BIT607 Web Development

Weighting: 30%

Due: Thursday of Week 11

Instructions

- Submit all of your answers in one document.
- Write the number of each part of the question you are answering.
- Create a header with your name, student number and assessment number, and number your pages.

Learning outcomes

This assessment covers the following learning outcomes:

- LO4: Describe applicable standards and protocols, and define the security issues associated with web applications.
- LO5: Implement, evaluate and use a range of design tools and techniques required for the development of an application including multiple plug-in solutions.

Submission

In the online assessment submission link, you will need to submit two components for this assignment:

- a zip file of your completed project
- a report in Microsoft Word format. Where you are required to provide screenshots or images for any answers, these should be embedded in the document.

Upload your assessment, then use the **Save** and **Submit assessment** buttons.

You will get an electronic receipt and your work is then logged and tracked through our system. Assessments emailed directly to lecturers will not be accepted.

Referencing and plagiarism

Refer to Referencing and avoiding plagiarism for information on APA referencing and avoiding plagiarism.

Background

This assessment is based on the same case study as Assignment 1. You will develop and implement a responsive web application from your Assignment 1 report.

You will submit the code for your application, and a report that communicates all design choices that were made.

This assessment will assess your skills in:

- use of valid HTML5/CSS
- accessibility guidelines
- writing a privacy statement
- optimising images
- applying responsive design principles
- using minimal images for readability and optimising performance.

Refer to the Appendix A: Haukai project brief for more information about the restaurant.

Part 1: Application

Your first task is to develop a web application locally using VS Code that implements the information architecture you defined in Assignment 1.

You will need to demonstrate your understanding of the requirements for valid HTML5, accessibility standards, and writing a privacy statement for a web application (Learning Outcome 4), as well as your ability to implement responsive design, and further optimise the application by using a range of tools and techniques (Learning Outcome 5).

This assessment also requires you to find images; please respect the copyright of image owners and choose images which are free to use. From Google images, go to Tools>usage> free to use.

At a minimum, ensure you have the following pages and content:

- home (image of restaurant)
- contact (map)
- hours (calendar)
- menu (food and drink with illustrative images)
- reservations (with a form to allow reservations to be taken).

For any dynamic content use Google maps, forms, and calendar.

To demonstrate achievement of **Learning Outcome 4,** your completed web application should meet the following requirements:

(a) Use valid HTML5 to implement web page headers, footers, content and navigation between the web pages.

(b) Formatting should be controlled from a separated and linked CSS file created using CSS3 standards.

(c) Follow accessibility guidelines where appropriate.

(d) Provide an appropriate privacy statement. This can be provided on the home page, or a navigation link to a separate page. Make sure you consider what data is being collected, the method of collection, the purpose for collection, whether it's shared, and the means for correcting errors.

To demonstrate achievement of **Learning Outcome 5,** your completed web application should meet the following requirements:

(e) Apply responsive design principles to make the web application mobile-ready. Ensure the viewport is configured to allow the browser to adjust page dimensions and scaling will suit the different device sizes, and that pages can be easily resized by the user with no reliance on fixed-width viewports. Images should also scale appropriately, or alternative images provided for smaller viewports. Fonts should be legible for mobile visitors without any need to 'pinch and zoom'.

(f) Optimise page loading times with the aim that the home page can be loaded within 2 seconds on a 2G network. All other pages should have their performance optimised as much as possible using appropriate techniques.

[Part 1 total: 65 marks]

Part 2: Report

Your next task is to write a a report, which discusses the approaches you had taken to develop the application.

(g) Identify and discuss all the security issues website designers should be aware of, and give examples of how such security issues were considered when the application was developed. (App. 200 words)

(h) Explain how HTTP caching and Content Delivery Networks could further improve responsiveness. (app. 200 words)

(i) Identify all principles of responsive design with reference to examples from your application that demonstrate how it provides for a better user experience.

(j) Extensions in Visual Studio are add-ons that allow you to add new features or integrate existing tools. Though these can range in complexity, their main purpose is to increase productivity and improve your workflow. Go to the Visual Studio Marketplace, and install two extensions. Test these extensions for their functionality, then evaluate the tool based on its usefulness. You may include screenshots that demonstrate how these tools were used.

(k) Document all the steps you had taken to test your application's network performance, using Chrome's Development Tools. These steps should demonstrate how you evaluated page load times, and any actions taken to improve page loading times and any further tests that were carried out. You may include screenshots that demonstrate how this tool was used.

[Part 2 total: 35 marks]

Marking schedule

Your tutor will use this marking schedule to provide you with a grade. They may also provide qualitative feedback (comments) about your work.

Part 1: Application (65 marks)

	1-2	3-4	5-6	7-8	9-10
Use valid HTML to implement web page headers **(Learning outcome 5)**	Some HTML and CSS is used, but is largely not valid and contains errors that impact significantly on the overall functionality, accessibility and design of the application.	Some of the HTML and CSS is valid across sections of required pages. There are many errors that impact on the functionality, accessibility and/or design of the application.	Most of the HTML and CSS is valid across sections of required pages, including headers, footers, content areas and navigation between pages. There are few errors that impact on the functionality, accessibility and/or design of the application.	Almost all HTML and CSS is valid across all sections of required pages, including headers, footers, content areas and navigation between pages. There are only minor errors that have little or no impact on the overall functionality, accessibility and design of the application.	All HTML and CSS is valid across all sections of required pages, including headers, footers, content areas and navigation between pages.
	1	**2**	**3**	**4**	**5**
CSS formatting **(Learning outcome 5)**	Very few pages and elements within those pages are formatted and styled to satisfactory design principles.	Some pages and elements within those pages are well-formatted and styled to satisfactory design principles.	Many pages and elements within those pages are well-formatted and styled according to good design principles.	Almost all pages and elements within those pages are well-formatted and styled according to good design principles.	All pages, and elements within those pages are well-formatted and styled according to good design principles.
	1	**2**	**3**	**4**	**5**
CSS formatting **(Learning outcome 5)**	There is some attempt to apply CSS, though controlled incorrectly.	Some formatting is controlled correctly. There are many places, however, where the CSS is out of place and does not adhere to best practice.	Most formatting is controlled correctly. Includes a linked CSS document – but has some CSS in places that do not adhere to best practice.	Almost all formatting is controlled correctly and mostly applies best practice. Includes a linked CSS document.	All formatting is controlled correctly and, in all instances, applies best practice. Includes a linked CSS document.

	1	2	3	4	5
Accessibility (headings, and use of alt text) **(Learning outcome 4 & 5)**	The application is accessible in some areas where there has been an attempt to use headings and/or alt text, though many may not be able to use it due to a lack of accessibility that could otherwise be provided for through better use of headings and alt text.	The application is somewhat accessible in terms of its use of headings and/or alt text. Headings are used and/or alt text is provided. This makes is more accessible for some users, though some may not be able to use it due to a lack of accessibility that could otherwise be provided for through better use of headings and alt text.	The application has a high level of accessibility in terms of its use of headings and alt text. In many sections of the application there is proper use of headings for organising content and alt text is used, making it highly accessible for many possible users.	The application has a high level of accessibility in terms of its use of headings and alt text. In almost all sections of the application there is proper use of headings for organising content and alt text is sufficiently detailed, making it highly accessible for a wide range of possible users.	The application has the most optimal level of accessibility in terms of its use of headings and alt text. In all sections of the application there is proper use of headings for organising content and alt text is sufficiently detailed, making it highly accessible for the widest range of possible users.
	1	**2**	**3**	**4**	**5**
Accessibility (style and colour) **(Learning outcome 4 &5)**	The application is accessible in some areas where style has been applied, though many may not be able to use it due to a lack of accessibility that could otherwise be provided for through better use of style.	The application is somewhat accessible in terms of style (e.g. font type, size, margins, spacing) and use of colour across some of it's pages, though some may not be able to use it due to a lack of accessibility that could otherwise be provided for through better use of style.	The application has a high level of accessibility in terms of style (e.g. font type, size, margins, spacing) and use of colour across most of it's pages, making it highly accessible for many possible users.	The application has a high level of accessibility in terms of style (e.g. font type, size, margins, spacing) and use of colour across all it's pages making it highly accessible for a wide range of possible users.	The application has the most optimal level of accessibility in terms of style (e.g. font type, size, margins, spacing) and use of colour, making it highly accessible for the widest range of possible users.
	1	**2**	**3**	**4**	**5**

(a) Accessibility (Forms and tables) **(Learning outcome 4 & 5)**	The application is accessible in some areas where a form and/or table has been applied, or where an it has been attempted. However, the accessibility is largely limited, which could otherwise be enhanced through a more accessible approach to tables and forms.	The application is somewhat accessible in terms of its use of forms and/or tables. However, the accessibility is limited, which could otherwise be enhanced through a more accessible approach to tables and forms.	The application has a high level of accessibility in terms of its use of forms and tables. Many parts of a form are designed for accessibility, including labels, tabbing and/or grouping, making it highly accessible for many possible users.	The application has a high level of accessibility in terms of its use of forms and tables. Almost all parts of a form are designed for accessibility, including labels, tabbing and grouping, and tables are correctly applied for tabular data, making it highly accessible for a wide range of possible users.	The application has the most optimal level of accessibility in terms of its use of forms and tables. All parts of a form are designed for accessibility, including labels, tabbing and grouping, and tables are correctly applied for tabular data, making it highly accessible for the widest range of possible users.
	1	**2**	**3**	**4**	**5**
Accessibility (ARIA) **(Learning outcome 4 & 5)**	The application is accessible in some areas. To a limited degree a user may be able to use it with a keyboard alone.	The application is somewhat accessible in terms of the ability for a user to use it with a keyboard alone. Some items in pages adopt ARIA roles and landmarks to identify navigation menu, headers and the main content. Many users who rely on a screen reader may struggle to interpret some of it's important content and/or page layout.	The application is largely accessible in terms of the ability for a user to use it with a keyboard alone, and in a logical way. Most items in pages adopt ARIA roles and landmarks to identify navigation menu, headers and the main content. Many users who rely on a screen reader would have no issue with understanding the main content on a page and it's layout, though there are some pages they may find difficult to understand.	The application has a high level of accessibility in terms of the ability for a user to use it with a keyboard alone, and in a logical way. Almost all items in pages adopt ARIA roles and landmarks to identify navigation menu, headers and the main content. Many users who rely on a screen reader would have no issue with understanding the main content on a page and it's layout.	The application has the most optimal level of accessibility in terms of the ability for a user to use it with a keyboard alone, and in a logical way. All pages adopt ARIA roles and landmarks to identify navigation menu, headers and the main content. All users who rely on a screen reader would easily understand all content presented on every page, and it's layout.
	1	**2**	**3**	**4**	**5**
Privacy statement **(Learning outcome 4)**	A privacy statement is provided, which captures at least 2 of the following –	A privacy statement is provided, which correctly captures some of the required	A privacy statement is provided, which correctly captures most of the required details including	A detailed privacy statement is provided, which correctly captures almost all of the required	A detailed privacy statement is provided, which correctly captures all required details

	required details including types of personal data processed, how it is processed, the purpose of this collection, how it will be shared, applicable laws and contact details.	details including - types of personal data processed, how it is processed, the purpose of this collection, how it will be shared, applicable laws and contact details.	types of personal data processed, how it is processed, the purpose of this collection, how it will be shared, applicable laws and contact details.	details including types of personal data processed, how it is processed, the purpose of this collection, how it will be shared, applicable laws and contact details.	including types of personal data processed, how it is processed, the purpose of this collection, how it will be shared, applicable laws and contact details.
	1	**2**	**3**	**4**	**5**
Apply responsive design principles (design and user experience) **(Learning outcome 5)**	Viewport configured in some ways (though not accurately) to allow browsers to adjust at least one page's dimensions and scaling to suit the device.	Viewport configured to allow browsers to adjust some page dimensions and scaling to suit the device. There are a few pages that can be resized by the user.	Viewport well configured in some areas to allow browsers to adjust page dimensions and scaling to suit the device, so most pages can be resized by the user.	Viewport well configured to allow browsers to adjust page dimensions and scaling to suit the device, so most pages can be easily resized by the user.	Viewport perfectly configured to allow browsers to adjust page dimensions and scaling to suit the device, so all pages can be easily resized by the user.
	1	**2**	**3**	**4**	**5**
Apply responsive design principles (Images) **(Learning outcome 5)**	Attempt has been made to scale images, but on mobile devices they appear 'out of place' or designed for desktop only.	Some images scale well. There are several instances where an image feels 'out of place' or designed for desktop, which has some impact on the user experience.	Most images scale well. There may be a few instances on a page where an image feels 'out of place' or designed for desktop, but this has a minor impact on user experience.	Almost all images scale well. There may be a minor instance on a page where an image feels slightly 'out of place' or designed for desktop, but this does not impact on user experience.	All images scale well, or alternative images provided for smaller viewports. There is no instance on any page where an image feels 'out of place' or designed for desktop.
	1	**2**	**3**	**4**	**5**
Apply responsive design principles (Text and font) **(Learning outcome 5)**	Some attempt has been made to make text legible but user needs to 'pinch and	In some areas of the application text is legible for mobile visitors. User may need to 'pinch and	Most text is legible for mobile visitors without much need for 'pinch and zoom'. Text mostly scales	Almost all text is legible for mobile visitors without any need for 'pinch and zoom'. Text	All text is legible for mobile visitors without any need for 'pinch and zoom'. Text scales

	zoom' to make text legible.	zoom' in many cases.	properly within the viewport.	mostly scales properly within the viewport.	properly within the viewport.
	1	**2**	**3**	**4**	**5**
Network performance test **(Learning outcome 5)**	Most pages load within 8 seconds on a 2G network.	Most pages load within 6 seconds on a 2G network.	Most pages load within 4 seconds on a 2G network	Most pages load within 2 seconds on a 2G network	All pages load within 2 seconds on a 2G network.

Part 2: Report (35 marks)

	1	**2**	**3**	**4**	**5**
Identify security issues	Identifies at least one type of security issue that website designers should be aware.	Identifies some types of security issues that website designers should be aware.	Identifies most types of security issues that website designers should be aware. At least one example is referred trom the application that was developed.	Identifies all types of security issues that website designers should be aware of, with several examples of how some of these issues were considered when the application was developed.	Identifies all types of security issues that website designers should be aware with detailed examples of how these issues were considered when the application was developed
	1	**2**	**3**	**4**	**5**
Describes the role of HTTP caching	Describes at least one way in which HTTP caching could provide improvements.	Describes at least one way in which HTTP caching could further improve responsiveness.	Describes some of the ways in which HTTP caching could further improve responsiveness.	Describes many ways in which HTTP caching could further improve responsiveness, with reference to some examples.	Describes in sufficient detail all ways in which HTTP caching could further improve responsiveness, with reference to suitable examples.
	1	**2**	**3**	**4**	**5**
Describes the role of Content Delivery Networks	Describes at least one way in which Content Delivery Networks caching could provide improvements.	Describes at least one way in which Content Delivery Networks caching	Describes some of the ways in which Content Delivery Networks caching could further improve responsiveness.	Describes many ways in which Content Delivery Networks caching could further improve responsiveness, with	Describes in sufficient detail all ways in which Content Delivery Networks caching could further improve

		could further improve responsiveness.		reference to some examples.	responsiveness, with reference to suitable examples.
	1-2	**3-4**	**5-6**	**7-8**	**9-10**
Report: Describe how responsive design is applied	Identifies some part of the application that makes it responsive.	Report describes some parts of the application that make it responsive.	Report describes most parts of the application that make it responsive.	Report describes all parts of the application that make it responsive, with some examples.	Report describes how all parts of the application make it responsive, with good supporting examples.
	1	**2**	**3**	**4**	**5**
Use of plugins	Demonstrated evidence of at least one plugin being installed.	Demonstrated evidence of at least one plugin being installed, with examples of some of the ways it can be used.	Demonstrated evidence of at least two plugins installed and used, with several examples of how it can be used. It is clear from one of these tests that the plugin was tested.	Demonstrated evidence of at least two plugins installed and used, with several examples of how it can be used. It is clear from one of these tests that the plugin was tested.	Demonstrated evidence of at least two plugins installed and used, with several examples of how it can be used. It is clear from one of these tests that the plugin was tested.
	1	**2**	**3**	**4**	**5**
Report: Network performance test - documentation	A network performance test is performed on the application as evidenced in documentation. Steps taken to perform this test are not clear.	A network performance test is performed on some of the pages.This is documented by outlining some of the steps taken using Chrome's DevTools to evaluate network speeds.	A network performance test is performed on most pages and navigation between pages. This is documented by outlining some of the steps taken using Chrome's DevTools to evaluate network speeds, and to identify any issues.	A network performance test is performed on most pages and navigation between pages. This is documented by outlining the steps taken using Chrome's DevTools to evaluate network speeds, identify any issues and carry out further tests where required.	A network performance test is performed on all pages and navigation between all pages. This is well documented by outlining all the steps taken using Chrome's DevTools to evaluate network speeds, identify any issues and carry out further tests where required.