### ../../../../../Downloads/Staffs%20Uni%20Red%20Logo%20Print%20VersiFaculty of Computing, Engineering and Sciences

# COWB50346 - PROGRAMMING WITH HTML APIS

# Learning Outcomes

1. Design rich internet applications, using the latest techniques.
2. Implement, test and critically evaluate rich internet applications, using the latest web standard programming techniques.
3. Critically review, select and use web technologies to optimise the application to a small file size.
4. Consume data from 3rd party API sources to create a web application.
5. Critically evaluate, select and use web technologies to produce a real time application from distributed sources.

**Assignment - Worth 100% of module marks**

**The University Regulations regarding extenuating circumstances and plagiarism will apply.**

**All submissions are electronically via Blackboard at the time specified in the task.**

**Standard submission rules apply. Late submissions attract ZERO marks, and will forfeit the opportunity to demonstrate for that section.**

**All designs must be uploaded in a Word or PDF format, and be able to be read on a PC.**

# Tasks

There are six tasks to complete over the two semesters.

* The assessment of Tasks 1, 2, 3 and 4 have already taken place.
* Detailed below are Tasks 5 and 6.

The titles for each task are as follows:

1. JavaScript Objects (10 marks)
2. Canvas Soundboard (20 marks)
3. Term Frequency Analysis (20 marks)
4. HTTP APIs & Big Data Analysis (20 marks)
5. Stage 1 Progressive Web App (10 marks)
6. Stage 2 Progressive Web App (20 marks)

# Tasks 5-6

**Tasks 5,6 Hand in date (electronically on Blackboard) – 09/05/17 11:30  
Demo Date: 09/05/17 – demo times are available on Blackboard**

**You must upload a zipped file of your code to Blackboard by 09/05/17 11:30. Failure to do this will result in a forfeit of your opportunity to demonstrate, and will attract zero marks for the demo.**

Each task must meet the specification.

### Scenario

Over task 5 and 6, you are to create an example progressive web application to showcase your skills.

Choose your topic from the list below and agree it with your lecturer;

* A CV / portfolio site
* A tourist information site for a town or attraction
* A guide to a University for new students
* A marketing site
* A shopping site (without check-out facilities)
* A site of your choosing (you MUST agree this with your lecturer BEFORE you start)

Where criteria is marked out of 10, marks will be allocated as follows;

0 = no evidence of meeting criteria

1-2 = poor attempt at meeting criteria

3-4 = some attempt at meeting criteria

5-6 = good attempt at meeting criteria

7-8 = very good attempt at meeting criteria

9-10 = excellent attempt at meeting criteria

Where criteria is marked out of 5, marks will be allocated as follows;

0 = no evidence of meeting criteria

1 = poor attempt at meeting criteria

2 = some attempt at meeting criteria

3 = good attempt at meeting criteria

4 = very good attempt at meeting criteria

5 = excellent attempt at meeting criteria

# Task 5: Stage 1 Progressive Web App

**Specification**

Create your site to include the following;

* Served on HTTPS
* Be designed to suit the device – smartphone and tablet
* Be designed to suit the target audience – using style sheets
* Responsive to work on smartphone, and tablet – both in landscape and portrait orientations - using media queries
* Use of picture tag to show to display a photo
  + At normal (1x), 2x and 3x pixel ratios
  + At appropriate dimensions for smartphone and tablet devices
  + Showing the use of art direction for the content
* Ability for the user to add the page to their home screen/launcher and use an appropriate icon/tile which you have designed for apple and android (using link tags)
* An example of the use of geo-location, displayed on a Google API map (e.g. ‘The nearest shop/pharmacy/cinema etc. to the user’)
* Suitable navigation for smart phone and tablet – justifying your choice during the demo
* One page must be a news / portfolio examples page, which should contain
  + At least 10 unique articles/items within each
    - Having a **unique** image in an appropriate format for the device
    - Having a brief text description – can be the same text on each article
    - Click on an article/item to show a page with further details (you only need to implement a further details screen for one of the articles/items)
* One page with a form
  + Collecting the following types of data
    - Text
    - Number
    - Email
    - Choice / selection
    - Button to submit the form
  + Validating the inputs using HTML5 to improve the user experience

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| --- | --- |
| **Criteria** | **Maximum Mark** |
| Meets specification for this task above | 5 |
| Discretionary Mark (Task runs without bugs or glitches, Good coding practices followed, good understanding of the code created, written Descriptions and URLs of all resources you used to help with the coding) | 5 |
| **TOTAL** | **10** |

This task contributes towards the assessment of the following module learning outcomes;

* 1 - Design rich internet applications, using the latest techniques.
* 2 - Implement, test and critically evaluate rich internet applications, using the latest web standard programming techniques.

# Task 6: Stage 2 Progressive Web App

**Specification**

Extend your site from Task 5 to include the following;

* Retrieve data for news/portfolio examples into the site from a JSON file on the internet
* Store data in Local Storage (such as favourite articles) that can be retrieved when the page is refreshed
* Retrieve data from Local Storage when the device is offline
* Offline pages suitable for your web application using service workers
* Web manifest suitable for your web application to include at least
  + Properties to satisfy Google’s checklist for ‘Add to Home screen’ (tested via. Lighthouse)
  + Properties to satisfy Google’s checklist for ‘Custom Splash Screen’ (tested via. Lighthouse)
  + Properties to satisfy Google’s checklist for ‘Brand Colours’ (tested via. Lighthouse)

Minify your code using appropriate methods and test your final site in the following to validate quality of code

* Lighthouse
* Page Speed (including separate mobile tester)
* WAVE Accessibility
* HTML / CSS Validation

Review the test results, and explain any remaining issues

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| **Criteria** | **Maximum Mark** |
| Meets specification for this task above | 5 |
| Discretionary Mark (Task runs without bugs or glitches, Good coding practices followed, good understanding of the code created, written Descriptions and URLs of all resources you used to help with the coding) | 5 |
| Minify, Testing and review | 10 |
| **TOTAL** | **20** |

This task contributes towards the assessment of the following module learning outcomes;

* 1 - Implement, test and critically evaluate rich internet applications, using the latest web standard programming techniques.
* 3 - Critically review, select and use web technologies to optimise the application to a small file size.