ABM1 — ABM1 TASK 1 MOBILE APPLICATION DEVELOPMENT

MOBILE APPLICATION DEVELOPMENT — C196
PRFA — ABM1

TASK OVERVIEW SUBMISSIONS EVALUATION REPORT

COMPETENCIES

4026.01.1 : Introduction to Mobile Development
The graduate explains mobile development, develops a simple mobile application using the IDE, documents debugging the mobile application, and describes how to use an emulator.

4026.01.2 : Activity Lifecycle
The graduate describes the Activity lifecycle in the mobile application, and creates and links an activity.

4026.01.3 : User Interfaces and Handling User Input
The graduate creates a user interface and describes how to handle user input.

4026.01.4 : Saving Data
The graduate explains ways to save data in a mobile application, and creates a data base in a mobile application.

4026.01.5 : Sharing Information
The graduate explains how to share information in mobile applications and creates a user-defined content provider.

4026.01.6 : Supporting Different Devices
The graduate describes how to utilize the available hardware and services available in different devices.

406.01.7 : Deploying Mobile Application
The graduate describes mobile application deployment and prepares and application for deployment.

INTRODUCTION

As a competent mobile application developer, your understanding of mobile application structure and design will help you to develop applications to meet customer requirements. The following project to develop a student scheduler/student progress tracking application, will help you to apply these skills in a familiar, real-world scenario. This task will allow you to demonstrate your ability to apply the skills learned in the course.

You will develop a multiple-screen mobile application for WGU students to track their terms, courses associated with each term, and assessment(s) associated with each course. The application will allow students to enter, edit, and delete term, course, and assessment data. It should provide summary and detailed views of courses for each term and provide alerts for upcoming performance and objective assessments. This application will use a SQLite database.

Input

Each of the following needs to be input into the application:

- terms, including the following:
  - the term title (e.g., Term 1, Term 2)
  - the start date
  - the end date
- courses, including the following:
  - the course title
  - the start date
  - the anticipated end date
  - the status (e.g., in progress, completed, dropped, plan to take)
  - the course mentor name(s), phone number(s), and email address(es)
  - objective and performance assessments associated with each course
- the ability to add optional notes for each course
- the ability to set alerts or notifications for the start and end date of each course
- the ability to set alerts for goal dates for each objective and performance assessment

Output

Each of the following needs to be displayed by the application on a separate screen:

- the navigation panel
- a list of terms
- a detailed view of each term, including the following:
  - the title (e.g., Term 1, Term 2)
  - the start date
  - the end date
- a list of courses for each term
- a detailed view of each course, including the following:
  - the course title
  - the start date
  - the anticipated end date
  - assessments
- a list of performance and objective assessments for a selected course
- a detailed view of each objective and performance assessment, including the following:
  - the due date for a selected course
  - notes for the selected course
  - sharing features (e.g., email, SMS)

REQUIREMENTS

Your submission must be your original work. No more than a combined total of 30% of the submission and no more than a 10% match to any one individual source can be directly quoted or closely paraphrased from sources, even if cited correctly. An originality report is provided when you submit your task that can be used as a guide.

You must use the rubric to direct the creation of your submission because it provides detailed criteria that will be used to evaluate your work. Each requirement below may be evaluated by more than one rubric aspect. The rubric aspect titles may contain hyperlinks to relevant portions of the course

***Note**: The assessment must be submitted in an Android Studio project using Java as the programming language. External plugins and libraries are not allowed in the project.*

***Note**: Submit your performance assessment by including all Android project files, APK, and signed apk files in one zipped.zip file.*

***Note**: The zip file submission must also keep the project file and folder structure intact for the Android Studio IDE.*

A. Create an Android (version 4.0 or higher) mobile application with the following functional requirements:

1. Include the following information for *each* term:
   - the term title (e.g., Term 1, Term 2, Spring Term)
   - the start date
   - the end date
2. Include features that allow the user to add as many terms as needed.
3. Implement validation so that a term cannot be deleted if courses are assigned to it.
4. Include features that allow the user to do the following for *each* term:
   a. add as many courses as needed
   b. display a list of courses associated with *each* term
   c. display a detailed view of *each* term, including the following information:
      - the term title (e.g., Term 1, Term 2, Spring Term)
      - the start date
      - the end date
5. Include the following details for *each* course:
   - the course title
   - the start date
   - the anticipated end date
   - the status (in progress, completed, dropped, plan to take)
   - the course mentor names, phone numbers, and e-mail addresses
6. Include features that allow the user to do the following for *each* course:
   a. add as many assessments as needed
   b. add a minimum of one optional note per course
   c. enter, edit, and delete course information
   d. display optional notes
   e. display a detailed view of the course, including the due date
   f. set alerts for the start and end date, that will trigger when the application is not running
   g. share notes via a sharing feature (either e-mail or SMS)
7. Include features that allow the user to do the following for *each* assessment:
   a. add performance and objective assessments for *each* course, including the titles and due dates of the assessments
   b. enter, edit, and delete assessment information
   c. set alerts for goal dates, that will trigger when the application is not running

B. Design the following screen layouts, including appropriate GUI (graphical user interface) elements (e.g., navigation, input, and information) for *each* layout:

- home screen
- list of terms
- list of courses
- list of assessments
- detailed course view
- detailed term view
- detailed assessment view

C. Create a scheduler and progress tracking application as part of your mobile application from part A.

Note: This can be the implementation of part A.

1. Include the following implementation requirements in the application from part C. Be sure your application is a minimum version 4.0 mobile application:
   - an ArrayList
   - an intent
   - navigation capability between multiple screens using activity
   - **three** activities
   - events (e.g., a click event)
   - the ability to work in portrait and landscape layout
   - interactive capability (e.g., the ability to accept and act upon user input)
   - a database to store and retrieve application data
   - an application title and an icon
   - notifications or alerts
   - the use of both declarative and programmatic methods to create a user interface

2. Include the following interface requirements in the application from part C:
   - the ability to scroll vertically
   - an action bar
   - two layouts
   - input controls
   - buttons

D. Create a storyboard to demonstrate application flow that includes *each* of the menus and screens from part B.

E. Provide screen shots of generating the signed APK to demonstrate that you have created a deployment package.

***Note**: Verify that all the required functions of your application are working by executing the apk file.*

F. Reflect on the creation of your mobile application by doing the following:

1. Explain mobile application development through the context of the architecture involved, including hardware and software capabilities and limitations.
   a. Identify the version of the operating system your application was developed under and is compatible with.
2. Describe *(suggested length of 1–2 paragraphs)* the challenges you faced during the development of the mobile application.
3. Describe *(suggested length of 1–2 paragraphs)* how you overcame *each* challenge discussed in part F2.
4. Describe *(suggested length of 1–2 paragraphs)* what you would do differently if you did the project again.
5. Describe how emulators are used and the pros and cons of using an emulator vs. using a development device.

G. Acknowledge sources, using APA-formatted in-text citations and references, for content that is quoted, paraphrased, or summarized.

H. Demonstrate professional communication in the content and presentation of your submission.

File Restrictions

File name may contain only letters, numbers, spaces, and these symbols: ! - _ . * ' ( )
File size limit: 200 MB
File types allowed: doc, docx, rtf, xls, xlsx, ppt, pptx, odt, pdf, txt, qt, mov, mpg, avi, mp3, wav, mp4, wma, flv, asf, mpeg, wmv, m4v, svg, tif, tiff, jpeg, jpg, gif, png, zip, rar, tar, 7z

RUBRIC

A:MOBILE APPLICATION VERSION

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
An Android mobile application is not provided.	The Android mobile application is not version 4.0 or higher, or does not load properly, or the Android project files, APK, and signed apk files are not in one zipped.zip file.	The Android mobile application is a version 4.0 or higher, loads properly, and all Android project files, APK, and signed apk files are in one zipped.zip file.

A1:FUNCTIONAL REQUIREMENTS FOR TERMS

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
The mobile application does not allow the user to enter any information for any term.	The mobile application does not allow the user to enter term titles, or all the start and end dates for each term.	The mobile application allows the user to enter all term titles and all start and end dates for each term.

A2:TERM ADDITION FEATURE

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
The features included in mobile application do not allow the user to add terms.	The features included in mobile application are coded to allow the user to only add a limited number of terms.	The features included in the mobile application are coded to allow the user to add an unlimited number of terms.

A3:VALIDATION IMPLEMENTATION

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
The mobile application does not allow the user to delete any terms.	The mobile application includes validation that allows the user to delete a term, regardless of	The mobile application includes validation to prevent the user from deleting a term when courses have been assigned to that term.

	whether that term has courses assigned to it.	

A4A:COURSE ADDITION

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
The mobile application does not allow the user to add courses to any term.	The mobile application is coded so that the user can only add a limited number of courses to each term.	The mobile application is coded so that the user can add an unlimited number of courses to each term.

A4B:LIST OF COURSES

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
The mobile application does not allow the user to display a list of courses.	The mobile application allows the user to display a list of courses but the courses are not associated with any terms.	The mobile application allows the user to display a list of courses associated with each term.

A4C:TERM DETAILS

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
The mobile application does not allow the user to display a detailed view of any terms.	The mobile application allows the user to display a view of each term, but the view does not include all the given information.	The mobile application allows the user to display a detailed view of each term and the view includes all the given information.

A5:COURSE DETAILS

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
The mobile application does not allow the user to enter any course details.	The mobile application does not allow the user to enter 1 or more of the given details for each course.	The mobile application allows the user to enter all given details for each course.

A6A:ASSESSMENT ADDITION

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT

The mobile application does not allow the user to add any assessments to any course.	The mobile application is coded so that the user can add between 1 and 4 assessments to each course.	The mobile application is coded so that the user can add as many as 5 assessments to each course.

A6B:OPTIONAL NOTES

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
The mobile application does not allow the user to add optional notes.	The mobile application allows the user to add optional notes, but the notes are not within any course.	The mobile application allows the user to add optional notes within each course.

A6C:COURSE INFORMATION

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
The mobile application does not allow the user to enter, edit, or deleted course information for any course.	The mobile application only allows the user to enter, or edit, or delete parts of each course's information.	The mobile application allows the user to enter, edit and delete any and all information for each course.

A6D:OPTIONAL NOTES

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
The mobile application does not allow the user to display optional notes.	The mobile application allows the user to display optional notes, but the notes are not within any course.	The mobile application allows the user to display optional notes within each course.

A6E:DETAILED VIEW

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
The mobile application does not allow the user to display a view of the course information.	The mobile application allows the user to display a view of the course information, but not for each course, or the view for a course does not include the expected completion date.	The mobile application allows the user to display a detailed view of the course information for each course, including the expected completion date for each.

A6F:ALERTS FOR COURSES

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
The mobile application does not allow the user to set any alerts.	The mobile application allows the user to set alerts for either the start or the end date of each course.	The mobile application allows the user to set alerts for both the start and end date of each course.

A6G:SHARING FEATURES

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
The mobile application does not allow the user to share notes.	The mobile application allows the user to share messages or emails, but the information does automatically populate from the notes.	The mobile application allows the user to share messages or email which automatically populate with the notes.

A7A:ASSESSMENTS FOR EACH COURSE

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
The mobile application does not allow the user to add any assessments.	The mobile application allows the user to add performance and objective assessments for each course, but cannot include the title of the assessment and the expected completion date for each assessment.	The mobile application allows the user to add performance and objective assessments for each course, including the title of the assessment and the expected completion date for each assessment.

A7B:ASSESSMENT INFORMATION

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
The mobile application does not allow the user to modify in any way, information for any assessments.	The mobile application allows the user to either enter, edit, or delete information for each assessment, but not all three.	The mobile application allows the user to enter, edit, and delete all assessment information.

A7C:ALERTS FOR GOAL DATES

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT

The mobile application does not allow the user to set any alerts.	The mobile application allows the user to set alerts for either the start or the expected completion dates for each assessment.	The mobile application allows the user to set alerts for all start and expected completion dates for each assessment.

B:SCREEN LAYOUTS

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
A design of any screen layouts is not provided.	The screen designs include the layout for each given screen, but not as described, and includes appropriate GUI elements for each layout. OR includes the layouts for each given screen, as described, but does not include the GUI elements.	The screen designs include the layout for each given screen, as described, and includes appropriate GUI elements for each layout.

C:STUDENT SCHEDULER AND PROGRESS TRACKING APPLICATION

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
A scheduler and progress tracking element is not included.	The mobile application includes either a scheduler or a progress tracking element, but not both.	The mobile application includes both scheduling and progress tracking elements.

C1:IMPLEMENTATION REQUIREMENTS

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
The mobile application only includes 8 or fewer of the given implementation requirements.	The mobile application includes 8–10 of the given implementation requirements and has a minimum API level of 14. Or the application includes all requirements but is not at a minimum API level of 14.	The mobile application includes all 11 of the given implementation requirements at a minimum API level of 14.

C2:INTERFACE REQUIREMENTS

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
The mobile application does not include any of the interface		The mobile application includes all 5 of the interface

requirements listed.	The mobile application includes up to 4 of the interface requirements listed.	requirements listed.

D:STORYBOARD

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
A storyboard is not provided.	The storyboard demonstrates the flow of the mobile application but includes only some, not all, of the menus and screens from part B.	The storyboard demonstrates the flow of the mobile application and includes all of the menus and screens from part B.

E:SCREENSHOTS

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
The screenshots are not provided.	The screenshots provided do not demonstrate the creation of a deployment package.	The screenshots provided demonstrate the creation of a deployment package.

F1:MOBILE APPLICATION DEVELOPMENT

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
An explanation of mobile application development is not provided.	The explanation of mobile application development through the context of the architecture involved, does not include hardware or software capabilities or limitations. Or the explanation disregards the architecture involved.	The explanation of mobile application development through the context of the architecture involved, includes hardware and software capabilities and limitations.

F1A:OPERATING SYSTEM

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
The response does not identify any versions of operations systems.	The response identifies either the minimum SDK or the target SDK, but not both.	The response identifies both the minimum and the target SDK.

F2:DESCRIPTION OF CHALLENGES

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
A description of challenges faced is not provided.	The response includes challenges faced but not specifically related to the development of the application.	The response describes challenges faced, specifically during the development of the application.

F3:SOLUTIONS TO CHALLENGES

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
A description of how challenges was overcome is not provided.	The response describes how challenges are overcome, but is not related to the challenges listed in F2.	The response describes how each challenge, listed in F2, was overcome.

F4:DIFFERENCES

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
A description of what would be done differently is not provided.	The response describes at least one aspect of the project that would be done differently, but does not describe the changes that would be made.	The response describes the changes that would be made to at least one aspect of the project, were it to be done again.

F5:EMULATORS

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
A description of how emulators are used and the pros and cons of their use, is not provided.	The response provides a tentative description of the use of emulators but does not include the pros and cons of using an emulator vs. using a development device, or describes the pros and cons without describing the use of emulators.	The response provides a definitive description of the use of emulators and the pros and cons of using an emulator vs. using a development device.

G:APA SOURCES

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
The submission does not include in-text citations and references according to APA style for content that is quoted, paraphrased, or summarized.	The submission includes in-text citations and references for content that is quoted, paraphrased, or summarized but does not demonstrate a consistent application of APA style.	The submission includes in-text citations and references for content that is quoted, paraphrased, or summarized and demonstrates a consistent application of APA style.

H:PROFESSIONAL COMMUNICATION

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
Content is unstructured, is disjointed, or contains pervasive errors in mechanics, usage, or grammar. Vocabulary or tone is unprofessional or distracts from the topic.	Content is poorly organized, is difficult to follow, or contains errors in mechanics, usage, or grammar that cause confusion. Terminology is misused or ineffective.	Content reflects attention to detail, is organized, and focuses on the main ideas as prescribed in the task or chosen by the candidate. Terminology is pertinent, is used correctly, and effectively conveys the intended meaning. Mechanics, usage, and grammar promote accurate interpretation and understanding.