COIT20269 *Mobile Web Apps*
Term 2 - 2024

Profile information current as at 29/07/2024 04:05 pm

General Information

Overview

This unit shows you how to design and implement dynamic mobile web apps that allow complex user interaction and build on knowledge of responsive web design. You will examine the viability of web apps versus native apps, with particular attention being paid to cross platform considerations using tools such as Apache Cordova, implementing web middleware using server-side tools such as Node.js and integrating these with cloud databases to store mobile data. The business drivers for mobile portals will also be discussed, as will the social impact of mobile technology. Research skills will be introduced as a means of keeping up to date with the changing mobile development landscape.

Details

Career Level: *Postgraduate*
Unit Level: *Level 9*
Credit Points: *6*
Student Contribution Band: *8*
Fraction of Full-Time Student Load: *0.125*

Pre-requisites or Co-requisites

Pre-Req: COIT20268 Responsive Web Design Anti-Req: COIT20231 Mobile Computing
Important note: Students enrolled in a subsequent unit who failed their pre-requisite unit, should drop the subsequent unit before the census date or within 10 working days of Fail grade notification. Students who do not drop the unit in this timeframe cannot later drop the unit without academic and financial liability. See details in the Assessment Policy and Procedure (Higher Education Coursework).

Offerings For Term 2 - 2024

- Brisbane
- Melbourne
- Online
- Rockhampton
- Sydney

Attendance Requirements

All on-campus students are expected to attend scheduled classes – in some units, these classes are identified as a mandatory (pass/fail) component and attendance is compulsory. International students, on a student visa, must maintain a full time study load and meet both attendance and academic progress requirements in each study period (satisfactory attendance for International students is defined as maintaining at least an 80% attendance record).

Website

This unit has a website, within the Moodle system, which is available two weeks before the start of term. It is important that you visit your Moodle site throughout the term. Please visit Moodle for more information.

Class and Assessment Overview

Recommended Student Time Commitment

Each 6-credit Postgraduate unit at CQUniversity requires an overall time commitment of an average of 12.5 hours of study per week, making a total of 150 hours for the unit.

Class Timetable

Regional Campuses
Bundaberg, Cairns, Emerald, Gladstone, Mackay, Rockhampton, Townsville

Metropolitan Campuses
Adelaide, Brisbane, Melbourne, Perth, Sydney

Assessment Overview

1. **Practical Assessment**
Weighting: 20%
2. **Practical Assessment**
Weighting: 30%
3. **Project (applied)**
Weighting: 50%

Assessment Grading

This is a graded unit: your overall grade will be calculated from the marks or grades for each assessment task, based on the relative weightings shown in the table above. You must obtain an overall mark for the unit of at least 50%, or an overall grade of 'pass' in order to pass the unit. If any 'pass/fail' tasks are shown in the table above they must also be completed successfully ('pass' grade). You must also meet any minimum mark requirements specified for a particular assessment task, as detailed in the 'assessment task' section (note that in some instances, the minimum mark for a task may be greater than 50%). Consult the University's Grades and Results Policy for more details of interim results and final grades.

CQUniversity Policies

All University policies are available on the CQUniversity Policy site.
You may wish to view these policies:

- Grades and Results Policy
- Assessment Policy and Procedure (Higher Education Coursework)
- Review of Grade Procedure
- Student Academic Integrity Policy and Procedure
- Monitoring Academic Progress (MAP) Policy and Procedure – Domestic Students
- Monitoring Academic Progress (MAP) Policy and Procedure – International Students
- Student Refund and Credit Balance Policy and Procedure
- Student Feedback – Compliments and Complaints Policy and Procedure
- Information and Communications Technology Acceptable Use Policy and Procedure

This list is not an exhaustive list of all University policies. The full list of University policies are available on the CQUniversity Policy site.

Previous Student Feedback

Feedback, Recommendations and Responses

Every unit is reviewed for enhancement each year. At the most recent review, the following staff and student feedback items were identified and recommendations were made.

Feedback from Unit Coordinator and Teaching Team Reflection

Feedback

jQuery Mobile framework, popularity and usage have declined over the years. Alternative frameworks should be considered.

Recommendation

Explore a transition to a more widely adopted front-end development framework (for example React).

Feedback from Teaching Team's Reflection

Feedback

Incorporating intuitive coding examples in lectures proves to be a valuable practice, aiding students in the development of their skills.

Recommendation

Continue providing intuitive coding examples in the lecture slides and tutorial materials.

Feedback from Unit Coordinator

Feedback

Weekly tutorials should adopt a guided approach, furnishing students with step-by-step instructions for completing the tasks.

Recommendation

Revise and enrich the tutorial with detailed, step-by-step guidance. This update will not only make the material more accessible but also foster a deeper understanding and more effective task execution by the students

Feedback from Unit Coordinator and Teaching Team

Feedback

Split the unit into two distinct components: one focusing on front-end development and the other addressing backend and cloud aspects.

Recommendation

Restructure the unit by dividing it into two distinct components. The first component should focus exclusively on front-end development (for mobile web applications) and the second component should then address back-end development and cloud computing aspects.

Unit Learning Outcomes

On successful completion of this unit, you will be able to:

1. Design, create and implement a mobile web app
2. Design, create and implement a hybrid mobile app, a web service and then use these to store mobile data to a cloud database
3. Analyse and evaluate design alternatives for the app
4. Use an integrated development environment (IDE) build, debug and test mobile systems to develop a working app
5. Assess the current and future business impact of mobile web apps
6. Critically evaluate key research areas in mobile web apps.

Australian Computer Society (ACS) recognises the Skills Framework for the Information Age (SFIA). SFIA is in use in over 100 countries and provides a widely used and consistent definition of ICT skills. SFIA is increasingly being used when developing job descriptions and role profiles.
ACS members can use the tool MySFIA to build a skills profile at
https://www.acs.org.au/professionalrecognition/mysfia-b2c.html
This unit contributes to the workplace skills as defined by SFIA. The SFIA code is included:
Systems Design (DESN),
Systems Integration (SINT),
Data Analysis (DTAN),
Database/Repository Design (DBDS),
Testing (TEST),
Release and Deployment (RELM),
Applications Support (ASUP).

Alignment of Learning Outcomes, Assessment and Graduate Attributes

— N/A Level ∘ Introductory Level • Intermediate Level • Graduate Level ∘ Professional Level ∘ Advanced Level

Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes					
	1	2	3	4	5	6
1 - Practical Assessment - 20%				•		
2 - Practical Assessment - 30%	•	•		•	•	
3 - Project (applied) - 50%		•	•		•	•

Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes					
	1	2	3	4	5	6
1 - Knowledge	∘	∘	∘	∘	∘	∘
2 - Communication					∘	∘
3 - Cognitive, technical and creative skills	∘	∘	∘	∘	∘	∘

Graduate Attributes	Learning Outcomes					
	1	2	3	4	5	6
4 - Research			○		○	○
5 - Self-management	○	○	○	○	○	○
6 - Ethical and Professional Responsibility						
7 - Leadership						
8 - Aboriginal and Torres Strait Islander Cultures						

Alignment of Assessment Tasks to Graduate Attributes

Assessment Tasks	Graduate Attributes							
	1	2	3	4	5	6	7	8
1 - Practical Assessment - 20%	○		○		○			
2 - Practical Assessment - 30%	○		○		○			
3 - Project (applied) - 50%	○	○			○			

Textbooks and Resources

Textbooks

There are no required textbooks.

IT Resources

You will need access to the following IT resources:

- CQUniversity Student Email
- Internet
- Unit Website (Moodle)
- Android Studio (latest version)
- Zoom (both microphone and webcam capability)
- Visual Studio Code (latest version)
- Gradle (latest version)
- Node.js (latest version from https://nodejs.org/en/)
- Apache Cordova (latest version from https://cordova.apache.org/)
- Git CLI (from https://cli.github.com/)
- Git (https://www.git-scm.com/downloads)

Referencing Style

All submissions for this unit must use the referencing style: Harvard (author-date)
For further information, see the Assessment Tasks.

Teaching Contacts

Salahuddin Azad Unit Coordinator
s.azad@cqu.edu.au

Schedule

Week 1 - 08 Jul 2024

Module/Topic	Chapter	Events and Submissions/Topic
JavaScript: Basics. JSON	Lecturer created materials	

Week 2 - 15 Jul 2024

Module/Topic	Chapter	Events and Submissions/Topic
JavaScript: Arrays. Objects. jQuery. jQueryMobile	Lecturer created materials	

Week 3 - 22 Jul 2024

Module/Topic	Chapter	Events and Submissions/Topic
Single Page Application using jQueryMobile	Lecturer created materials	

Week 4 - 29 Jul 2024

Module/Topic	Chapter	Events and Submissions/Topic
Asynchronous Programming	Lecturer created materials	

Week 5 - 05 Aug 2024

Module/Topic	Chapter	Events and Submissions/Topic
Node.js Basics	Lecturer created materials	

Vacation Week - 12 Aug 2024

Module/Topic	Chapter	Events and Submissions/Topic
Enjoy the break.		

Week 6 - 19 Aug 2024

Module/Topic	Chapter	Events and Submissions/Topic
API Construction using Node.js and Express	Lecturer created materials	**Assignment 1 - Mobile Web App** Due: Week 6 Tuesday (20 Aug 2024) 11:45 pm AEST

Week 7 - 26 Aug 2024

Module/Topic	Chapter	Events and Submissions/Topic
Using MongoDB Database	Lecturer created materials	

Week 8 - 02 Sep 2024

Module/Topic	Chapter	Events and Submissions/Topic
Hybrid App Development	Lecturer created materials	

Week 9 - 09 Sep 2024

Module/Topic	Chapter	Events and Submissions/Topic
Online App Deployment	Lecturer created materials	**Assignment 3 - Mobile Apps Project (Part A)** Due: Week 9 Tuesday (10 September 2024) 11:45 pm AEST

Week 10 - 16 Sep 2024

Module/Topic	Chapter	Events and Submissions/Topic

Express Routing and Middleware	Lecturer created materials	**Assignment 2 - Full Stack Hydrid App** Due: Week 10 Tuesday (17 Sept 2024) 11:45 pm AEST

Week 11 - 23 Sep 2024

Module/Topic	Chapter	Events and Submissions/Topic
Web App Security: Basic	Lecturer created materials	

Week 12 - 30 Sep 2024

Module/Topic	Chapter	Events and Submissions/Topic
Web App Security: Advanced	Lecturer created materials	**Assignment 3 - Mobile Apps Project (Part B)** Due: Week 12 Tuesday (1 October 2024) 11:45 pm AEST

Review/Exam Week - 07 Oct 2024

Module/Topic	Chapter	Events and Submissions/Topic

Exam Week - 14 Oct 2024

Module/Topic	Chapter	Events and Submissions/Topic

Term Specific Information

Contact information for Dr Salahuddin Azad: Email: s.azad@cqu.edu.au; Office: Level 6, 120 Spencer Street, Melbourne Vic 3000; P +61 3 9616 0680 | X 50680.

If you have any queries, please email me and I will get back to you within one business day or so. For an individual discussion, please ring me during business hours (or leave a message if I am not in) and I will return your call as soon as possible.

Assessment Tasks

1 Assignment 1 - Mobile Web App

Assessment Type
Practical Assessment

Task Description
This is an **individual** assignment.

The objective of this assignment is to develop, test and maintain a client-side mobile web app using an integrated suite of mobile software development tools. More specifically, you will work on the client-side using jQuery, jQuery Mobile, JavaScript, HTML5, and CSS.

You will be given partially completed source code of a client-side mobile web app as a starting point for development. The mobile app will be a JQueryMobile SPA (Single Page Application). You are required to complete the mobile web app to achieve the desired functionalities by:

- adding necessary jQuery pages
- adding HTML code to jQuery pages
- adding JavaScript code to .js files, and
- adding styles to .css files

Further detail about the assignment will be provided on the Moodle unit website and in the assignment specification document.

Assessment Due Date
Week 6 Tuesday (20 Aug 2024) 11:45 pm AEST
You must submit your assignment electronically by the above due date and time.

Return Date to Students
Week 8 Tuesday (3 Sept 2024)
The marks and feedback will be returned within 2 weeks after the submission due date.

Weighting
20%

Assessment Criteria
The assignment specification along with the marking criteria will be provided on the Moodle unit website.

Referencing Style

- Harvard (author-date)

Submission
Online

Submission Instructions
You are required to submit your assignment electronically via the Moodle unit website. The deliverable is a compressed file containing all your assessment work (code, folders, images and your Word document) as one gzip, rar or zip file. Please note: You should use your student number as the name for your gzip, rar or zip file when uploading to Moodle.

Learning Outcomes Assessed

- Use an integrated development environment (IDE) build, debug and test mobile systems to develop a working app

Graduate Attributes

- Knowledge
- Cognitive, technical and creative skills
- Self-management

2 Assignment 2 - Full Stack Hydrid App

Assessment Type
Practical Assessment

Task Description
This is an **individual** assignment.

The main outcome of this assignment is to create a three-tier Hybrid Mobile App running on a smart device.

The objectives of this assignment are:

1. **Database** - Create and maintain a MongoDB document database using the Atlas cloud service for online storage of mobile app data.
2. **Client** - Develop, test and maintain a hybrid mobile app using an integrated suite of mobile software development tools. More specifically on the client-side, jQuery, jQuery Mobile, JavaScript, HTML5, and CSS.
3. **Server** - Develop, test and maintain an Express web server and API using JavaScript and Node.js with various Node.js packages. Data is stored locally on the mobile device and in the cloud (MongoDB). The API facilitates access to a MongoDB Atlas cloud service using Node Express middleware.

You will be given partially completed source code of a mobile web app as the starting point for development. You are required to complete the Hybrid Mobile App to achieve the desired functionalities.

Further detail about the assignment will be provided on the Moodle unit website and in the assignment specification document.

Assessment Due Date
Week 10 Tuesday (17 Sept 2024) 11:45 pm AEST
You must submit your assignment electronically by the above due date and time.

Return Date to Students
Week 12 Tuesday (1 Oct 2024)
The marks and feedback will be returned within 2 weeks after the submission due date.

Weighting
30%

Assessment Criteria
The assignment specification along with the marking criteria will be provided on the Moodle unit website.

Referencing Style

- Harvard (author-date)

Submission
Online

Submission Instructions
You are required to submit your assignment electronically via the Moodle unit website. The deliverable is a compressed file containing all your assessment work (code, folders, images and your Word document) as one tar, rar or zip file. Please note: You should use your student number as the name for your tar, rar or zip file when uploading to Moodle.

Learning Outcomes Assessed

- Design, create and implement a mobile web app
- Design, create and implement a hybrid mobile app, a web service and then use these to store mobile data to a cloud database
- Use an integrated development environment (IDE) build, debug and test mobile systems to develop a working app
- Assess the current and future business impact of mobile web apps

Graduate Attributes

- Knowledge
- Cognitive, technical and creative skills
- Self-management

3 Assignment 3 - Mobile Apps Project

Assessment Type
Project (applied)

Task Description
This is a **group** assignment.

You should work in a group of **three (3)** members. The overall objective of this assignment is to specify, design, implement, and test a Hybrid Mobile App. More specifically, the tasks that need to be accomplished are:

Part A: Project Proposal (15 marks)

You will generate a semi-original idea for a hybrid mobile app and develop a proposal containing:

- A brief description of what the app is about and what it does
- A brief discussion of who will use the app and why they will use the app (target audience)
- A list of high-level user requirements
- Software architecture, clearly depicting all components
- Wireframes of all user interfaces
- A brief outline of the testing plan
- A summary of the major tasks and who is doing which task

Part B: Application and Report (35 marks)

You will develop a hyrbid mobile app as per the specification developed in Part A. The deliverables for Part B are:

- **Database** - Create and maintain a MongoDB document database using the Atlas cloud service for online storage of mobile app data.
- **Client** - Develop, test, and maintain a mobile client app using an integrated suite of mobile software development tools. More specifically on the client-side, jQuery, jQuery Mobile, JavaScript, HTML5, and CSS.
- **Hybrid App** - Deploy the mobile client app as a Hybrid App to smart devices (e.g., Android smartphone) using the Cordova platform.
- **Server** - Develop, test, and maintain an Express web server and API using JavaScript and Node.js with various Node.js packages. Data is stored locally on the mobile device and in the cloud (MongoDB). The API facilitates access to a MongoDB Atlas cloud service for online storage and retrieval using Node Express middleware.
- **Server Deployment** - Deploy the API server using an online service (e.g., Render).

- **Report** – Briefly illustrate run instructions, problem resolution, app testing, and vulnerability analysis.

Further detail about the assignment will be provided on the Moodle unit website and in the assignment specification document.

Please note: This assessment task is selected to be included in your course-wide portfolio. The outcomes/artifacts of this assessment must be uploaded to Portfolium (https://portfolium.com/activity) by the submission due date in addition to your submission to Moodle for marking.

Assessment Due Date

Part A Due: Week 9 Tuesday (10 September 2024) 11:45 pm AEST, and Part B Due: Week 12 Tuesday (1 October 2024) 11:45 pm AEST

Return Date to Students

The marks and feedback will be returned on the date of certificatation of grades.

Weighting
50%

Assessment Criteria
The assignment specification along with the marking criteria will be provided on the Moodle unit website.

Referencing Style

- Harvard (author-date)

Submission
Online

Submission Instructions
For Part A, you are required to submit a Word file to Moodle. For Part B, the deliverable is a compressed file containing all your code, supporting files and your report as one tar, rar or zip file. Please note: Each member of a group must individually submit Part A and Part B to Moodle.

Learning Outcomes Assessed

- Design, create and implement a hybrid mobile app, a web service and then use these to store mobile data to a cloud database
- Analyse and evaluate design alternatives for the app
- Assess the current and future business impact of mobile web apps
- Critically evaluate key research areas in mobile web apps.

Graduate Attributes

- Knowledge
- Communication
- Self-management

Academic Integrity Statement

As a CQUniversity student you are expected to act honestly in all aspects of your academic work.

Any assessable work undertaken or submitted for review or assessment must be your own work. Assessable work is any type of work you do to meet the assessment requirements in the unit, including draft work submitted for review and feedback and final work to be assessed.

When you use the ideas, words or data of others in your assessment, you must thoroughly and clearly acknowledge the source of this information by using the correct referencing style for your unit. Using others' work without proper acknowledgement may be considered a form of intellectual dishonesty.

Participating honestly, respectfully, responsibly, and fairly in your university study ensures the CQUniversity qualification you earn will be valued as a true indication of your individual academic achievement and will continue to receive the respect and recognition it deserves.

As a student, you are responsible for reading and following CQUniversity's policies, including the **Student Academic Integrity Policy and Procedure**. This policy sets out CQUniversity's expectations of you to act with integrity, examples of academic integrity breaches to avoid, the processes used to address alleged breaches of academic integrity, and potential penalties.

What is a breach of academic integrity?
A breach of academic integrity includes but is not limited to plagiarism, self-plagiarism, collusion, cheating, contract cheating, and academic misconduct. The Student Academic Integrity Policy and Procedure defines what these terms mean and gives examples.

Why is academic integrity important?
A breach of academic integrity may result in one or more penalties, including suspension or even expulsion from the University. It can also have negative implications for student visas and future enrolment at CQUniversity or elsewhere. Students who engage in contract cheating also risk being blackmailed by contract cheating services.

Where can I get assistance?
For academic advice and guidance, the Academic Learning Centre (ALC) can support you in becoming confident in completing assessments with integrity and of high standard.

What can you do to act with integrity?

Be Honest
If your assessment task is done by someone else, it would be dishonest of you to claim it as your own

Seek Help
If you are not sure about how to cite or reference in essays, reports etc, then seek help from your lecturer, the library or the Academic Learning Centre (ALC)

Produce Original Work
Originality comes from your ability to read widely, think critically, and apply your gained knowledge to address a question or problem