



COIT20269 *Mobile Web Apps*

Term 2 - 2020

Profile information current as at 20/04/2024 05:30 pm

All details in this unit profile for COIT20269 have been officially approved by CQUniversity and represent a learning partnership between the University and you (our student). The information will not be changed unless absolutely necessary and any change will be clearly indicated by an approved correction included in the profile.

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 - 2020

- 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 Tutor and students' informal feedback

Feedback

Some of the tutorial examples/solutions did not work due to the new version of the software (Apache Cordova).

Recommendation

Update tutorial documentation and solutions to work with new versions of software, as well as provide guidance to students on dealing with version changes themselves.

Feedback from Student evaluations, teaching team reflections

Feedback

The rapid development of new mobile web app technologies makes it hard to keep the unit content up to date for different platforms.

Recommendation

Include cross-platform development approaches (e.g. Google Flutter) as well as other new technologies (e.g. micro-services, API gateways) in the unit. This will impact IT resources.

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



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	○	○	○	○	○	○
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

COIT20269

Prescribed

Beginning Mobile Application Development in the Cloud

Edition: 1st (2012)

Authors: R. Rodger

John Wiley & Sons, Inc.

Indianapolis , IN , USA

ISBN: 978-1-118-03469-9

Binding: Other

Additional Textbook Information

If you prefer to study with a paper copy, they are available at the CQUni Bookshop here: <http://bookshop.cqu.edu.au> (search on the Unit code). eBooks are available at the publisher's website.

[View textbooks at the CQUniversity Bookshop](#)

IT Resources

You will need access to the following IT resources:

- CQUniversity Student Email
- Internet
- Unit Website (Moodle)
- Android studio (latest version)
- Apache cordova from <https://cordova.apache.org/>
- mongodb from <http://mongodb.org>
- Node from <https://nodejs.org/en/>

Referencing Style

All submissions for this unit must use the referencing style: [Harvard \(author-date\)](#)

For further information, see the Assessment Tasks.

Teaching Contacts

Phillip Whiteley Unit Coordinator

p.c.whiteley@cqu.edu.au

Schedule

Week 1 - 13 Jul 2020

Module/Topic	Chapter	Events and Submissions/Topic
Introduction mobile computing using Javascript. Mobile application development.	Rodger, Chapter 1, pp. 1-29.	

Week 2 - 20 Jul 2020

Module/Topic	Chapter	Events and Submissions/Topic
Introducing cloud computing. Mobilising your application.	Reading 1: Singh and Jangwal, April, 2012. Rodger, Chapter 2, pp. 31-67.	

Week 3 - 27 Jul 2020

Module/Topic	Chapter	Events and Submissions/Topic
Building mobile web applications. The jQuery and jQuery Mobile JavaScript APIs.	Reading 3. Charland and Leroux, May, 2011. Rodger, Chapter 3, pp. 71-108	
Week 4 - 03 Aug 2020		
Module/Topic	Chapter	Events and Submissions/Topic
Enhancing Your Apps. Context aware mobile computing.	Reading 4. Chen and Kotz, 2000. Rodger, Chapter 4, pp. 111-132.	
Week 5 - 10 Aug 2020		
Module/Topic	Chapter	Events and Submissions/Topic
Building Apps in the Cloud. Using the Cloud.	Rodger, Chapter 5, pp. 136-174. Rodger, Chapter 6, pp. 177-209.	
Vacation Week - 17 Aug 2020		
Module/Topic	Chapter	Events and Submissions/Topic
Week 6 - 24 Aug 2020		
Module/Topic	Chapter	Events and Submissions/Topic
Tab-bar interfaces. Working with the Cloud. Understanding memcache. Installing Android Studio.	Rodger, Chapter 7, pp. 211-232. Rodger, Chapter 8 pp. 235-271	Assignment 1 due Assignment 1 Due: Week 6 Monday (24 Aug 2020) 11:00 pm AEST
Week 7 - 31 Aug 2020		
Module/Topic	Chapter	Events and Submissions/Topic
Using Cordova PhoneGap. Building and running native hybrid Apps. Uploading files using node. Business model for location based services.	Reading 5. Dhar and Varshney, May, 2011. Rodger, Chapter 9 pp. 273-294.	
Week 8 - 07 Sep 2020		
Module/Topic	Chapter	Events and Submissions/Topic
The Phonegap API. Building a photo blogging App. Creating a cloud database account.	Rodger, Chapter 9 pp. 294-311. Rodger, Chapter 10, pp. 315-345.	
Week 9 - 14 Sep 2020		
Module/Topic	Chapter	Events and Submissions/Topic
User registration. Mobile web usability and system testing. Issues in mobile cloud computing.	Reading 6: Frederick and Lal, 2009 Rodger, Chapter 10, pp. 345-369.	
Week 10 - 21 Sep 2020		
Module/Topic	Chapter	Events and Submissions/Topic
Social mobile computing. Software principles and patterns in mobile middleware.	Reading 7: Fenando et al., 2013. Reading 8: Tarkoma, 2009. Rodger, Chapter 12, pp. 387-431.	Assignment 2 due Assignment 2 Due: Week 10 Friday (25 Sept 2020) 11:00 pm AEST
Week 11 - 28 Sep 2020		
Module/Topic	Chapter	Events and Submissions/Topic
The App store and selling Apps. Introduction to the scientific philosophy of research.	Reading 9: Stephan et al., 2012. Rodger, Chapter 13, pp. 435-441. Rodger, Chapter 14, pp. 455-469.	
Week 12 - 05 Oct 2020		
Module/Topic	Chapter	Events and Submissions/Topic
Revision.		

Review/Exam Week - 12 Oct 2020

Module/Topic	Chapter	Events and Submissions/Topic
		Creative work/project due
		Creative work Due: Review/Exam Week Friday (16 Oct 2020) 11:00 pm AEST

Exam Week - 19 Oct 2020

Module/Topic	Chapter	Events and Submissions/Topic
--------------	---------	------------------------------

Assessment Tasks

1 Assignment 1

Assessment Type

Practical Assessment

Task Description

You are assigned the task of creating a data logger to capture experimental data in a mobile application that stores data in a local database. The app has fields to record data for each of five days of use of drone aircraft. When a day is selected, a page is shown to record data values for drones that are recorded by the app. A drone entry consists of a **date** and **log** data.

When the **Save Log Entry** button is pressed these values are saved locally in the devices' **localStorage**. When the **Show Log Entries** button is pressed a related page is shown that lists all the date/time and drone entries. More details of these pages will be given in the sections below.

We will refer to our app as **DroneLogs**.

Assessment Due Date

Week 6 Monday (24 Aug 2020) 11:00 pm AEST

Return Date to Students

Week 8 Monday (7 Sept 2020)

Weighting

20%

Assessment Criteria

Assessment criteria

Assignment Component	Criteria	Marks	Total
Client Side application			
DroneLogs.html / drone.css	- The required scripts are all correct and available - The multi-page logic is correct - The home page displays and works as intended - The navigation header/footers of the pages are correct and functions as expected - The date, latitude, longitude, Serial #, Pilot, Key, Contract # and Category fields are displayed correctly and have the right hints - The Show log page shows all the drones' data logs, and has the required functionality - The date in the show logs page is formatted correctly	7	

DroneLogs.js

- Click on a day's button on home page takes you to the correct drone page - Drone values range checked and all save log entries dialogs shown based on contents of the drones' fields - All required dialogs are displayed - The Clear button on the page header clears all fields - Clicking on the Show logs button takes you to a new page where the current logs are all listed in required form - The drones' page pageinit and pageshow methods are implemented correctly - All navigation buttons have the required effect on the page view - The drone data is saved in localStorage so when the application quits and restarts the values are retained (unless the Send logs button is used). - The user interface of the drone app meets the guidelines given in the assignment

9

Hardware/Software & commentary

Hardware / Software requirements

1

Application commentary

2

General

- Feedback given as required - Use appropriate naming conventions
- Adequate commenting - Correct grammar - Citation of references, copyright use

1

Penalties

Total

20

Lecturer's Signature Date:

Referencing Style

- [Harvard \(author-date\)](#)

Submission

Online

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

Assessment Type

Practical Assessment

Task Description

In ass1 you are assigned the task of creating a data logger to capture experimental data in a mobile application that stores data in a local database. The app has fields to record data for each of five days of use of drone aircraft. In this assignment the main task will be to add cloud data functionality to our app facilitating the sending and receiving of data to an industry standard online provider. Also included is some business aspects of app development.

Assignment Component

Criteria

Marks Total

Cordova Integration	The <i>DroneLogs</i> app is successfully implemented in Cordova	2
Client Side application		
Send/Get buttons	- Javascript and HTML files correct - Handler for Send sends data with feedback correctly - Handler for Get gets data with feedback correctly - Current logs page meets specification - Cloud drone logs page meets specifications - The data in the logs pages are formatted correctly	6
Server Side application		
Config.js / config file	- The commonly used functions are all defined correctly - Cross site scripting is handled correctly	2
DroneLogs.js	- Appropriate response messages are sent, and appropriate messages are written by the server as messages are routed (1 mark) - The drone_logs collection at MongoLabs is successfully connected, opened and updated (2 marks) - The log() methods appends each entry received to ./logs/logs.data on server (1 mark) - All entries for the given drone are returned in the response object when the search/:query is performed (2 marks) - The :drone/log request writes the data to the drone_logs user collection of the <i>mongodb</i> database (2 marks)	8
Discussion of testing regime	- Discussion of selection of mobile models - Discussion of part emulators vs. the real devices play in testing - Document functional and UI testing of the app	3
Commentary	- Successful/unsuccessful features - Additional functionality - Ethical considerations	3
Financial case	- Time costing - Database costing - Marketing - Analysis - Synthesis	5
General		
	- Feedback given as required - Use appropriate naming conventions - Adequate commenting - Correct grammar - Citation of references, copyright use	1
Penalties		
	Total	30

Assessment Due Date

Week 10 Friday (25 Sept 2020) 11:00 pm AEST

Return Date to Students

Week 12 Friday (9 Oct 2020)

Weighting

30%

Assessment Criteria

Assignment Component	Criteria	Marks
Cordova Phonegap Integration	The <i>PersonLogs</i> app is successfully implemented in Cordova Phonegap	2
Client Side application		

Send/Get buttons	- index.html file correct- Tap handler for Send sends data with feedback correctly- Tap handler for Get gets data with feedback correctly- Day logs page meets specification- Cloud query page meets specifications- The date in the logs pages are formatted correctly	6
Server Side application		
Config.js / config file	- The commonly used functions are all defined correctly- Cross site scripting is handled correctly	2
PersonLogs.js	- Appropriate response messages are sent, and appropriate messages are written by the server as messages are routed (1 mark)- The PersonLogs collection at MongoDB Atlas is successfully connected and opened (1 mark)- The log() methods appends each entry received to ./logs/logs.data (2 marks)- All entries for the given day are returned in the response object when the search/:query is performed (2 marks)- The :day/log request writes the data to the PersonLogs user collection of the <i>mongodb</i> database (2 marks)	8
Discussion of testing regime	- Review of devices- Discussion of selections- Discussion of part emulators vs. the real devices play in testing	3
Commentary	- Successful/unsuccessful features- Additional functionality- Ethical considerations	3
Financial case	- Time costing- Database costing- Marketing- Analysis- Synthesis	5
General		
	- Feedback given as required- Use appropriate naming conventions- Adequate commenting- Correct grammar- Citation of references, copyright use	1
Penalties		
	Total	30

Referencing Style

- [Harvard \(author-date\)](#)

Submission

Online

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 Creative work

Assessment Type

Project (applied)

Task Description

For your creative work you are going to design, specify, implement and test a prototype of a simple web application. You are to come up with your own idea for the app you wish to prototype. Keep it simple as you have only a day a week

during term to prototype and develop this idea. You do not necessarily have to create a completed app, but you must develop and document enough to justify the time allocated to the project . You should complete the work in a number of stages, developing new parts of your web application project in parallel with each assignment. The amount of work/time you spend on this about the same as the time spent doing assignment 1 and 2.

The moodle course website describes each part that will be assessed and guides you in this assessment process.

Assessment Due Date

Review/Exam Week Friday (16 Oct 2020) 11:00 pm AEST

Return Date to Students

Exam Week Monday (19 Oct 2020)

Weighting

50%

Assessment Criteria

App design and specification - 10 marks

App development - 25 marks

App testing, business case, marketing plan and research - 15 marks

Referencing Style

- [Harvard \(author-date\)](#)

Submission

Online

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