA with Vue Router, enabling seamless navigation and a consistent user experience across various sections of the application.
* Lab 10.1: SPA with Vue CLI: Creating a fully functional SPA using Vue CLI, ensuring that the application is optimized for performance and usability.

## ILO 4: Evaluate User Interfaces

Evaluate user interfaces with respect to usability and accessibility using appropriate techniques, and propose improvements.

* Lab 3.4: Registration Form with Validation: Implementing and evaluating a registration form with Vue.js validation, focusing on usability and error handling.
* Lab 6.1: Form Validation Techniques: Applying advanced form validation techniques in Vue.js to enhance usability and accessibility.

## Lab 8.2: Pagination with Vue.js: Implementing pagination functionality in a Vue.js application, allowing for dynamic and efficient data presentation.

* Lab 9.2: CRUD Functionality with Validation: Assessing the UI (user interface) of a SPA with CRUD operations, ensuring that all functionalities are user-friendly and accessible.
* Lab 10.1: SPA with Vue CLI: Creating a fully functional SPA using Vue CLI, ensuring that the application is optimized for performance and usability with multiple device sizes while also empower the UI with more attractive design.
* Reflection on Design Principles: Throughout the course, I consistently reflected on design principles, usability, and accessibility standards. For instance, in Lab 2.3 and Lab 6.1C, I used Bootstrap’s accessibility features to enhance CSS styling application for better UI (user interface) effect.

# Reflection

## The most important things I learnt:

I have found this unit especially helpful for me, as a beginner to start working on implementation of website interface, especially how to develop an API design. This unit also acknowledge me how to program efficiency, which build as a strong base for my career as a Full Stack developer.

## The things that helped me most were:

I have been highly interacting with my tutor to support my understanding in this unit. Besides, carefully looking at Lecture slides also help me when dealing with the lab task problems.

## I found the following topics particularly challenging:

Design and apply SPA design with data binding and action consistency from fetching and posting to MariaDB database is crucially challenging,

## I found the following topics particularly interesting:

I particularly like the topic of API where it direct me a lot to program web design efficiently.

## I feel I learnt these topics, concepts, and/or tools really well:

I feel I learnt the table initialisation and look up method using Vue.js framework very well.

## I still need to work on the following areas:

I will have to extend myself to work on data binding and action (View – Post – Update – Delete) to a SQL server furthermore.

## My progress in this unit was …:

I progressed and accomplished task very well most of the lab tasks, I felt the 9.2C was the most challenging that took me extra time and effort, which also slower my progress.

## This unit will help me in the future:

As an engineer and possibly a full-stack developer, I consider this unit highly supporting for myself in my career, which will be very helpful and resourceful for me to pursuit my career later.

## If I did this unit again I would do the following things differently:

I would spend more time to seek for support from the tutor, which could help me in progressing this unit more efficiently.

## Other…:

This unit also allow me to program webpage design better, which I have been able to also make many individual website projects while learning.