COIT20269 *Mobile Web Apps*
Term 1 - 2020

Profile information current as at 05/05/2024 02:40 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 1 - 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 Course feedback

Feedback
More resources for Node, MongoDB and Express are required.

Recommendation
Links to learning resources on node, MongoDB and express be added.

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

Legend: — 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	○	○	○	○	○	○
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
(2012)
Authors: R. Rodger
John Wiley & Sons, Inc.
Indianapolis , IN , USA
ISBN: 978-1-118-03469-9
Binding: Other

Additional Textbook Information
Copies can be purchased from the CQUni Bookshop here: http://bookshop.cqu.edu.au (search on the Unit code)

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
- 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

Rahul Raghavan Unit Coordinator
r.raghavan@cqu.edu.au

Schedule

Week 1 - 09 Mar 2020

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

Week 2 - 16 Mar 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 - 23 Mar 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 - 30 Mar 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 - 06 Apr 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 - 13 Apr 2020

Module/Topic	Chapter	Events and Submissions/Topic

Week 6 - 20 Apr 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 Friday (24 Apr 2020) 11:45 pm AEST

Week 7 - 27 Apr 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 - 04 May 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 - 11 May 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 - 18 May 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 (22 May 2020) 11:45 pm AEST

Week 11 - 25 May 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 - 01 Jun 2020

Module/Topic	Chapter	Events and Submissions/Topic
Revision.		

Review/Exam Week - 08 Jun 2020

Module/Topic	Chapter	Events and Submissions/Topic
		Creative work/project due
		Creative work Due: Review/Exam Week Friday (12 June 2020) 11:45 pm AEST

Exam Week - 15 Jun 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 scientific data for each of five species of chicken. If a chicken species is selected, a page is shown to record data values for that species. When a species is selected, a page is shown to record data values for that chicken to be recorded by the app. A chicken 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 that species entries. More details of these pages will be given in the moodle course 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 (24 Apr 2020) 11:45 pm AEST

Return Date to Students
Week 8 Friday (8 May 2020)

Weighting
20%

Assessment Criteria

Assignment Component	Criteria	Marks
Client Side application		
Chicken.html / Chicken.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 buttons on the pages are correct and function as expected ☐- The id, date, weight, latitude, longitude, Eggs laid, Weight and Condition fields are displayed correctly and have the right hints ☐ The Show log page shows all the species' data logs, and has the required functionality	**6**
Drone.js	The user interface of the drone app meets the guidelines given in the assignment - All navigation buttons have the required effect on the page view - The species' page pageinit and pageshow methods are implemented correctly - Clicking on the Show logs button takes you to a new page where the current logs are all listed in required form - The Clear button on the page header clears all fields - All required dialogs are displayed - Chicken values range checked and all save log entries dialogs shown based on contents of the species' fields - Click on a species button on home page takes you to the correct species page - The species data is saved in localStorage so when the application quits and restarts the values are retained (unless the Send logs button is used).	**10**
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**

Referencing Style

- <u>Harvard (author-date)</u>

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
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 scientific data for each of five species of chicken. If a chicken species is selected, a page is shown to record data values for that species. When a species is selected, a page is shown to record data values for chickens that are recorded by the app. A chicken 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** as well as added to a cloud database collection. When the **Get** button is used chicken entries are retrieved from the cloud database and displayed on the phone. We will refer to the app as **ChickenLogs**.
In addition app testing will be documented as well as documenting a simple financial case, with commentary.
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 May 2020) 11:45 pm AEST

Return Date to Students
Week 12 Friday (5 June 2020)

Weighting
30%

Assessment Criteria

Assignment Component	Criteria	Marks
Cordova Phonegap Integration	☐ The *ChickenLogs* app is successfully implemented in Cordova Phonegap	**2**
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 chicken 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	**2**
server.js	☐ Appropriate response messages are sent, and appropriate messages are written by the server as messages are routed (1 mark) ☐ The cloud Chicken_Logs collection is successfully connected to, opened and updated (2 marks) ☐ The log() methods appends each entry received to ./logs/logs.data on PC (1 mark) ☐ All entries for the given chicken are returned in the response object when the search/:query is performed (2 marks) ☐ The :chicken/log request writes the data to the chicken_logs user collection of the *mongdb* database (2 marks)	**8**
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	**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

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 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 (12 June 2020) 11:45 pm AEST

Return Date to Students
Exam Week Friday (19 June 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