



Lab Assignment 3 – Graded 10%

Discover & Learn

The purpose of this lab assignment is to:

- Develop Android Apps that contain Graphics and Animations
- Practice the use of frame-by-frame animations
- Practice the use of tweened animations

Be sure to read the following general instructions carefully.

This assignment must be completed individually by all the students. You will have to upload the completed assignment on eCentennial through the assignment link under Assessments.

Due Date

Due on Wednesday, June 23, 2021 at 11:59 PM ET

Assessment Information

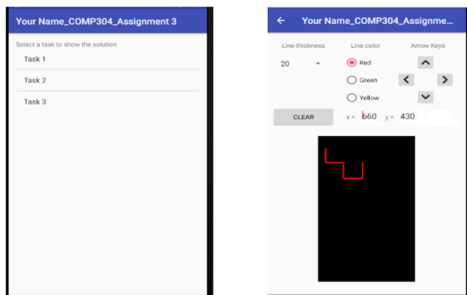
Total Mark: 30 marks

10% of the overall grade

Exercises

Exercise 1 [14 marks]

Create an activity that allows the user to draw continuous horizontal or vertical lines, starting from a given position, using the up, down, left, and right keys of the Android keypad as well as image buttons in UI, as shown in the picture below. Use a Canvas object to implement the drawings.



Allow the user to choose colours and the thickness of the lines. Allow the user to clear the drawings and restart. Use code from **CanvasPaintExample** from week 5 examples. The image buttons for arrow keys are provided on eCentennial.

Exercise 2 [8 marks]

In this exercise, you will develop a frame-by-frame animation. Create a series of pictures (7-10 pictures) that differ slightly from each other. Your animation should be original, relate to things that you like or express an idea of yours. Allow the user to start and stop the animation. You may use code from **Simple Framed Animation** example in week 5.

Exercise 3 [8 marks]

In this exercise, you will create a tweened animation similar to TweenActivity from Week 5 examples (**AnimationsExample**). Create an application to simulate a sun view. Display a png image of the sun and the earth image slightly above the sun image. Apply three necessary transformations (rotate, scale, translate) to make the earth revolve nicely around the sun.

Define tweening transformations as XML resource files. Allow the user to start and stop the animation.

Android Module Naming Rules

You must name your Android Studio project according to the following rule:

yourfullname_COMP304SectionNumber_Labnumber

Example: johnsmith_COMP304Sec002_Lab3

Submission - Assignment Folder

Submit your projects as **zip** files that are named according to the following rule:

yourfullname_COMP304SectionNumber_Labnumber.zip

Example: johnsmith_COMP304Sec002_Lab3.zip

Upload your zipped assignment file using the assignment link in e-centennial: [Lab Assignment 3 - Week 6 /d2l/common/dialogs/quickLink/quickLink.d2l?ou=658923&type=dropbox&rnode=CENCOL-2912620](#)

Evaluation table	
Activities	Percentage of the total mark
Functionalities <ul style="list-style-type: none">• All three exercises:<ul style="list-style-type: none">◦ All working◦ Proper naming of activities, variables, and methods◦ Provide comments◦ Virtual Demo or Recorded video submission	40%
Event Handling: <ul style="list-style-type: none">• proper event handlers	10%
UI friendliness: <ul style="list-style-type: none">• proper layout, controls, styles, themes, graphics and images	25%
Declaring resources in proper resource files	15%
Innovative features/ effective way of coding	5%
Total	5%
	100%

References

Textbook, online course material, class code examples, Lab Session examples, [Icons](#) (<https://material.io/resources/icons/?style=baseline>) and the following Android tutorials:

- [Images and Graphics](#) (<https://developer.android.com/guide/topics/graphics>)
- [Key Event](#) (<https://developer.android.com/reference/android/view/KeyEvent.html>)

Open the following link to download the 4 keyboard arrows: [Lab Assignment Images: Keyboard Arrows /d2l/common/dialogs/quickLink/quickLink.d2l?ou=658923&type=content&rnode=CENCOL-2909962](#)

This material provides the necessary information that you need to complete the exercises.