**ASIA PACIFIC INSTITUTE OF INFORMATION TECHNOLOGY**

**Level 4**

COMP40004 WEB DEVELOPMENT AND OPERATING SYSTEMS

Individual Assignment

You are required to design and implement a simple web application which demonstrates the usage of proper web standards. This document consists of two assignments.

**Learning Outcomes**

Upon completion of this assignment, you will be expected to achieve the following learning outcomes:

1. DESIGN, PROGRAM AND TEST A WEB APPLICATION USING CURRENT WEB STANDARDS, AND IN DOING SO ADDRESS TARGET AUDIENCE AND DEVICE IN THE PROCESS SO THAT THIS WORKS EFFECTIVELY FOR MOBILE AND OFFLINE USE
2. IMPLEMENT AND TEST AN EVENT DRIVEN WEB APPLICATION USING CURRENT CODING STANDARDS AND PRACTICES

## Assignment submission

To be submitted as specified in the consolidated SAIS.

**Assignment 2 – 30%**

**Covers requirements from 1 to 10**

* A PDF document containing low fidelity wire-frames
* A link to your web application
* A project folder with all necessary project files

**Assignment 3 – 30%**

**Covers requirements from 11 to 14**

* A PDF document containing activity diagrams and test results – In Submission Link

All documents must be uploaded in PDF format without Zipping to the submission Link

* A link to your web application online

## Technical Requirements

The solution needs to be implemented using HTML, CSS and ECMAScript. (Standard in Java Scripts) with NO external web creator tools or any external libraries.

**Scenario**

You have been asked to create a client-side web application for a hotel. The need arose from a client to automate their manual hotel processes. Client needs to provide a good service via the website for their customers. You need to show your skills in web development, including web design, creating pages with HTML, styling using CSS, scripting with ECMAScript and testing web applications.

The application should be designed so it is a showcase of you and your skills, suitable to market yourself later to prospective employers.

The cite map for the application is shown below:

Application

Home Page

Hotel booking and adventure booking

Restaurants

Adventures

Hotel

Branches

Event 2

Event 1

**Assignment 2**

Your application must fulfil the following criteria:

1. Your whole application must:

* be created using **JUST** HTML, CSS, ECMAScript and **NO** external web creator tools
* **NOT** contain any external libraries or frameworks other than the ones covered in class
* have minimum of 7 HTML pages and are not limited to:
  + Home page
  + Hotel branches
  + Adventures
  + Restaurants
    - Event 1 page
    - Event 2 page
  + Booking hotel & adventures

1. Your whole application must be a progressive web application and therefore must:

* be hosted on HTTPS
* contain a web manifest with icon files
* contain responsive images for different screen resolutions

1. Your whole web application should be styled using **JUST CSS** ensuring that it: better to have one common CSS for the entire side .

* is suitable for the target audience
* is responsive on all pages from mobile devices to desktop devices.
* uses a link tag in the head of the HTML and has NO inline style within the HTML documents
* works on the latest version of all modern browsers.
* shows appropriate number of columns on mobile and desktop
* shows responsive tables.
* shows how animation can help the user experience by providing items the user can interact with
* shows your skills in DRY standards conformant CSS

1. Each page must contain suitable and appropriate HTML for the following:

* the head section
* a navigation section with appropriate links
* at least one header and footer
* References of content as comments in the footer area
* semantic tags for elements, sectioning, grouping, text and media? No divs ??

1. The Home page must contain the following:

* An introduction to the hotel
* a suitable responsive main image
* 3 sub-sections each having
  + a suitable image
  + at least two paragraphs of suitable content
  + appropriate headings
* all the following items somewhere on the page
  + a bullet point list of suitable content
  + a numbered list of suitable content
  + HTML comments for use by developers, which are not displayed on the page

1. Branches page must contain the following:

* suitable content about different branches of the hotel (each category needs to have the branch name, a map to the branch, images and a description)
* a summary table showing suitable content about specific branches:
  + You can select which data to present here e.g.: name of the branch, where it is located, image etc
* the table must have
  + appropriate headings
  + at least 3 columns and at least 3 rows
  + a table footer

1. Adventures page will contain the following:

* Appropriate images to showcase the adventures (fun activities and other adventures around the hotel)
* A small description of the adventures
* Google location/ map of the adventure venue

1. Restaurants page will contain the following:

* Descriptions of at least **3** main restaurant types available in the hotel
* 3 sections (one for each restaurant), having:
  + an appropriate image
  + a brief description of the restaurant, cousins available
  + an appropriate link to menus of the restaurants
* A link for 2 events pages (details of the 2 event pages is shown in question 9)

1. Event pages. (There should be 2 pages which showcases one event each which can be organized in the hotel)

* these two pages must have identical HTML,but look and feel should be different the main webpages
* the HTML pages must have at least the following
  + a main image
  + at least one other image
  + at least 3 sections
  + a header and a footer
  + a navigation section with appropriate links
* each page must link to a separate CSS
* each page must be styled in a totally different way to demonstrate that the same HTML can have a different appearance dependent on the CSS
* each page must have at least one animation

1. Booking of hotel and adventures

* This page should enable people to book hotel rooms and adventures
* Page should include necessary forms to perform the bookings

## Tasks

**You will need to hand in the following**

**A copy of PDF document containing wireframe designs**

**A link to your web application online**

1. Design your web application showing low fidelity wireframes for all your pages in a desktop and mobile layout
2. Build your web application as per the specification shown above
3. Create a word document report and convert it to PDF which shows the following

* A proper introduction
  + Your designs
  + A link to your web application which we will use to assess your application
  + Conclusion

## Marking Criteria

| **Task** | **Marks** |
| --- | --- |
| **Report/Application - Design**   * Your design of your web application in a low fidelity wireframe format * The suitability of the final web application | 10 |
| **Application**   * your conformance to the specification requirements 4-10 * your implementation of good quality code | 10 |
| **Application – Progressive Web Application**   * your conformance to the specification requirements 1-2 * your implementation of good quality code | 5 |
| **Application – Site CSS**   * your conformance to the specification requirements 3 * your implementation of good quality code | 10 |
| **Application – CSS Skills**   * your conformance to the specification requirements 9 * your implementation of good quality code | 10 |
| **Final demonstration & viva** | 15 |
| **TOTAL** | 60 |

***Note: 30% is taken from the total as the final mark***

Marks allocated as follows:

0 = no evidence of meeting criteria

1-3 = poor attempt at meeting criteria

4-5 = some attempt at meeting criteria

6-7 = good attempt at meeting criteria

8-10 = excellent attempt at meeting criteria

**Assignment 3**

1. The booking & reservations page provides an ECMA Script application for booking hotel rooms and reserving restaurants.

* the interface should have suitable form elements to allow the customers to book rooms by specifying:
* choice of room & number of rooms:
  + Single, Double, Triple
* of Number
  + number of Adults and children
* time period Duration of the stay
* extra requirements:
  + WiFi, different views (pool view/ garden view)
* there should be a:
* "Book now" button & display of confirmation
* “Book adventure” button & display confirmation
* Text field to enter the promo code
* Fields to showcase loyalty points
  + the user should be able to see the following information:
    - current booking(s)
    - cost of the current booking(s)
    - overall booking
    - overall cost of the booking
    - the costs are calculated as follows:

The hotel booking calculation is done as follows.

|  |  |
| --- | --- |
| Category/ scenario | Cost in LKR. |
| Single room | 25,000.00 |
| Double | 35,000.00 |
| Triple | 40,000.00 |
| Kids above 5 years of age | 5000.00 extra for meals |
| Extra bed | 8000.00 |
| If promo code “Promo123” is entered | 5% gets deducted from the total bill amount |

Adventure booking calculations is done as follows :

* Diving for local Adults (1 hr) – 5000LKR
* Diving for local kids (above 5 years) – 2000LKR
* Diving for foreign adults – 10000LKR
* Diving for foreign kids – 5000LKR

If in need for a guide during the diving session

* + Adult – 1000LKR extra will be charged
  + Kids – 500LKR extra will be charged
* when the booking page first loads:
  + the current booking and overall booking should be blank, and the cost of the current booking and the cost of the overall booking should be zero
* when the cost of the current booking changes in any way
  + the cost of the current booking must be updated and displayed
* when the "Book now" button is clicked:
  + the overall booking and the overall booking cost are updated and displayed
  + the current booking is reset to blank and the cost of the current booking is reset to 0
* when the " Book adventure " button is clicked:
  + a message is displayed thanking the user for their booking. The message should include the adventure name & details in it.
  + the current booking and overall booking are reset to blank and the cost of the current booking and the cost of the overall booking are reset to zero.
* user can add multiple room bookings and multiple adventure bookings to the same booking.

1. The booking page should provide advanced features to:

* save an order as a favourite
  + 2 buttons need to be added to the interface
  + when the "add to favourites" button is clicked, the booking should be saved in local storage, overwriting any existing favourite
* Earn loyalty points
  + A “check loyalty” button needed to be added to the interface, when the button is pressed the earned loyalty points need to be displayed to the user.
  + if the number of rooms in the order are greater than 3, 20 loyalty points are awarded per room and it is stored in the local storage and displayed to the user.

1. The web application needs to be tested and proper tests cases should be generated for the following tests,
   * HTML validity
   * CSS validity
   * Accessibility using WAVE
   * Lighthouse testing
   * Responsiveness on different devices and browsers
   * Functional tests for your product reservation application

## Tasks

**You will need to hand in the following**

**A copy of PDF document containing activity diagrams and test results**

**A link to your web application online**

A Design your web application showing activity diagrams for the ??application

B Build your purchase and donate page as per the specification shown above

C Test your web application and create a test table showing your tests for the following

* + HTML validity
  + CSS validity
  + Accessibility using WAVE
  + Lighthouse testing
  + Responsiveness on different devices and browsers
  + Tests for your ticket reservation application

1. Create a word document report and convert it to PDF which shows the following

* A proper introduction
  + Your designs in activity diagrams
  + Your test results in the form of a test table
  + A link to your web application which we will use to assess your application
  + Conclusion

## Marking Criteria

| **Task** | **Marks** |
| --- | --- |
| **Report - Activity diagrams**   * your activity diagrams for the basic hotel booking and the advanced features | 10 |
| **Application – basic ticket purchase and donation**   * your conformance to the specification requirements 11-12 * your implementation of good quality, well-structured code * the efficiency of the code | 15 |
| **Application – advanced ordering features**   * your conformance to the specification requirements 13 * your implementation of good quality, well-structured code * the efficiency of the code | 10 |
| **Report / Application – Testing**   * the thoroughness of your testing table * the results from tests   + HTML validity, CSS validity, Accessibility using WAVE, Lighthouse testing   + Responsiveness on different devices and browsers, Tests for your ticket reservation application | 15 |
| **Report / Application - Overall discretionary mark**   * your consideration of good practices * your use of innovative approaches to the problem * your demonstration of high-level coding skills * robustness of the final web application | 10 |
| **TOTAL** | 60 |

***Note: 30% is taken from the total as the final mark***

Marks allocated as follows:

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4-5 = some attempt at meeting criteria

6-7 = good attempt at meeting criteria

8-10 = excellent attempt at meeting criteria