CONESTOGA

COURSE OUTLINE

Course Programming: Mobile Applications II (2016-2017)

Code / Version PROG3210 (100)

Total Hours 60

Credits 4

PreRequisite(s) PROG3180 (102) Programming: Mobile Applications I
or PROG3180 (103) Programming: Mobile Applications I

CoRequisite(s)

Course Description

This course builds on Programming:Mobile Applications I to teach the student to build mobile applications, including client-side, mobile web and hybrid applications, using advanced programming techniques and current development tools. Students will develop mobile application software that runs on a range of smartphobne and tablet devices.

PLAR Eligible: Yes

Course Outcomes

Successful completion of this course will enable the student to:

1. Develop and debug an app given specifications that require fundamental XML and Java skills
2. Use layouts, themes, widgets, styles, menus and fragments to develop a complete Android user interface
3. Combine threads, files, adapters, intents, services, notifications and broadcast receivers to develop an app that connects the user Interface to events both off and on the device
4. Select and update data from local/offline and remote databases to connect the user interface with enterprise data needed to perform user tasks
5. Assemble an app for deployment on consumer and enterprise app stores

Essential Employability Skills addressed in this course			Taught	Reinforced	Assessed
Communication	n	Communicate clearly, concisely and correctly in the written, spoken, and visual form that fulfills the purpose and meets the needs of the audience		X	
	n	Respond to written, spoken, or visual messages in a manner that ensures effective communication		X	
Numeracy	n	Execute mathematical operations accurately		X	
Critical Thinking and Problem Solving	n	Apply a systematic approach to solve problems	X		
	n	Use a variety of thinking skills to anticipate and solve problems	X		
Information Management	n	Locate, select, organize, and document information using appropriate technology and information systems	X		
	n	Analyze, evaluate, and apply relevant information from a variety of sources	X		
Interpersonal	n	Show respect for the diverse opinions, values, belief systems, and contributions of others		X	
	n	Interact with others in groups or teams in ways that contribute to effective working relationships and the achievement of goals		X	
Personal	n	Manage the use of time and other resources to complete projects		X	
	n	Take responsibility for one's own actions, decisions, and consequences		X	

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Unit Outcomes

Successful completion of the following units will enable the student to:

1.0 Android fundamentals

- 1.1 Describe how Android compiles and interprets code.
- 1.2 Describe how you can test an app on a physical device or an emulator.
- 1.3 Use Android Studio to create a project, enter the given source code for an Android app, build the source code, and run the app on an emulator or physical device.
- 1.4 Use Android Studio's code completion feature to help you enter code.
- 1.5 Interpret what each XML element and Java statement in the given the source code does.
- 1.6 Interpret the functionality of a given package and name of a class within the Android API by looking it up in the official documentation.
- 1.7 Use Android Studio to set breakpoints, step through code, inspect variables, and inspect the stack trace.
- 1.8 Evaluate the code execution of an Android app with logging or toasts.
- 1.9 Create a splash screen
- 1.10 Support field debugging of Apps with circular logging and in App bug submission.

2.0 Android User Interface

- 2.1 Use one or more linear layouts to align widgets in one or more rows or columns.
- 2.2 Support events by using the current or anonymous class or inner anonymous class as the listener.
- 2.3 Define a style and apply it to a widget.
- 2.4 Apply a built-in or custom theme to the entire app or to a specific activity.
- 2.5 Define a menu and its items and handle the events that occur when users select those items.
- 2.6 Use an activity or fragment to allow the user to set preferences.
- 2.7 Create a fragment and display it in an activity.
- 2.8 Interpret the screen size and display an appropriate single-pane or multi-pane layout.
- 2.9 Use the material design specification along with animations and the latest controls like recyclerview, drawerLayout, toolbar, and snackbar to produce an app with the latest look and feel.
- 2.10 Create a custom control.
- 2.11 Implement drag and drop

3.0 On-device and remote events interface

- 3.1 Create a new thread to begin executing a task that takes more than a few seconds to execute right away or at a specified interval and update the ui thread when it is finished.
- 3.2 Write code that downloads a file from the Internet and saves it to the file system of the Android device.
- 3.3 Use an intent to pass data from one activity to another.
- 3.4 Use an Application object to execute code when an app starts and to store data and methods that should be available to all activities within an app.
- 3.5 Use a service for a task that should execute in the background even when the app isn't running
- 3.6 Show and remove a notification.
- 3.7 Interpret if a network connection is available to the device.
- 3.8 Create and send a custom broadcast.
- 3.9 Write a receiver for a system broadcast or a custom broadcast.
- 3.10 Create a Cordova plugin that exposes additional functionality to a hybrid app.
- 3.11 Collect and manage client and server side dependencies using Apache Maven.

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3.12 Construct Android service to consume shared web service in the App.

4.0 Remote and Local database

4.1 Create a database class that works with a SQLite database.

4.2 Write code that retrieves one or more rows from a table in the database and inserts, updates, or deletes with that data.

4.3 Assemble web app that stores and forwards push notifications from a centralized database to an offline SQLite datastore.

4.4 Create and register a content provider for the database.

5.0 Enterprise and Consumer deployment

5.1 Create a signed APK file for the release build of an app.

5.2 Contrast putting an App on the Amazon AppStore with Google Play

Required Student Resources

Joel Murach. Murach's Android Programming (2013). Mike Murach and Associates Inc..

Black Berry Enterprise Whitepaper. The Future of Mobile Apps ... Is your enterprise ready. BlackBerry Enterprise.

URL: http://images.biz.blackberry.com/Web/BlackBerry/%7Bb9803ca1-38ab-4c27-87c6-042418c7d77d%7D_Mobile_Apps_are_the_Future_-_Is_Your_Enterprise_Ready_.pdf

Retrieved 2015/08/15

BlackBerry Case Study. Protection For Every Enterprise ... How BlackBerry Security Works. Blackberry.

Don Coleman. Cordova Hello World Plugin. Github.

URL: https://github.com/don/cordova-plugin-hello
Retrieved: 2015/08/15

Optional Student Resources

Kerri Shotts. Phonegap for Enterprise. Packt Publishing (Dec 28 2014).

Evaluation

The minimum passing grade for this course is 55 (D).

In order to successfully complete this course, the student is required to meet the following evaluation criteria:

Individual Assignment 1	15.00
Individual Assignment 2	25.00
Midterm	30.00
Group/Individual Final Project	30.00
	100.00 %

Other

Conestoga College is committed to providing academic accommodations for students with documented disabilities. Please contact the Accessibility Services Office.

Prepared By Richard Hildred

School Information Technology

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Date 2016-09-01