



# COIT20269 *Mobile Web Apps*

## Term 2 - 2017

Profile information current as at 07/05/2024 12:59 am

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 is about designing and implementing a dynamic mobile web application that allows complex user interaction that builds 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 Apache Cordova, implementing web middleware using nodejs 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. Note: Students who have studied COIT20231 will not be allowed to study this unit.

#### 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

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 - 2017

- Brisbane
- Distance
- Melbourne
- 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. **Creative work**

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 evaluation feedback

**Feedback**

Workshop instructions are not clear enough

**Recommendation**

Make instructions clearer.

## Unit Learning Outcomes

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

1. Design, create and implement a mobile web application.
2. Design, create and implement a hybrid mobile application, a node javascript web service, and then use these to store mobile data to a cloud database.
3. Analyse and evaluate design alternatives for the application.
4. Use an integrated IDE build, debug and test mobile systems to develop a working application.
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 (DATN),  
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 - Creative work - 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 - Creative work - 50%	○	○			○			

## Textbooks and Resources

### Textbooks

COIT20269

#### Prescribed

#### **Beginning Mobile Application Development in the Cloud** (2012)

Authors: Richard Rodger  
John Wiley and Sons Inc., , .  
Indianapolis, , Indiana , USA  
ISBN: 978 1 118 03469 9  
Binding: Paperback

[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 Developers Toolkit (2016)
- Apache cordova from <https://cordova.apache.org/>
- mongodb from <http://mongodb.org>
- nodejs from <http://nodejs.org>

## Referencing Style

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

## Teaching Contacts

**Ron Balsys** Unit Coordinator  
[r.balsys@cqu.edu.au](mailto:r.balsys@cqu.edu.au)

## Schedule

### Week 1 - 10 Jul 2017

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

### Week 2 - 17 Jul 2017

Module/Topic	Chapter	Events and Submissions/Topic
Introducing cloud computing. Mobilising Your application.	Reading 1: <a href="#">Singh and Jangwal, April, 2012.</a> Reading 2: <a href="#">Garrison, Kim and Wakefield, Sept., 2012.</a> Rodger, Chapter 2, pp. 31-67.	

### Week 3 - 24 Jul 2017

Module/Topic	Chapter	Events and Submissions/Topic
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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 - 31 Jul 2017**

Module/Topic	Chapter	Events and Submissions/Topic
Enhancing Your Apps. Context aware mobile computing.	Reading 4. <a href="#">Chen and Kotz, 2000.</a> Rodger, Chapter 4, pp. 111-132.	

**Week 5 - 07 Aug 2017**

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 - 14 Aug 2017**

Module/Topic	Chapter	Events and Submissions/Topic

**Week 6 - 21 Aug 2017**

Module/Topic	Chapter	Events and Submissions/Topic
Tab-bar interfaces, Audio and video. Working with the Cloud. Installing Java, Eclipse + SDK + ADT toolkit and Ant.	Rodger, Chapter 7, pp. 211-232. Rodger, Chapter 8 pp. 235-271	<b>Practical Assessment 1</b> Due: Week 6 Friday (25 Aug 2017) 11:00 pm AEST

**Week 7 - 28 Aug 2017**

Module/Topic	Chapter	Events and Submissions/Topic
Using PhoneGap. Native hybrid Apps. Business model for location based services.	Reading 5. <a href="#">Dhar and Varshney, May, 2011.</a> Rodger, Chapter 9 pp. 273-294.	

**Week 8 - 04 Sep 2017**

Module/Topic	Chapter	Events and Submissions/Topic
The Phonegap API. Building a blogging App.	Rodger, Chapter 9 pp. 294-311. Rodger, Chapter 10, pp. 315-345.	

**Week 9 - 11 Sep 2017**

Module/Topic	Chapter	Events and Submissions/Topic
Mobile web usability and system testing. Issues in mobile cloud computing.	<a href="#">Reading 6: Frederick and Lal, 2009</a> Rodger, Chapter 10, pp. 345-369.	

**Week 10 - 18 Sep 2017**

Module/Topic	Chapter	Events and Submissions/Topic
Social mobile computing. Software principals and patterns in mobile middleware.	<a href="#">Reading 7: Fenando et al., 2013.</a> <a href="#">Reading 8: Tarkoma, 2009.</a> Rodger, Chapter 12, pp. 387-431.	<b>Practical Assessment 2</b> Due: Week 10 Friday (22 Sept 2017) 11:00 pm AEST

**Week 11 - 25 Sep 2017**

Module/Topic	Chapter	Events and Submissions/Topic
The App store and selling Apps. Introduction to the scientific philosophy of research.	Reading 9: <a href="#">Stephan et al., 2012.</a> Rodger, Chapter 13, pp. 435-441. Rodger, Chapter 14, pp. 455-469.	

**Week 12 - 02 Oct 2017**

Module/Topic	Chapter	Events and Submissions/Topic
Revision.		

**Review/Exam Week - 09 Oct 2017**

Module/Topic	Chapter	Events and Submissions/Topic
		<b>Project</b> Due: Review/Exam Week Friday (13 Oct 2017) 11:00 pm AEST

## Assessment Tasks

### 1 Practical Assessment 1

#### Assessment Type

Practical Assessment

#### Task Description

You are assigned the task of creating a data logger to capture truck location data in a mobile application that stores the data in a local database. The app has fields to record data for each of five truck types employed. If a truck type is selected, a page (fragment) is shown to record data values for that truck type. An entry consists of driver data. When the Save Log Entry button is pressed this data is saved locally in the application in a SQLiteDatabase. When the Show Log Entries button is pressed a related page (fragment) is shown that list all the date/time and data entries made for that truck type.

We will refer to our app as DriverLogs. More details of these pages will be given in the sections below. You should also consult the weekly lecture/tutorials on the Moodle website for help and more information on completing the assignment. The tutorials contain step-by-step procedures for working through the assignment as well as some tips and extra help. Please read the lecture/tutorials on the Moodle website.

The specification of this app will be further refined in Assignment 2.

This app is to be tested using the **Safari, FireFox** or **Chrome** browser and tested on an Android or iPhone mobile device.

#### Assessment Due Date

Week 6 Friday (25 Aug 2017) 11:00 pm AEST

#### Return Date to Students

Week 8 Friday (8 Sept 2017)

#### Weighting

20%

#### Assessment Criteria

##### Client Side application

##### VehicleLogs.html / vehicle.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 vehicle pages are correct and function as expected - The driver, rego #, latitudes, longitudes, start, first break, second break and end time fields are displayed correctly and have the right hints - The Show log page shows all the vehicle' data logs, and has the required functionality - The time entries and button visibility work as specified

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##### VehiclesLogs.js

- Click on a vehicle's button on home page takes you to the correct vehicle type page - Driver and rego # not null and all time and location data saved - Show log entries shows all saved entries of that vehicle type - All required dialogs are displayed - The Clear button on the page header clears all fields and resets time buttons - Clicking on the Show logs button takes you to a new page where the current logs are all listed in required format - The vehicle' pages pageinit and pageshow methods are implemented correctly - All navigation buttons have the required effect on the page view - Vehicle data is saved in localStorage so when the application quits and restarts the values are retained (unless the Send logs button is used) - The send logs button clears all vehicle types data in localStorage and as required

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#### 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**

## Referencing Style

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

## Submission

Online

## Learning Outcomes Assessed

- Use an integrated IDE build, debug and test mobile systems to develop a working application.

## Graduate Attributes

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

# 2 Practical Assessment 2

## Assessment Type

Practical Assessment

## Task Description

You are assigned the task of creating a data logger to capture truck location data in a mobile application that stores the data in a local database. The app has fields to record data for each of five truck types employed. If a truck type is selected, a page (fragment) is shown to record data values for that truck type. An entry consists of driver data. When the Save Log Entry button is pressed this data is saved locally in the application in a SQLiteDatabase. When the Show Log Entries button is pressed a related page (fragment) is shown that list all the date/time and data entries made for that truck type.

We will refer to our app as DriverLogs. The specification of this app extends that given in Assignment 1. More details of these pages will be given in the Moodle course Website. You should also consult the weekly lecture/tutorials on the Moodle website for help and more information on completing the assignment. The tutorials contain step-by-step procedures for working through the assignment as well as some tips and extra help. Please read the lecture/tutorials on the Moodle website.

This app is to be tested using the Safari, FireFox or Chrome browser and tested on an Android or iPhone mobile device.

## Assessment Due Date

Week 10 Friday (22 Sept 2017) 11:00 pm AEST

## Return Date to Students

Week 12 Friday (6 Oct 2017)

## Weighting

30%

## Assessment Criteria

Cordova Phonegap Integration	- The VehicleLogs app is successfully implemented in Cordova Phonegap	<b>2</b>
Client Side application		
Send/Get buttons	- Javascript and HTML files correct - Tap handler for Send sends data with feedback correctly - Tap handler for Get gets data with feedback correctly - Current logs page meets specification - Cloud cow logs page meets specifications - The data in the logs pages are formatted correctly	<b>6</b>
Server Side application		
Config.js / config file	- The commonly used functions are all defined correctly - Cross site scripting is handled correctly	<b>2</b>



VehicleLogs.js	- Appropriate response messages are sent, and appropriate messages are written by the server as messages are routed - The Vehicle_Logs collection at MongoLabs is successfully connected, opened and updated (2 marks) - The log() methods appends each entry received to ./logs/logs.data on PC - All entries for the given cow are returned in the response object when the search/:query is performed (2 marks) - The :vehicle/log request writes the data to the vehicle_logs user collection of the mongodb database (2 marks)	<b>8</b>
Documentation		
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	<b>3</b>
Commentary	- Successful/unsuccessful features - Additional functionality - Ethical considerations	<b>3</b>
Financial case	- Time costing - Database costing - Marketing - Analysis - Synthesis	<b>5</b>

### Referencing Style

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

### Submission

Online

### Learning Outcomes Assessed

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

### Graduate Attributes

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

## 3 Project

### Assessment Type

Creative work

### 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 small amount of time during term to develop this idea. Do not try to create a complete app (unless its simple), but develop enough of it so that the essential tasks are prototyped.

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 the work short be about the same as the time spent doing assignment 1 and 2.

Details will be provided on the moodle unit website.

### Assessment Due Date

Review/Exam Week Friday (13 Oct 2017) 11:00 pm AEST

### Return Date to Students

Exam Week Friday (20 Oct 2017)

### Weighting

50%

### Assessment Criteria

## App design and specification - 10 marks

<u>Description</u> - Well defined description of what the app is intended to be and do	0 -> 0.25	1 -> 1.5	1.5 -> 2
<u>Motivation</u> - Well reasoned choice of target audience and likely interest	0 -> 0.25	0.5 -> 0.75	0.75 -> 1

<u>Summary of task</u> - A reasonable choice of tasks to be completed in producing the app is given	0 -> 0.25	0.5 -> 0.75	0.75 -> 1
<u>User interface prototypes</u> - Prototypes for the main user interfaces/pages in the app presented	0 -> 0.25	1 -> 1.5	1.5 -> 2
Specification of variables and data structures	0 -> 0.25	1 -> 1.5	1.5 -> 2
Originality/Creativity	0 -> 0.25	1 -> 1.5	1.5 -> 2

## App development - 25 marks

MARK / 25	Poor	Good	Excellent
Client HTML, Javascript and CSS files Appropriate use of css style elements, structure, appropriate and correct	0 -> 4.5	5 -> 7.5	7.5 -> 10
Server Javascript appropriate and correct	0 -> 4.5	5 -> 7.5	7.5 -> 10
Results Achievement compared to others	0 -> 2	2.5 -> 3.5	3.5 -> 5

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

MARK / 15	Poor	Good	Excellent
<u>App Testing</u> - App testing plan, documentation of tests	0 -> 1	1 -> 1.5	1.5 -> 2
<u>Business plan</u> - Estimating costs, estimating revenue, break-even sales	0 -> 1.75	2 -> 3	3 -> 4
<u>Marketing</u> - As required	0 -> 1.75	2 -> 3	3 -> 4
<u>Research</u> - As required	0 -> 2	2.5 -> 4	4 -> 5

### Referencing Style

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

### Submission

Online

### Learning Outcomes Assessed

- Design, create and implement a hybrid mobile application, a node javascript web service, and then use these to store mobile data to a cloud database.
- Analyse and evaluate design alternatives for the application.
- 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