# Project 3: Build an Android App

*This project is developed and submitted in two iterations. See the deliverables section for more information.* For each iteration:

1. See the deliverables section for what functionality is required for that iteration and how to submit.
2. The late penalty is 10% per calendar day, i.e., each 0 to 24 hour period past the due date, up to a maximum of two days.
3. This assignment must be done *either individually or in pairs*. Do not share your code or solution. Do not copy code found online. Do not post questions about the assignment online. Direct all questions to the instructor and TA (cmpt-276-help@sfu.ca). You may follow online tutorials and look up suggestions on how to code things, but you *may not* submit significant sections of someone else's code.

## Application

In this assignment you will be implementing an Android application to play a simple game.

1. Read the software requirements document on the course website. You *must* meet all requirements that say "must". You *may* choose to not implement requirements that say "may".
2. Read chapters 6 through 11 of the Android book. The project is easiest to tackle if you read a chapter of the book first and then implement the associated functionality required for the assignment. Jumping directly to implementing the assignment will likely take longer than if you instead read the book first.
3. Use git and GitLab to develop your code. A good rule of thumb is you should at least push each night when you are done coding. If you are working with a partner, committing and pushing in small, meaningful increments will help to make sure you avoid breaking the build. Regularly pulling will also ensure that you are able to see changes that your teammates have pushed.
4. On the course website, some graphics are provided that you can use in your application. You may also make your own or find resources elsewhere. If you use images or resources, you must list where you acquired each of them in your application's help screen.

## Version Control History

When finished with your development for an iteration:

1. In Android Studio, right-click on the project name in the upper left and use Git → Show History to show the history for the entire project. The tab in the Version Control view will say "Folder app History".
2. Right-click the Version Control view and select Resize Stretch to Top to maximize the project history on your screen. Expand the columns if necessary so that their content is readable.
3. Take a screenshot of this view and save it to a file named `AS3_History.png`. The screenshot should show all commits on the project to date.

## Useful Videos

- Separating UI from Logic
- Dynamically Creating Buttons
- Using Layouts
- Forcing Activity Orientation

## Deliverables

All projects in this course are submitted via CourSys (http://courses.cs.sfu.ca). You must create a group in CourSys before submitting, even if you are working individually. If you are in a group of multiple students, only submit one solution for your entire group. You should also create only one GitLab repository to manage this project for your group.

### Iteration 1

*Submit by Friday, February 20 at 11:59 pm.*
The first iteration must include at least the following functionality. You should feel free to include any additional functionality for the overall assignment as well:

1. All activities exist and are correctly interconnected. They need not be fully implemented, but the user should be able to navigate between them. Also, the back button must perform the correct behavior for each activity.
2. The grid of buttons shown on the game screen correspond to game size selected in the options screen. Buttons must be generated as the program runs and not determined a priori via the layout.
3. Create a game logic class that encapsulates the game data and behaviors (the *model*) separate from the UI (the *view*).

### Iteration 2

*Submit by Friday, February 27 at 11:59 pm.*
This iteration must implement the full set of requirements for the application.

### Submission

For each iteration, you shall submit a ZIP file with the following:

1. Your complete Android Studio project: project files, XML files, Java files, images, icons, etc. You should delete the `app/build/intermediates` directory, as this will be rebuilt anyway and only takes up space.
2. `AS3_History.png` This should be in the `docs/` directory of Android Studio project. Double check your ZIP file to ensure that you included it correctly.

Remember that all submissions will be compared for unexplainable similarities.