# *Programming V (420-B51-HR)*

# *Assignment 2 – Math Games*

Date assigned: Monday October 23, 2017

Date due: **Monday November 6, 2017 @ 11:55 p.m.**

**Learning Objectives**

Upon successful completion of this assignment, the student will be able to:

* Create an Android application with multiple activities
* Use Dialog and Toast messages
* Use different Android widgets
* Use timers
* Update widgets dynamically

To do:

You are going to create **one** of two simple math games. The games will pose simple arithmetic problems that must be solved by the user.

**Game 1: Math Minute**

* + In this game, simple arithmetic problems appear on the screen. The user must enter the result of the problem. After the result is entered determine if the answer is correct or not. Count the correct and incorrect answers. Keep displaying new problems and accepting results for a given amount of time. Keep track of the number correct and the number incorrect. After the time expires, display the total number correct. Keep track of the number correct as well as % correct.
  + Problems should get more difficult the more correct answers the player has.
  + Some options include: operands to use (+, -, x, /) or any combination, one or two operands (or mix), starting difficulty level. Other options can be added.

**Game 2: Math Explosion**

* + In this game, a simple arithmetic problem appears on the screen. The user must enter the result of the problem before a timer runs out. If the user answers correctly before the timer, then keep going. If the time runs out, the problem “explodes” and the player loses a life. Keep going until 3 mistakes are made.
  + As the count of correct answers increases the game must get more complex. This includes either harder problems or a faster timer.
  + Some options include: operands to use (+, -, x, /) or any combination, one or two operands (or mix), starting difficulty level. Other options can be added.

The program has a main screen with the game title and a menu with 3 items each of which requires its own activity:

|  |
| --- |
| **Game Title Here**  **Play Game**  **Options**  **About**  Any other information you want to add here |

**Play Game**: Starts the game play.

**Options**: In options the user is allowed to select the options they want. The ones above MUST be implemented, but you can add more.

**About:** Display an About screen which identifies the game, version, author, date completed and course name and number. It should also contain a short description of the program and the current date and time.

**Notes**

1. Consider interface design. This is critical to this game. The menu above is only one possibility or many. You could start right with game play and have options and about be in the Settings menu, for example.
2. Consider the use of graphics, fonts, colour, etc.
3. Proper naming conventions are required.
4. Use external references for all strings, colours, images, etc.
5. Game must continue to work if interrupted by another app or if minimized or if the screen is rotated. Current state must be maintained.
6. Consider using one layout for portrait mode and another for landscape mode so that the game looks good in both. Note that since this is an assignment, the game must look good and be playable in both orientations.

**To submit**

When you have completed the assignment, submit a zip file with all the files from the document folder to the Moodle page for this course.