Exercise 0: Hello World

Due: Feb. 5, 23:59 PDT

Overview

This exercise is designed to help you to set up the environment, as well as get familiar with the procedure of creating an android project and submitting your project using Git.

Prerequisite: downloaded and installed the latest version of Android Studio (https://developer.android.com/studio) and Git (https://git-scm.com/downloads), and signed up a Bitbucket account (https://id.atlassian.com/signup?application=bitbucket) using your sjsu.edu email.

Note that all the screenshots are from Windows. If you are using Mac, what you see may be different, but the procedures are the same.

Some color code (same for future exercises/projects): yellow highlighted means important/crucial; grey means you need to change accordingly (for example, change it to your own name).

Step 0. Set your name and email in Git

You only need to do it once. For Windows users, open Git Bash; for Mac users, open your terminal.

Enter the following commands as shown in Fig. 1. Note that to paste in Git Bash, it is Shift + Ins, or right click and choose “paste”, NOT Ctrl + V.

```
git config --global user.name "Your Name"
git config --global user.email "youremail@sjsu.edu"
```

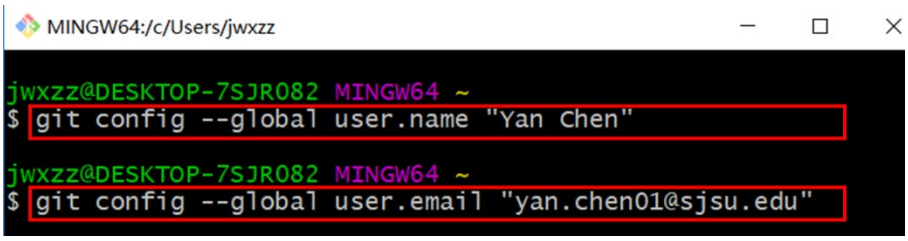

Fig. 1 Commands to set name and email

If you want to check if you entered the correct information, enter the following commands as shown in Fig. 2. You can always change those using the commands above (git config --global ...).

```
git config user.name
git config user.email
```

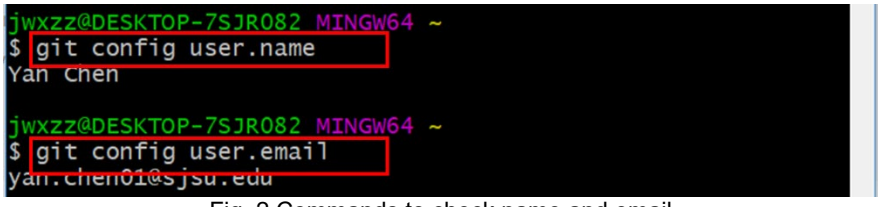

Fig. 2 Commands to check name and email

Step 1. Create a new android project

1.1 Create New Project

If this is your first time using Android Studio, you should see the window as shown in Fig. 3. Click “Create New Project”. Otherwise, click the menu File -> New -> New Project.

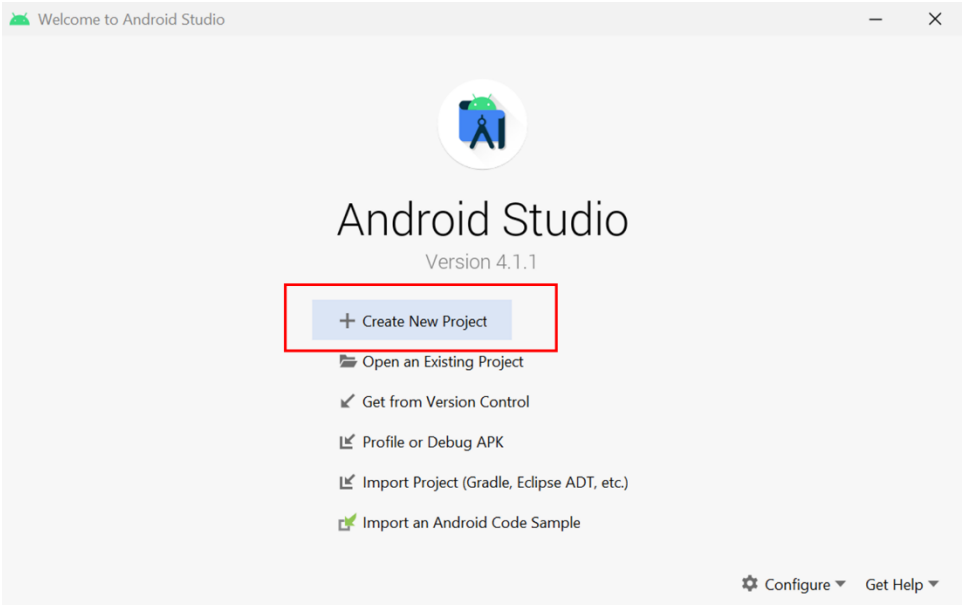

Fig. 3 Android Studio welcome window

1.2 Choose an Activity

In the “Select a Project Template” dialog (Fig. 4), under the “Phone and Tablet” tab, select “Empty Activity” and click “Next”. For future exercise/projects, choose empty activity unless specified.

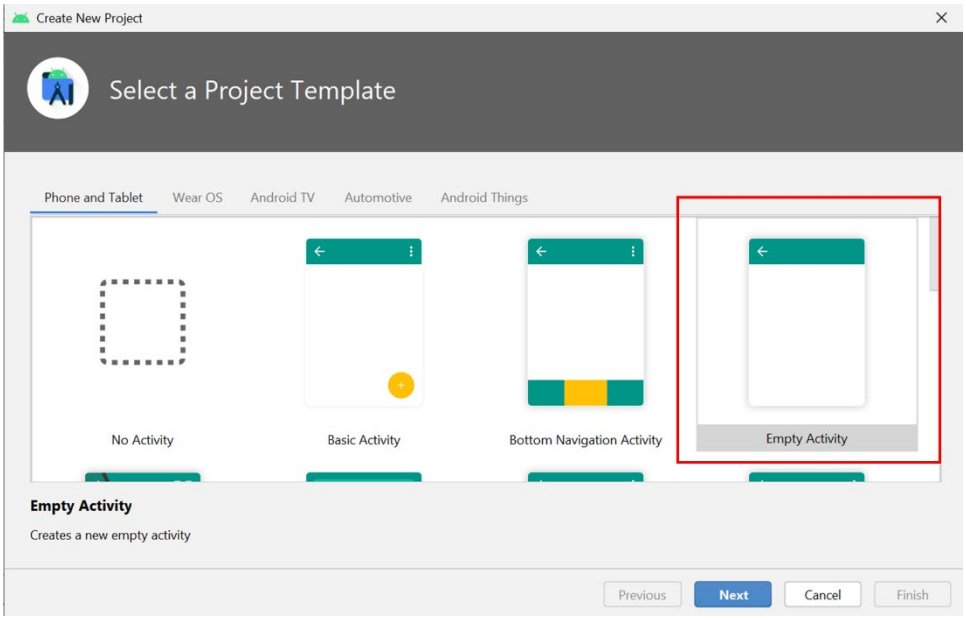

Fig. 4 Select a project template

1.3 Configure Your Project

In the “Configure your project” dialog (Fig. 5), set the following and click “Finish”. Note that, in the future, you only need to set your project name, all other fields should be automatically generated/set.

- Name: Exercise0YourName
- Package name: edu.sjsu.android.exercise0yourname
- Save location: *use the default unless you want to change it*
- Language: Java
- Minimum SDK: API 21: Android 5.0 (Lollipop)

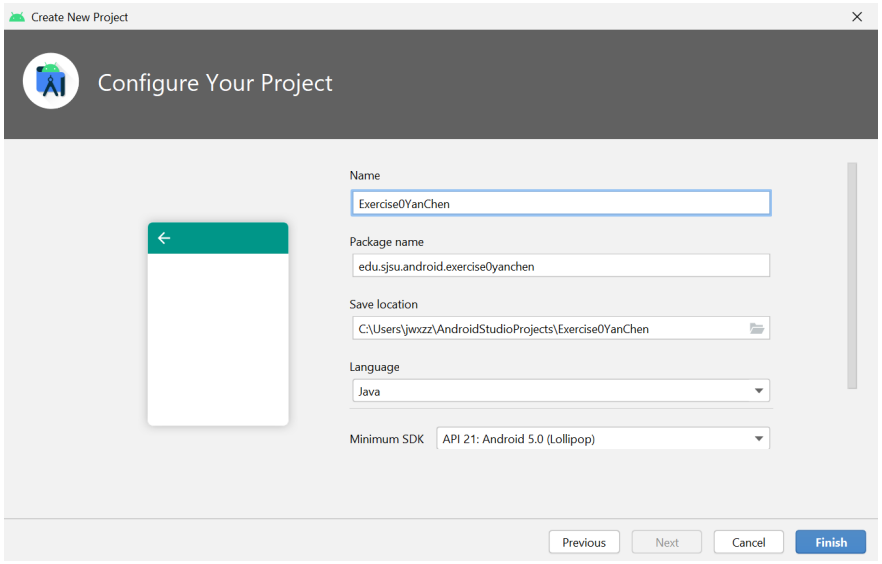

Fig. 5 Configure your project

Step 2. Create a new Bitbucket repository

2.1 Create a Bitbucket Repository

Log in your Bitbucket account. If this is your first time, you should be directed to the page as Fig. 6. Click “Create repository”. Otherwise, click the + sign (black circled).

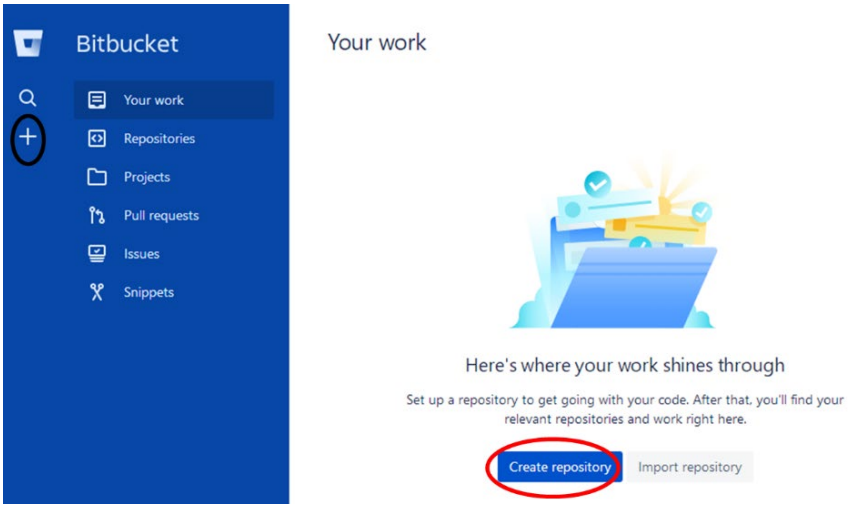

Fig. 6 Create Bitbucket repository

2.2 Configure the Repository

In the “Create a new repository” window (Fig. 7), set the following and click “Create repository”. In the future, each exercise/project should have one repository unless specified, and you can put all your repository under the same Bitbucket project.

- Workspace: *use the default*
- Project name: *up to you (in the dropdown menu, click “Create new project” then type the name)*
- Repository name: Exercise0
- Access level: Private repository
- Include a README? No *(important!)*
- Include .gitignore? No *(important!)*

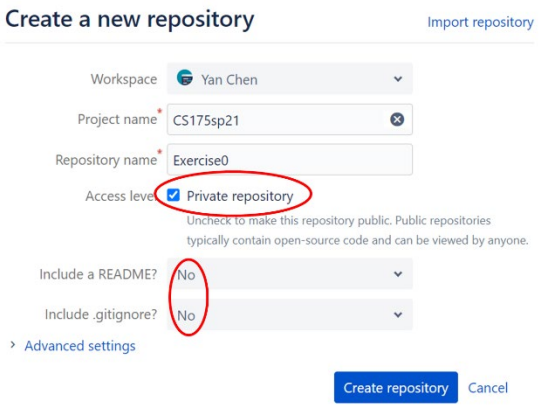

Fig. 7 Configure a new Bitbucket repository

2.3 Copy the Repository Link

If you set everything correctly, you should be directed to the page as Fig. 8. Copy the link boxed (do NOT include the git clone part, only everything after https://)

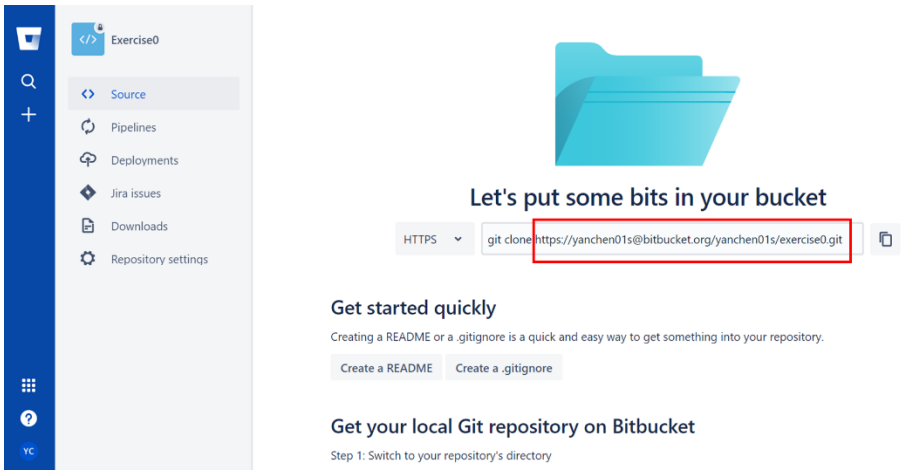

Fig. 8 Empty Bitbucket repository

For Step 3 and Step 5, using Android Studio seems easier but you can use Git Bash/Terminal if you prefer. See the appendix (Git Commands) for the commands you need.

Step 3. Link the Bitbucket repository to your local repository

Back to Android Studio.

3.1 Click the menu VCS -> Enable Version Control Integration as shown in Fig. 9.

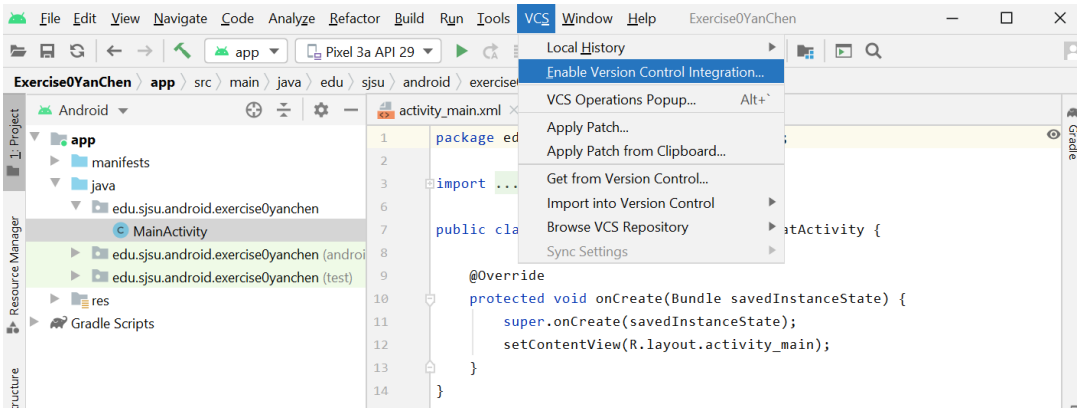

Fig. 9 Enable version control integration

3.2 From the popup window, Select Git for your version control system.

3.3 Click the menu VCS -> Git -> Remotes as shown in Fig. 10.

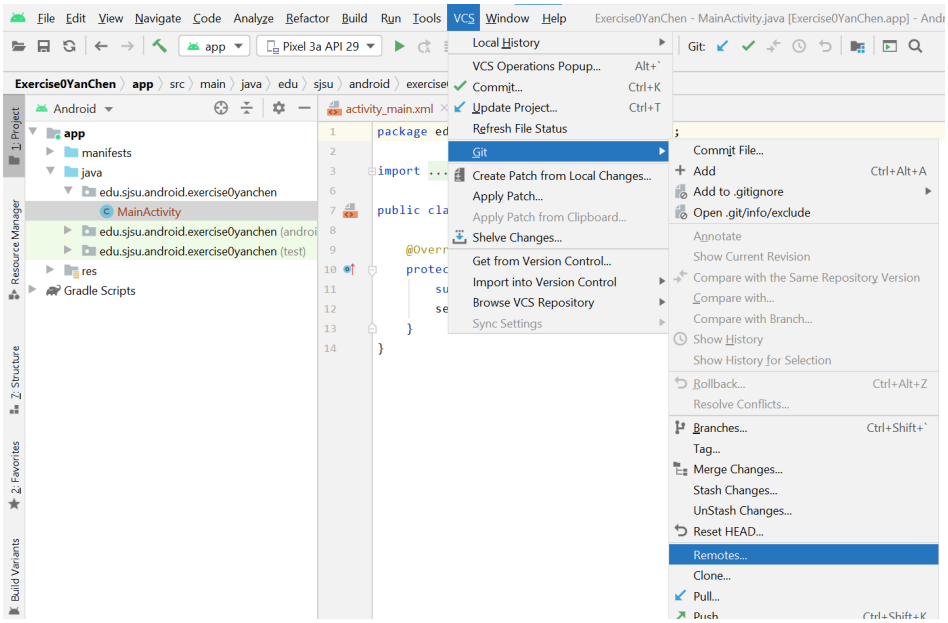

Fig. 10 Link remote repository

3.4 In the popup window (left part of Fig. 11), click the + sign on the top-right corner, then paste the link you copied in 2.3. If it's the first time, it will ask you for bitbucket username and password.

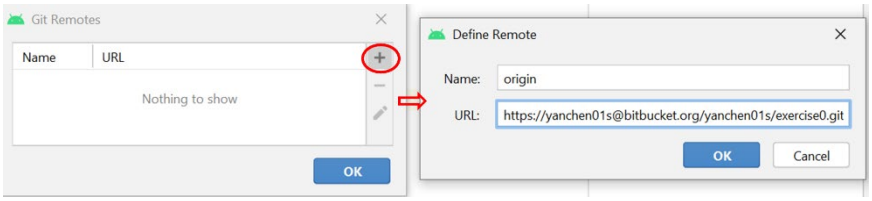

Fig. 11 Add the Bitbucket repository as the remote repository

Step 4. Working on and testing your app

For this exercise, you do not need to modify anything. To run your app, you need to set up an Android Virtual Device (AVD), or emulator first. The downloading and installing may take time, so you can proceed to Step 5 first since there is no need to test/run the app for this exercise.

4.1 Select the menu Tools -> AVD Manager.
4.2 Click the “Create Virtual Device” button.
4.3 Select any model you like in the list under the “Phone” tab and click “Next”.
4.4 Select a system image with API level 29 (Release name Q; if it shows “download” after the release name, click it, and download the system image) under the “Recommended” tab and click “Next”.
4.5 You can change the AVD name if you want and click “Finish”.

You only need to set it once and can use it for all future exercises/projects.

Note that you can also set the emulator to run in a tool window instead of as a standalone application. See the official document (https://developer.android.com/studio/run/emulator#run-emulator-studio) for more details.

Step 5. Upload your project to Bitbucket repository

5.1 Commit Your Changes

Click the menu VCS -> Commit or Ctrl + K. From the popup window (Fig. 12Fig. 1), check "Unversioned files", then add commit message (a summary of the changes) and click “Commit”.

The code analysis may give you a warning showing “xx errors and xx warnings found”. For this exercise, just click “Commit” on the popup dialog; in the future, you can ignore the warnings, but if there are any errors, you may want to go back and check.

And you can check/uncheck any option/feature under “Before Commit” as you prefer.

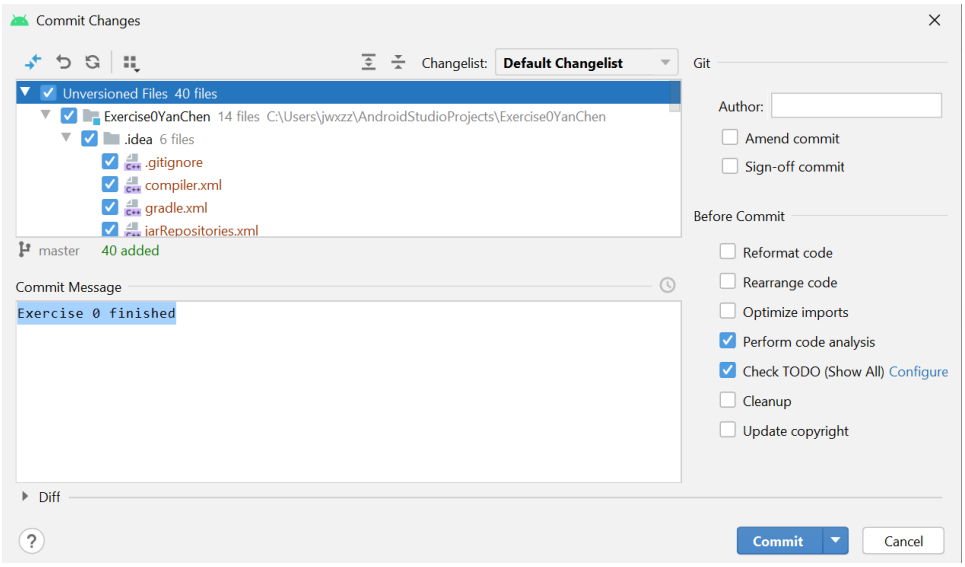

Fig. 12 Commit changes

5.2 Push to Bitbucket Repository

Click the menu VCS -> Git -> Push, or Ctrl + Shift + K, and click “Push”. Go back to Bitbucket and refresh your repository page. You should see the list of the files you uploaded if successfully pushed.

Step 6. Share and submit

6.1 Share Your Repository

On your repository source code page, click “Invite” as shown in Fig. 13.

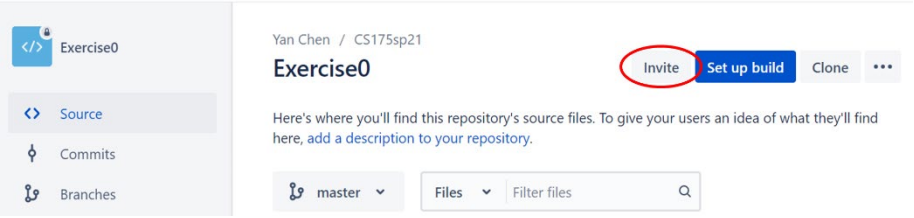

Fig. 13 Share repository

You should be directed to “User and group access” page (Fig. 14). Under “Users”, enter the email of the instructor (yan.chen01@sjsu.edu) and the grader (edmond.lin@sjsu.edu). You can give write permission if you want some help or suggested modifications, but read permission is enough.

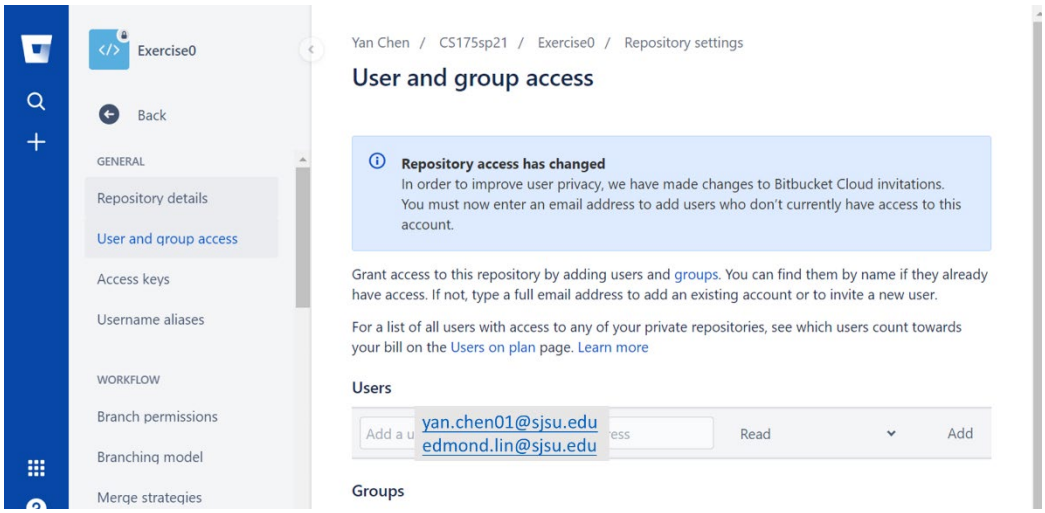

Fig. 14 Give permission to the instructor and the grader

6.2 Submit on Canvas

Submit repository links, etc. by answering all the questions in the “Exercise 0 - Hello World” quiz on Canvas.

You do not need to submit the APK for exercises, but you need to for mini projects. See appendix (Build APK) for how to build an APK for your app.

Note that you can modify your code, commit, push, or/and submit the quiz as many times as you want. Only your last submission before deadline will be graded.

Appendix

Git Commands

Alternative way of Step 3 and Step 5 using commands.

After creating the project (Step 1), open Git Bash/Terminal. Change to the project directory first:

```
cd AndroidStudioProjects/Exercise0YourName
```

Then Initialize git:

```
git init
```

After creating the Bitbucket repository (Step 2.2), if you scroll down the resulting page, you should see the command to link to the Bitbucket repository as shown in Fig. 15. Copy the first line under "Step 2: Connect your existing repository to Bitbucket" (boxed).

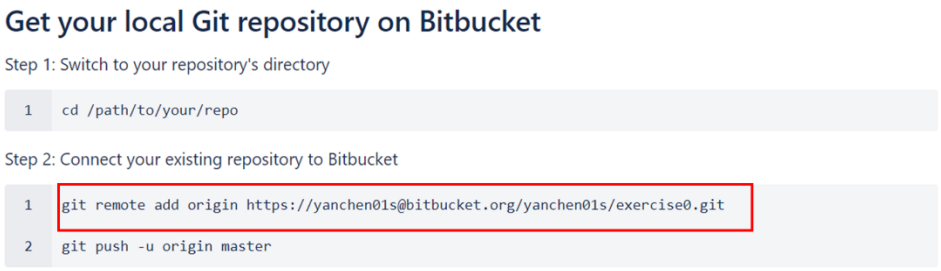

Fig. 15 Connect to Bitbucket repository

Pasted the copied command to Git Bash/terminal and enter. Now your local repository should be linked to the Bitbucket repository.

For commit, first add all files to track (note that there is a "."):

```
git add .
```

Then commit:

```
git commit -m "commit summary"
```

Finally, push:

```
git push -u origin master
```

If it's your first time, it will ask you to log in. Note that when typing password, the letters typed will not show on the screen. The uploading may take some time. Refresh your Bitbucket repository to check if the push is successful.

See the Official Git Commands Manual (https://git-scm.com/docs) for more commands if needed.

Build APK

For future exercises, you do not need to submit the APK, but you need submit it for mini projects.

After finishing your app, click the menu Build -> Build Bundle(s) / APK(s) -> Build APK(s) (Fig. 16).

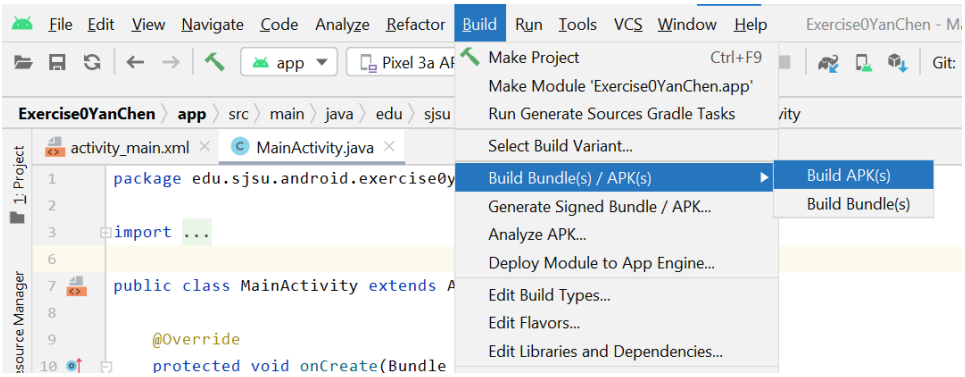

Fig. 16 Build APK

A dialog will pop up on the bottom left corner (Fig. 17) after the APK built successfully. Click “locate” to open the file location of the APK. If you missed that dialog, the path of the APK should be: <your project path>\app\build\outputs\apk\debug

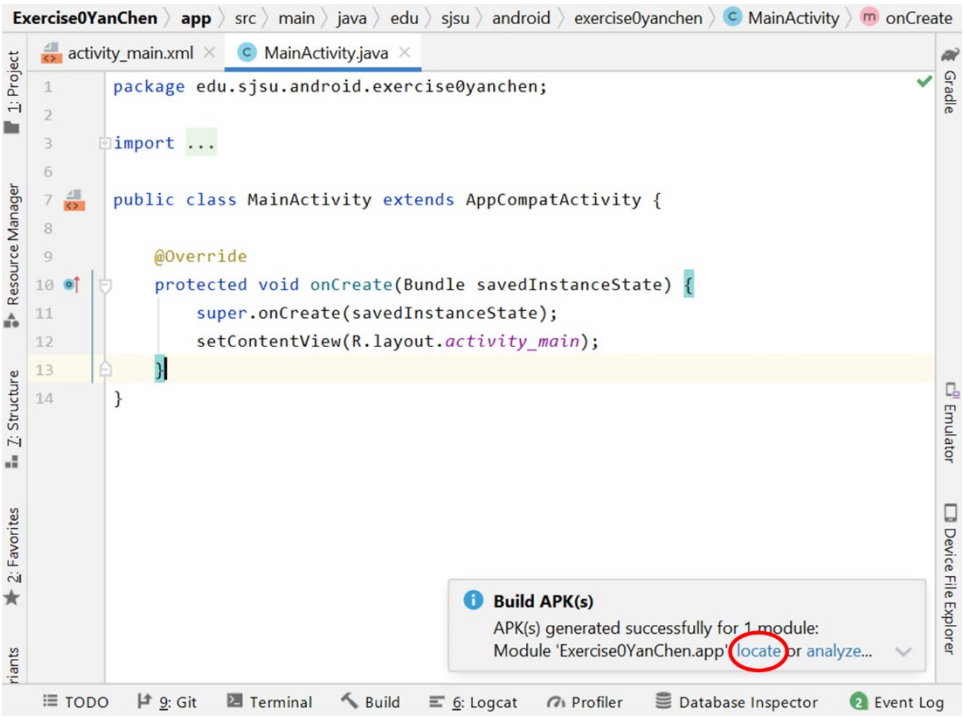

Fig. 17 Locate the APK built