# COWB70384 WEB PRINCIPLES

# COWB70383 WEB PRINCIPLES (DL)

# Module leader: Kelvin Hilton

# Assignment 1 – Worth 30% of the module (LO 1,3)

# Assignment 2 – Worth 70% of the module (LO 1,2)

## University Regulations

**The University Regulations regarding extenuating circumstances and academic misconduct will apply. Please ensure that you are familiar with these regulations:**

* https://www.staffs.ac.uk/students/course-administration/academic-policies-and-regulations/academic-conduct-procedure
* https://www.staffs.ac.uk/students/course-administration/academic-policies-and-regulations/exceptional-circumstances-procedure

## Submissions

* **All submissions are done using the link provided on the module assessment menu in Blackboard**
* **All reports / designs must be uploaded in word or PDF format and readable on a PC**
* **All zipped files must be in a compressed format (such as .zip, .rar, .7z, etc.)**
* **All links must be available to staff until results are released (when you have received your official result for the module) unless this would cause hardship in which case you will need the module leader’s permission to unmount the work**
* **Standard submission rules apply:**
  + **Late submissions attract ZERO marks for that section**
  + **Failure to submit on Blackboard may forfeit your opportunity to present or demonstrate your work**
  + **Failure to attend the presentation or demonstration on time may result in 0 marks for that component of assessed work**

## Important Dates

**See Blackboard module Welcome and Content page**

## Learning Outcomes

On completion of this module you will be able to:

1. Design, create and test a web site using current web standards.
2. Utilise scripting and style to enhance the site for target audience and device.
3. Reflect on the impact of current web standards on users and developers.

## Background

You are required to design, develop and test a web application to showcase your skills in ECMAScript, HTML and CSS and promote yourself for jobs that are advertised in Web Development, Software Engineering and Computer Science. To achieve this you are to design, implement and test an online resume as an application.

## Web Resume Specification

The web application must:

1. contain the following pages:

* Home / About me
* academic history
* professional history
* testimonials
* a skill page, showcasing your technical achievements with thumbnail links to two specific ECMAScript task pages
  + See required tasks
* contact information

1. contain the following content:

* appropriate text for your site on every page (no placeholder or dummy text)
* a stylised representation of you (think of it as a personal logo) you have created on every page
* your name and email address on every page
* on any page where they are used, appropriate use of (it is expected that your website will contain at least one of each);
  + a HTML table with a header row or column
  + a bullet list
  + an ordered list which uses roman numerals (i, ii, iii, iv, v…) or the alphabet (a, b, c, d, e…)
* a HTML form on the contact information page with appropriate field types and validation
  + this should not actually submit the page, but must have a submit button
  + form should ask for a subject, a free text field for up to 500 characters with a counter, a return contact address, proof they are not a robot (this can be simulated)

1. conform to good web design principles by:

* being useful for you to show as a portfolio site to apply for a vacancy in your postgraduate area
* being designed to suit its purpose
* using appropriate typography including at least one example of web fonts
* showcasing current trends in website design

1. conform to good principles in web development by:

* being hosted on an external web server using HTTPS
* **being created using only HTML, CSS and ECMAScript**
  + In general, third-party libraries, utilities or any other code are **not** permitted.
  + You may make use of style only, small third-party utilities for the skill page
    - These must be approved by your tutor prior to inclusion and we will publish your ID and the library you are using on the module site so that other students can approach you for tips and advice on using the library
    - use of such libraries will not attract additional marks
    - we will **not** allow large frameworks like jQuery, React, Angular or Bootstrap.
  + **The use of any non-permitted third-party code will result in you receiving zero marks for your code or features which make use of the non-permitted third-party code.**
* conforming to current web standards for mark-up

1. be a progressive web application and hence:

* use a web manifest and appropriate code and linked files for
  + custom splash screen
  + address bar / theme colour of a suitable colour
  + icons for mobile devices when the app is added to home screen or launcher
    - These must be available for modern versions of iOS, Android, and Windows 10.
* use at least one responsive image
  + Each responsive image should have at least two size variations for typical mobile and desktop size screens
  + Each responsive image size should have at least two resolution variants for normal (1x) and “Retina” high (2x) resolution screens.
  + Each image must be available in a modern format (either AVIF or WEBP) and a legacy format (JPG, GIF, or PNG as appropriate)
* use at least one vector image
* be designed offline first
* work on modern browsers for desktop, tablet and mobile and therefore:
  + For desktop: Google Chrome, Firefox, and your choice of Edge or Safari
  + For tablet and mobile: Your choice of Safari for iOS/iPad OS, or Chrome for Android
  + be responsive across all screen sizes from mobile to desktop
  + use feature detection to make sure it works on all browsers if you use features which are not available in all modern browsers

Inspiration (but not source!) can be found at (https://zyro.com/blog/resume-website-examples/ )

## Required Tasks

Your skill showcase must include the following two web applications.

## Currency Converter

You are required to design, implement and test a currency converter page. The page must:

1. be written using only HTML, CSS and ECMAScript following good coding principles
2. have an appropriately designed interface styled to compliment your overall site design that will:
   1. prompt the user for the currency to convert from (source)
   2. prompt the user for the currency to convert to (destination)
   3. show the current exchange rate as provided by the recommended source
   4. show the date of the calculation and the date of the last exchange rate update
   5. allow the user to enter a valid amount of currency for the source and correctly calculate the amount for the destination currency.

|  |
| --- |
| **For example:**  Source currency: GBP (UK pound)  Destination Currency: MYR (Malaysian Ringgit)  Current Exchange Rate: 1 pound = 5.25155 Ringgit  Calculation Timestamp: 16th October 2022 at 16:57  Amount of transaction: 50.50 GBP = 265.203 MYR |

1. The page must comply to the following rules:
   1. when the page is loaded, it will default to a chosen source and destination currency (you are free to specify or use location)
      1. source value will be set to 1
   2. the conversion data is loaded from <https://www.floatrates.com/json-feeds.html>
   3. the timestamp must be GMT and in UK format
   4. a zero or negative source amount will display an appropriately styled and communicative error message
   5. an upper limit for the source value must be visible on the page and an attempt to enter a value above the limit will display an appropriately styled and communicative error message

## Forecaster

You are required to design, implement and test a forecasting page for a selection of heating fuel costs in the UK using the dataset provided on Blackboard which is actual data from the UK government’s Department for Business, Energy & Industrial Strategy (BEIS) . The data is in the form of an Excel spreadsheet. **You are only required to use the data on the tab 2.1.3 and from the columns specified below.** You are not required to load the data into your site in real-time so you can hardcode it into your page or use CSV, JSON, etc. No extra marks will be awarded for dynamically loading the data. The data shows the cost in the basic unit in UK pence. The page must:

1. be written using only HTML, CSS and ECMAScript following good coding principles
2. have an appropriately designed interface styled to compliment your overall site design that will:
   1. display an appropriate chart representing a twelve month “window” of the price of the four basic fuel types (shown below with the dataset identifier code from the provided dataset)
      1. solid fuels (D7DW)
      2. gas (D7DU)
      3. electricity (D7DT)
      4. liquid fuels (D7DV)
   2. allow the user to scroll forwards and backwards through the data with the chart updating accordingly
      1. data is only available from January 1996 to August 2022
   3. allow the user to filter the chart view to display zero to all of the indicated fuel types
   4. using the straight-line forecasting method, forecast the costs of the indicated fuels for the next 12 months
3. you are permitted to use an appropriate charting library such as Chart.js or Google Chart for this page
4. expected behaviour:
   1. when the page loads it will show the cost for all indicated fuels types for the 12-month period up to the previous month to the current month (e.g., if it were currently October 2022 then the chart would display the costs from October 2021 to September 2022
   2. all dates are in UK format
   3. all prices are in UK currency and displayed in whole pence and fractions up to 1 decimal place
   4. the app will have 2 modes, historical and forecast
   5. when the application is in historical mode
      1. any attempt by a user to scroll backwards beyond January 1996 will display an appropriately styled and communicative error message
      2. any attempt by a user to scroll forward beyond the current month will display an appropriately styled and communicative error message
   6. when the application Is in forecast mode
      1. forwards or backwards scrolling should not be available
   7. your interface should provide an appropriate interface to allow mode switching

## Assignment general requirements

1. Research good principles in web standards, web design and usability to help you design and develop the web application
2. Produce low-fidelity wireframe designs for desktop and smart phone, which should include:

* the position of the navigation
* the position of the content, annotated to show the type and what it will contain
  + e.g., “image of a cat asleep on a bench”, “paragraph about my school qualifications”

1. Create UML activity diagrams for the 2 required tasks
2. Build your final web application conforming to:

* the web application specification
* the Currency Convertor specification
* the Forecaster specification

1. Produce a testing table document including:

* HTML and CSS validation for all pages
* Lighthouse testing for all pages
* accessibility testing for all pages
* whether each page is usable:
  + on different browsers
  + on different devices (mobile, tablet and desktop)
  + at different screen sizes and screen resolutions
* when the style is turned off
* functional testing for the required tasks

## Assessment Specific Requirements

## Assignment 1 - Report (30%)

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

* **your report in a word or pdf format**

Create a 1500-word researched and referenced report which includes the following:

* a researched and referenced reflection covering:
  + outline and justify your proposed design for your site, showing good principles in web design
  + how you will prove your web application will be suitable for different browsers and devices
  + how current web standards have an impact on users and developers, showing you are your design of your site, and other sites on the Internet
* your low-fidelity wireframe designs
* your activity diagrams

## Marking Criteria

|  | **Marks** |
| --- | --- |
| Your researched and referenced reflections | 20 |
| Your Design documents   * your low-fidelity wireframe designs * your activity diagrams | 10 |
| **TOTAL** | 30 |

## Assignment 2 – Website (70%)

**You will need to hand in the following by 12/01/2021 23:59**

* **a zip file containing your HTML, CSS and all images used**
* **your testing documentation in Microsoft Word or PDF format**
* **a link to your web application**
* **a .txt file with instructions of any special requirements needed to run your site (e.g., access to 3rd party content)**

Build the web application as specified and produce tests in the form of required testing documentation.

• your conformance to the web application specification for the resume

• your implementation of good quality code

• your demonstration of a thorough understanding of the code

## Marking Criteria

| **Task** | **Marks** |
| --- | --- |
| **Web Application Content**   * your conformance to the Web Resume Specification 1 & 2 * your implementation of good quality code   your demonstration of a thorough understanding of the code | 10 |
| **Web Application Design**   * your conformance to the Web Resume Specification 3 & 4 * your implementation of good quality code * your demonstration of a thorough understanding of the code | 10 |
| **Progressive Web Application**   * your conformance to the Web Resume Specification 5 * your implementation of good quality code * your demonstration of a thorough understanding of the code | 10 |
| **Currency Converter**   * your conformance to the specification * your implementation of good quality code * your demonstration of a thorough understanding of the code | 10 |
| **Forecaster**   * your conformance to specification * your implementation of good quality code * your demonstration of a thorough understanding of the code | 10 |
| **Testing**   * the thoroughness of your testing * the results from live tests done by the tutor | 10 |
| **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** | 70 |

## Mark Allocation

Marks out of 20 allocated as follows:

* 0 = no evidence of meeting criteria
* 1-7 = poor attempt at meeting criteria
* 8-10 = some attempt at meeting criteria
* 11-13 = good attempt at meeting criteria
* 14-16 = very good attempt at meeting criteria
* 17-20 = excellent attempt at meeting criteria

Marks out of 10 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