COSC 4301/5340
Summer 2016
Homework #8 (due: Tuesday, July 12)

General
1) This assignment will not be accepted late.
2) This assignment is worth 2 homework assignments.
3) This assignment can be in a group of at most 2 students.

General
Create an Android application using Android 4.4 (KitKat). Your application is a 2D video game similar to Ant Smasher on Google Play:
https://play.google.com/store/apps/details?id=com.bestcoolfungames.antsmasher&hl=en

You must choose one (and only one) of the following bugs for your application:
1) Ants
2) Roaches
3) Spiders
4) Snakes

You can choose the name for your application. Make sure your application icon reflects the name of the application. Your application should be set to run in portrait mode only.

The title of your Android Studio project should be hm8_[lastname1]_[lastname2] where [lastname1] is the last name of the first author and [lastname2] is the last name of the second author.

The title of the zip file you submit will be hm8_[lastname1]_[lastname2].zip.

Instructions
Your program will have the following features:

1) A Title Screen showing the name of the application and 2 options:
    Play Game
    High Score
2) Clicking High Score should activate a Preferences Screen with one option – the display of the best high score obtained so far. Clicking the back button from this screen should return to the Title Screen.
3) Clicking Play Game from the Title Screen should go to the Game Screen.
4) On the Game Screen, implement the following functionality:
    a) Clicking the back button at any time will return to the Title Screen.
    b) Upon entering the Game Screen, the app will audibly say "Get Ready". After 3 seconds the game will begin. Music will begin to play and should continue playing as long as the user is playing the game on the Game Screen.
    c) The player has 3 "lives". These are displayed as small green circles in the upper part of the screen (on the score bar).

d) The player score will appear in the upper left part of the screen (on the score bar)

e) A food bar will appear in the lower bottom portion of the screen.

f) Bugs will randomly move from the top of the screen to the bottom of the screen. For each bug that reaches the bottom of the screen, one "life" will be lost.

g) The user can click on bugs to kill them. Use the DOWN event for these user clicks.

h) Bugs will take 1 click to kill and are worth 1 point. There should be a sound effect when killing a bug. For this sound you should have at least 3 sounds and randomly choose one to play (3 different squishy sounds).

e) Lady Bugs appear randomly and should not be killed. If the user kills a Lady Bug by clicking on it the game is immediately over. There should be a special sound effect when killing a Lady Bug.

f) The score should be constantly updated.

g) Bugs should move down the screen at different speeds (chosen randomly) since some bugs will be faster than others.

h) The "kill zone" of a bug should be as large as the bug sprite on screen.

i) The legs of your bugs should appear to move.

j) At the end of the game, if the score is higher than the current high score stored in preferences then store the new high score in preferences. Also, display a message to the user indicating a new high score has been reached. This can be done several ways:

- a graphical image with the words "New High Score"
- a popup Android dialog
- a Toast

In addition, play a special sound effect for this event.

k) For clicks on the screen that do not touch bugs, play a short sound effect that gives the user feedback for the click.

l) On an incoming phone call your application should mute any sound effects and music. Restore these after the phone call is over.

m) There must be situations in which multiple bugs can appear on screen at the same time. Any program that only displays a single bug on the screen at any one time will be grade with a zero grade.

Extra Credit (+10% each item)

1) Super bugs should appear randomly and are larger than regular bugs. Super bugs take 4 clicks to kill. Super bugs are worth 10 points. There should be a special sound effect when killing a super bug. Only one super bug should appear on the screen at any one time. Super bugs should not appear more often than every 20 seconds. Super bugs can move in a straight line or zig-zag (chosen randomly).
2) Add a pause button at the top center of the score bar. This will pause and unpause the game during play.
3) Upload your application to Google Play (before July 12). There will be no credit for this part if they app is not uploaded by the due date of the assignment. Note, it can take several hours after uploading for an app to appear on Google Play so do this in plenty of time.

Extra Credit (+5%)

1) Add a sharing feature to your application on the Preferences screen. (Your application must be uploaded to Google Play in order to get credit for this feature).
2) Not in a group (completed by a single student).

Submission instructions

Email the following to the instructor using the Blackboard email tool. (all files listed below should be compressed into a single zip file)

1) Your complete Android Studio project in a .zip file. (.zip is the only accepted format)
2) A screen shot (jpg file) showing your app running in the emulator. The screenshot should also display the Android Studio. (see Figure 1).
3) The URL of the app on Google Play (if you have your app uploaded to Google Play – see below)
4) A *.txt file listing any extra credit items implemented in the game.

Grading

The instructor will run your program in the Emulator to determine if it functions correctly. Be sure your program runs in the Emulator.

Each submission must be unique. Duplicate submissions by different groups will graded with a zero grade. Duplicate submission are submissions with essentially the same code and only different graphics.