

Android Studio – GitHub Teamwork

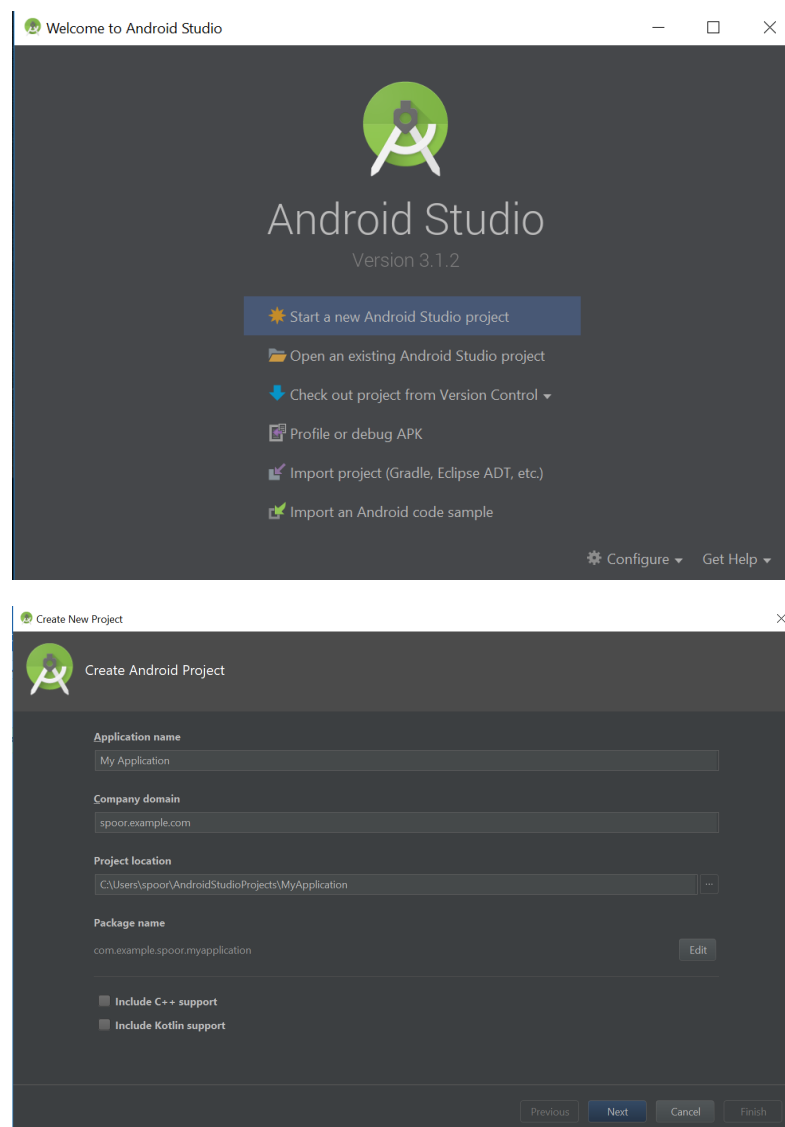
Objectives: Learn project integration using github. By the end of this tutorial you will be:

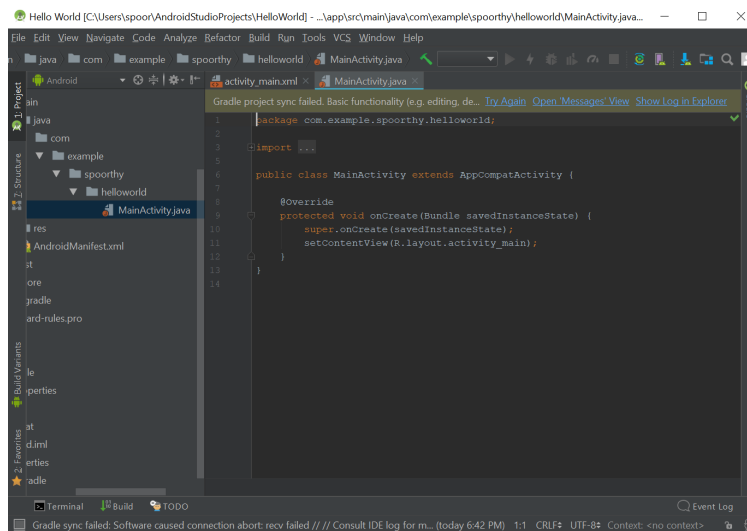
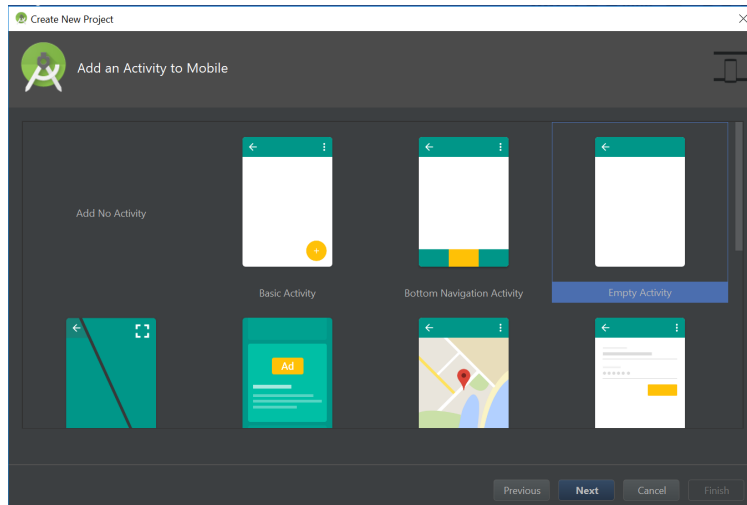
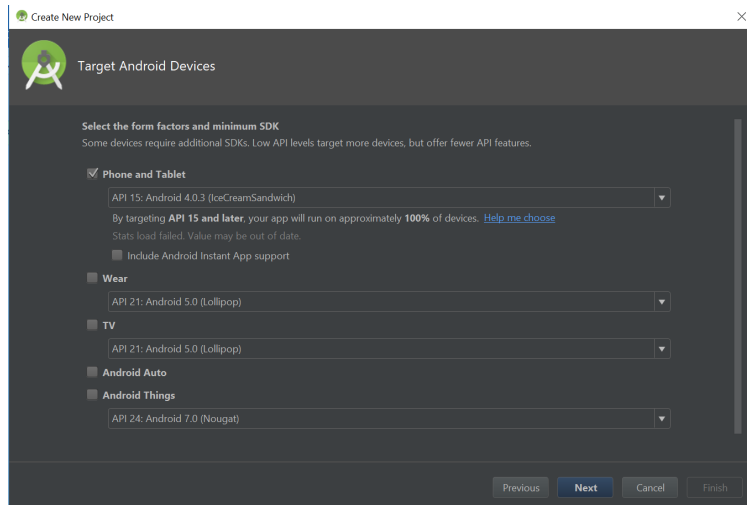
- Familiar with the features of version control e.g. push, pull, etc.
- Able to develop a project as a team.

Now that you know your team members, let us have a look at how you will develop the project for this course together, as a team, with the help of GitHub.

Part 1: Technical coordinator creates new Hello World project

Firstly, each team pick a *technical coordinator* who will start the creation of a new project on Android Studio with the knowledge gained during the previous weeks of classes. To help you recollect, following are few of the screenshots on creation of a project in Android Studio.



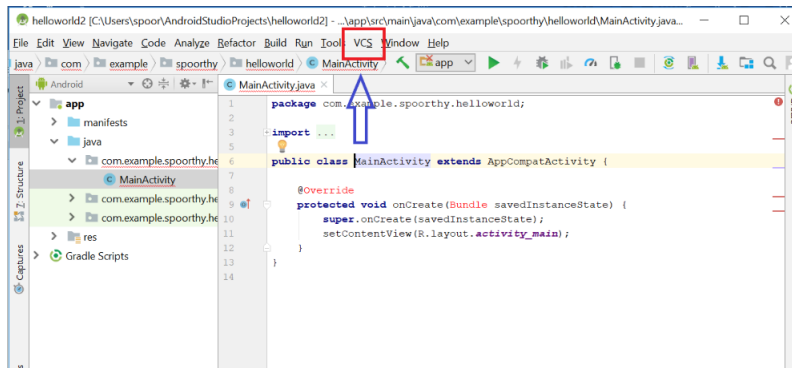


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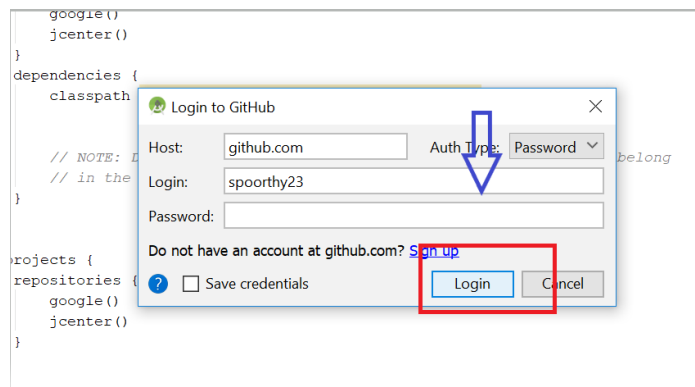
Part 2: Technical coordinator pushes the project to Github

The technical coordinator after creating the new project, will push it to Github.

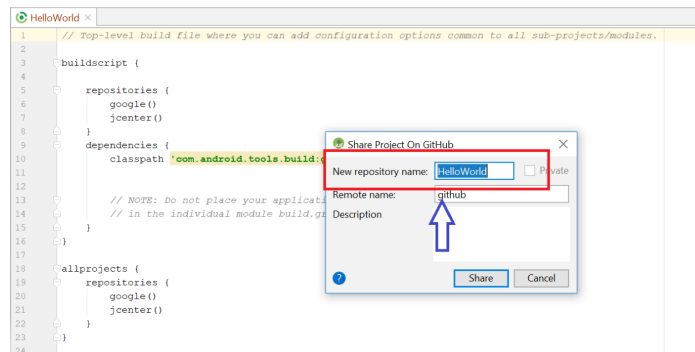
1. Click on the “VCS” option from the menu at the top of the Android Studio Window and then select the option of “Import into Version Control” → “Share Project on GitHub”.



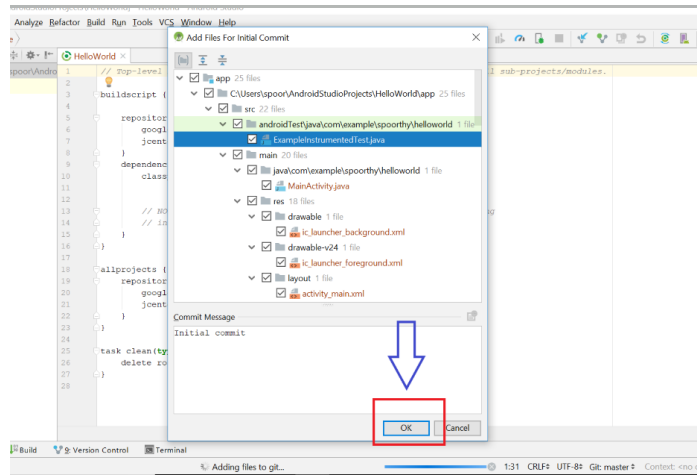
2. Then, you’ll see a window which will ask you for your GitHub login details. You need to give your credentials and then click on “login”.



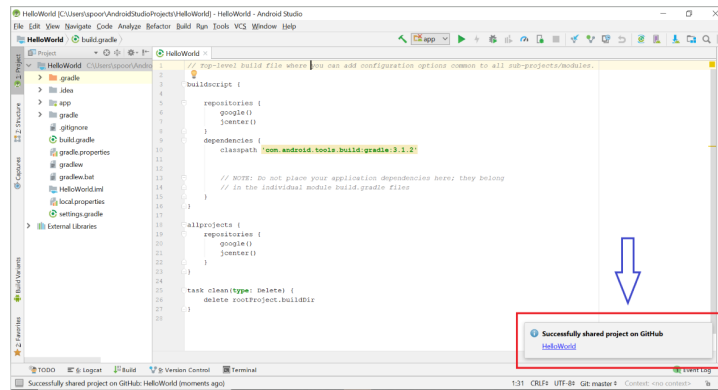
3. Now, you’ll see a new window pops up asking you to give a repo name. Just enter the name of your project and click on “Share”



- Then you'll see a new window which asks you about what files you want to be added to the repo, just select all the files and click on "ok"



- You'll see a message that says that the push was successful.

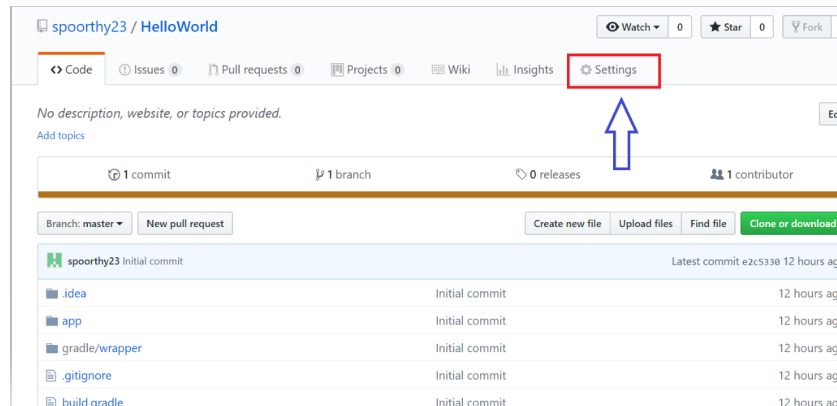


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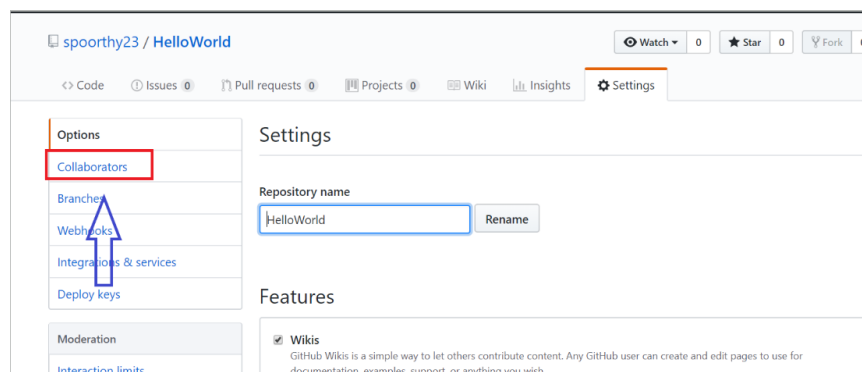
Part 3: Technical coordinator invites team members to join & members clone the project

Now that the technical coordinator has created a new project and pushed it to GitHub, s/he will add collaborators to the project. Adding collaborators to the project repo helps the team members to contribute to the project.

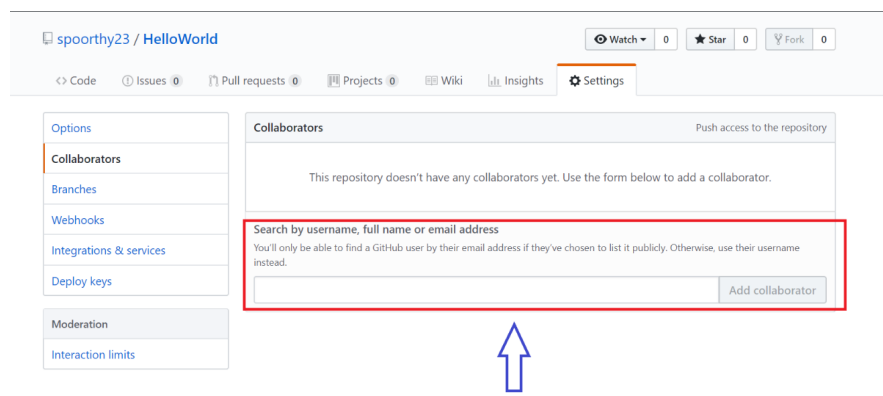
1. The technical coordinator will login to his/her GitHub account and will choose the repo that he/she has created in the previous step. Once you are in the repo page click on “settings” displayed at top right corner.



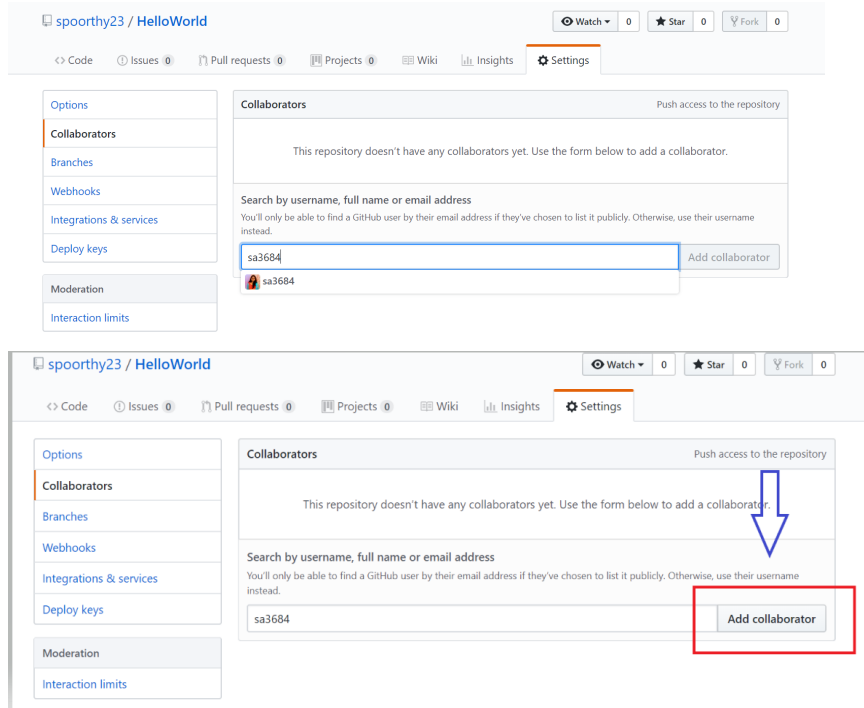
2. You'll see a page that has a display of options to the left. Click on “Collaborators”.



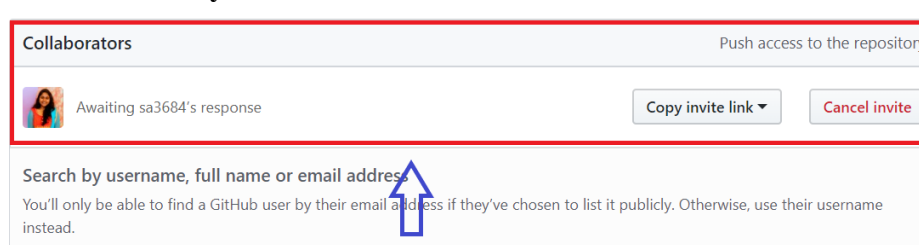
3. Once you click on “Collaborators” you will see an option of adding collaborator.



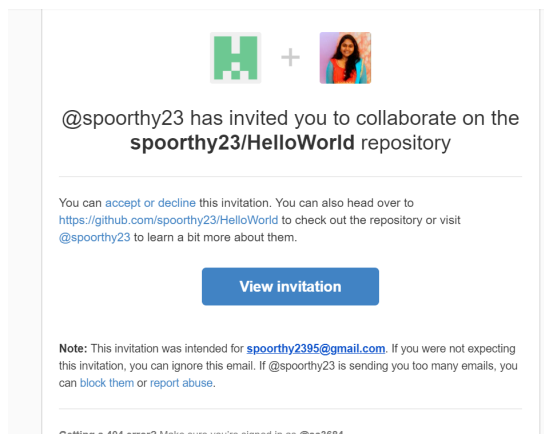
- You need to enter the person’s email address or their Git username. Click on “Add Collaborator”.



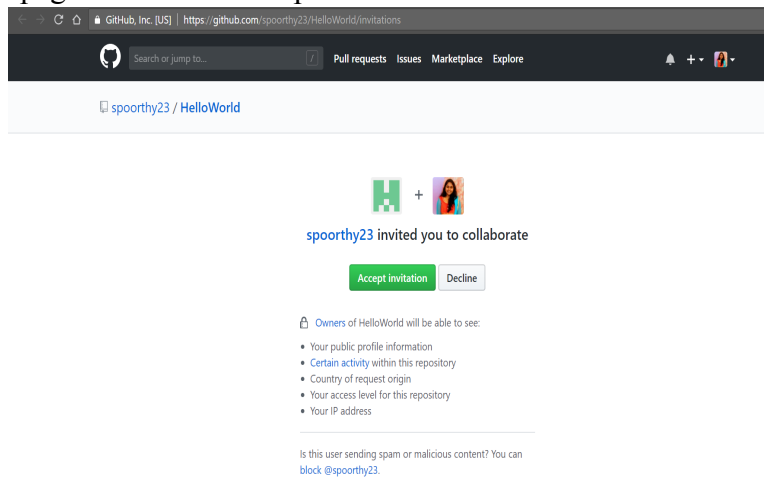
- After adding a collaborator for the project, an invitation to collaborate will be sent to the person. Once the person accepts the invitation he/she can contribute to the project. Similarly you can **invite all your team members**.



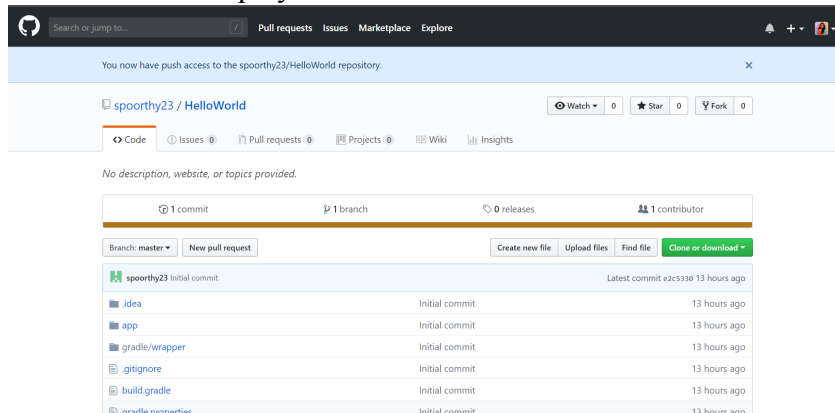
Here is a screenshot of the invitation the collaborator will receive in the email.



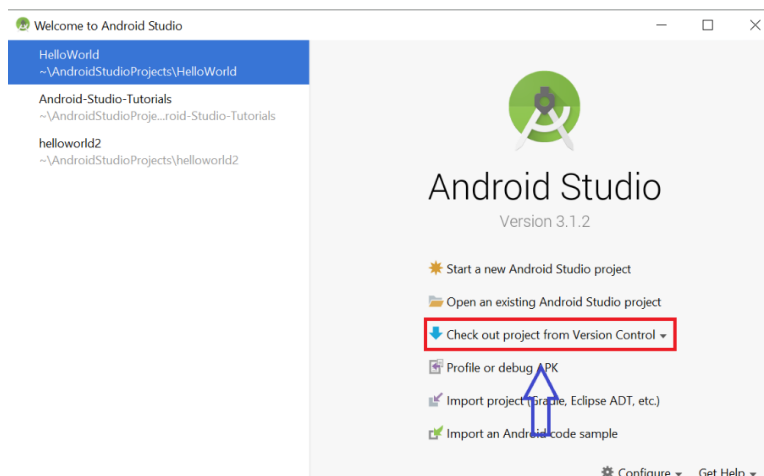
6. The team member clicks on the “View Invitation” button and he/she will be directed to their github page. Click on “Accept Invitation” button.



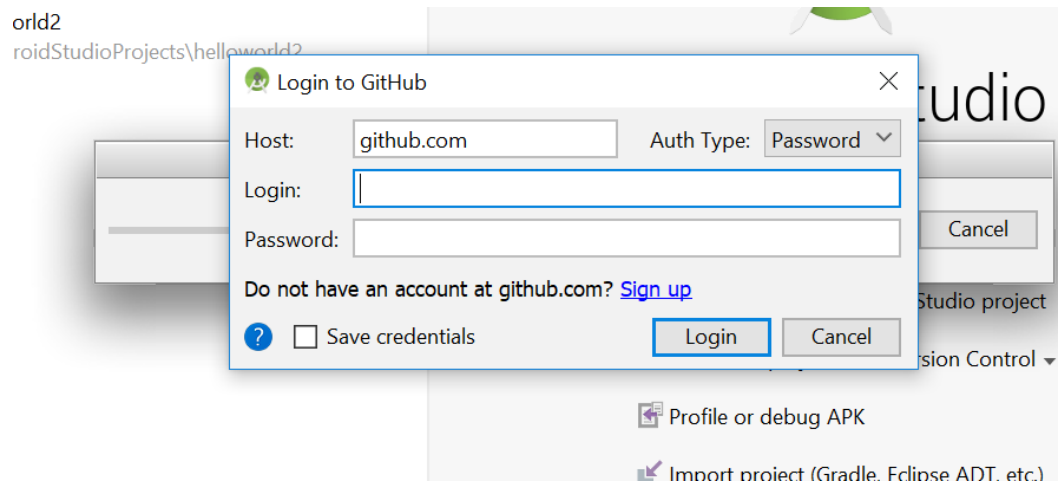
7. You will see that you have been added as a contributor to the project and a message “you have push access” will be displayed.



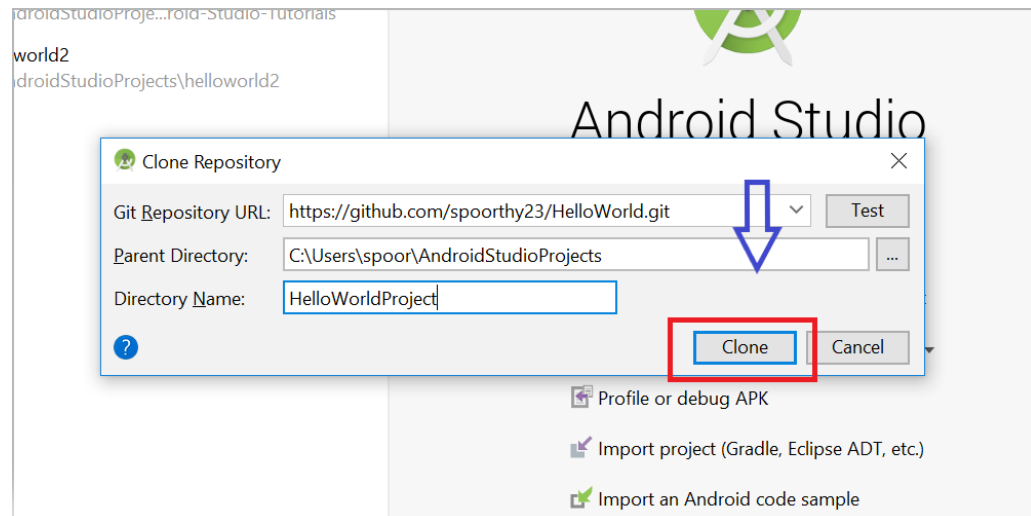
8. When all team members accept their invitations, the contributors to the project will be added and the technical coordinator will be termed as the “owner” of the project.
9. **Each team member (other than the technical coordinator)** must download the project from GitHub. To do so, click on the “Check out project from Version Control” option and then “GitHub” in Android Studio.



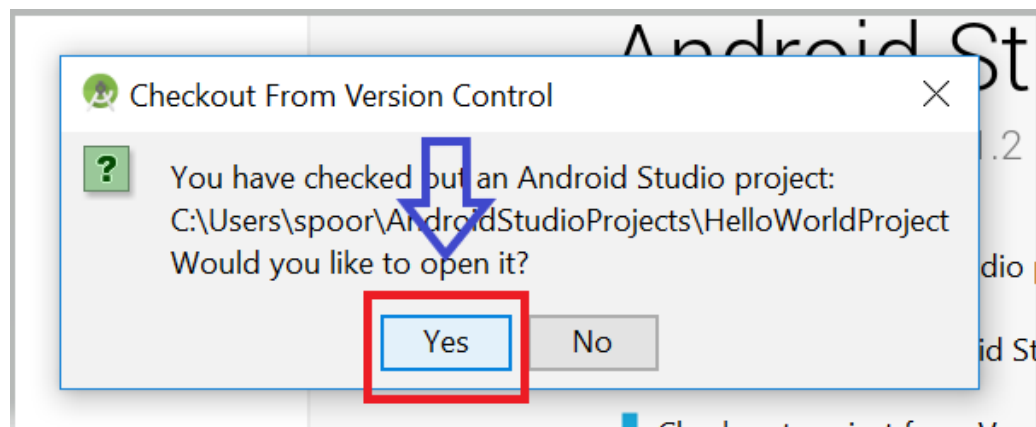
10. Enter your Login credentials, and click Login.



11. Click on “Clone”.



12. Click on “Yes” and you’ll see that the project has cloned.

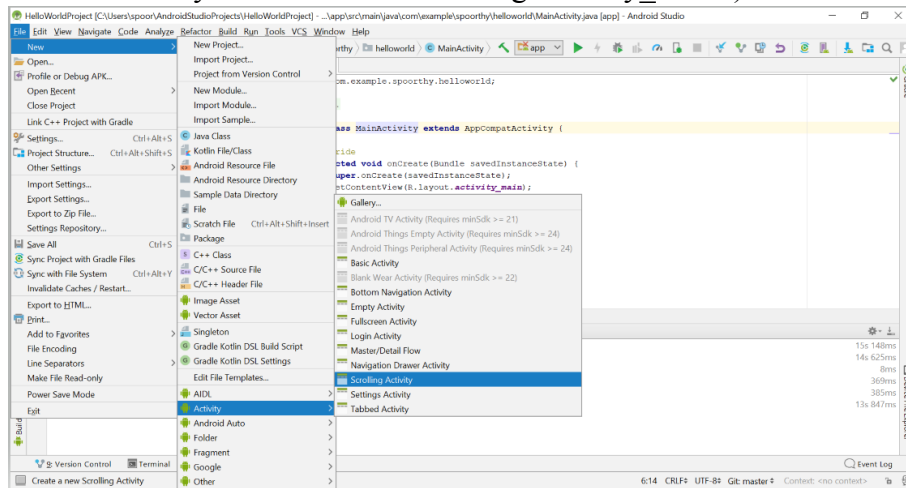


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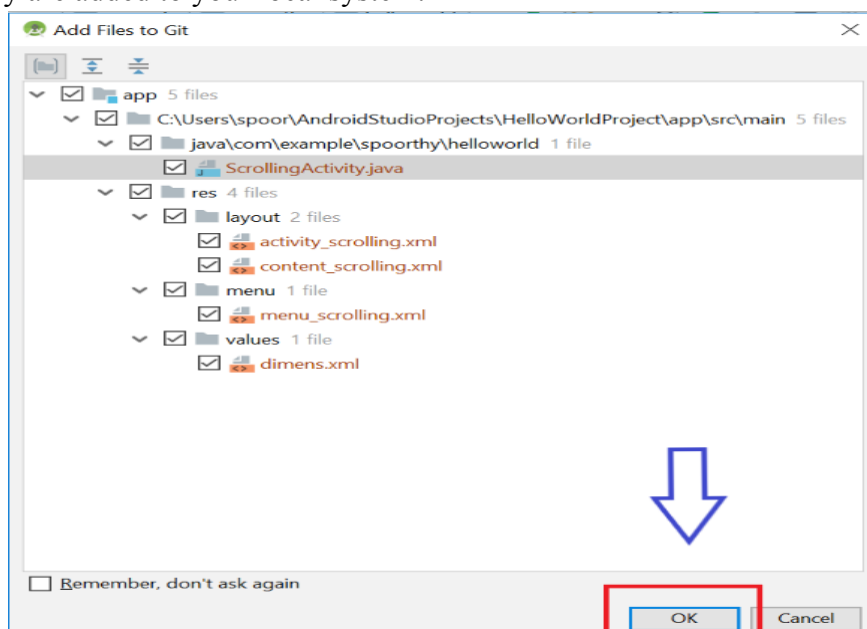
Part 4: Update the shared project on your local machine and upload the changes to Github

Now that the team members have the project on their local systems, they will each create an activity and when the team member is sure of the changes s/he made, the member can integrate the changes made on the local machine (i.e. merge into a branch) to the shared project on Github that was created by the technical coordinator (i.e. master branch).

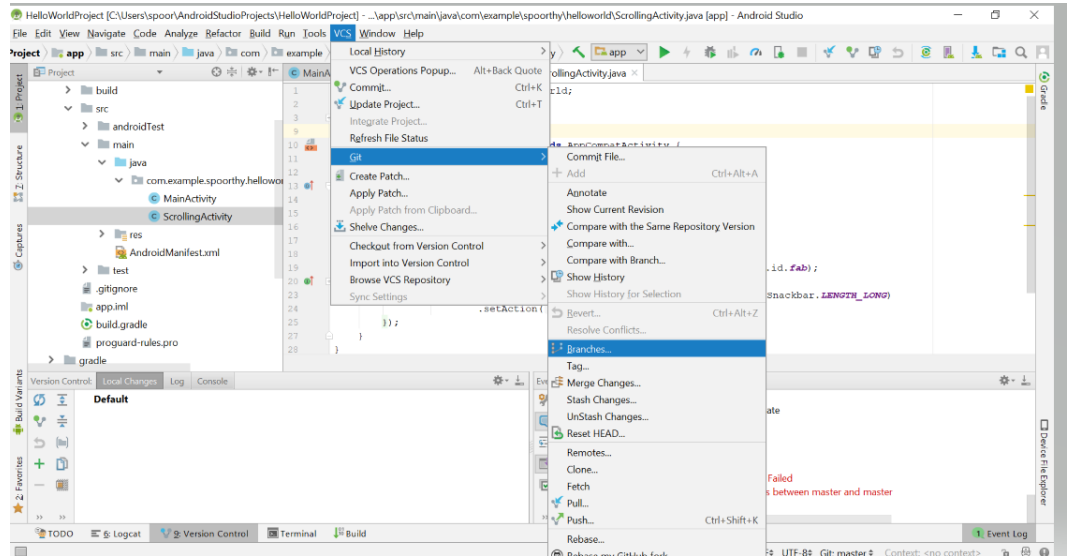
1. **Each team member (including the technical coordinator)** creates a new activity (in the shared project). Click on “file” → “New” → “Activity” → Empty activity (each team member names the activity with their own name e.g. activity_userid).



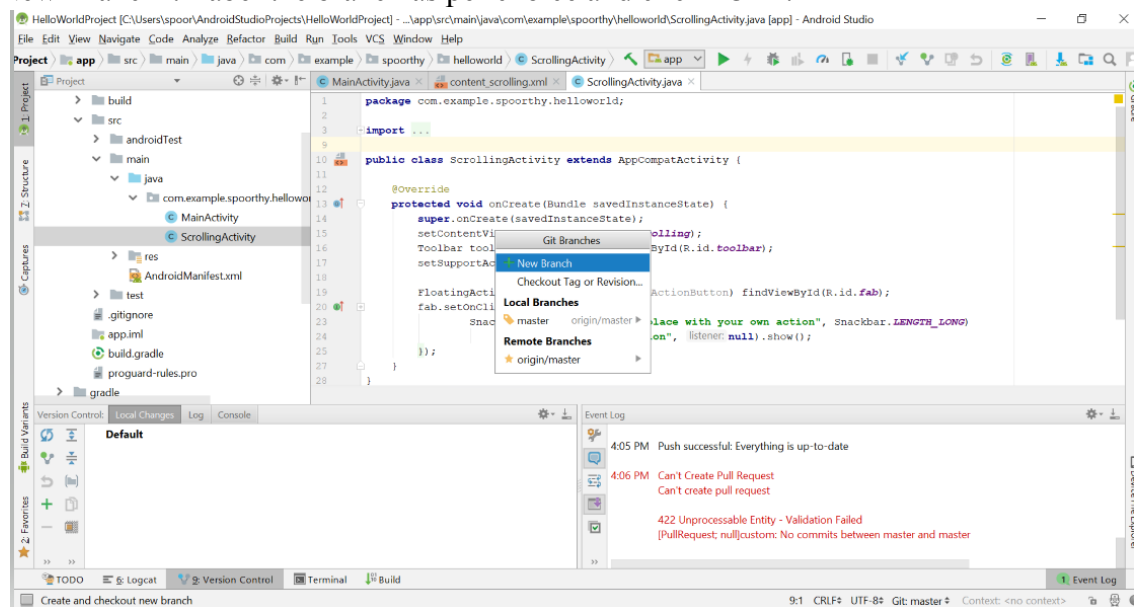
2. You will see a window which displays all the files that will be created additionally, and Android Studio will ask you if you like to add these files to Git. Click “OK”.
Note: Clicking on “OK” will not add these files to the remote system (github.com). Instead they are added to your local system.



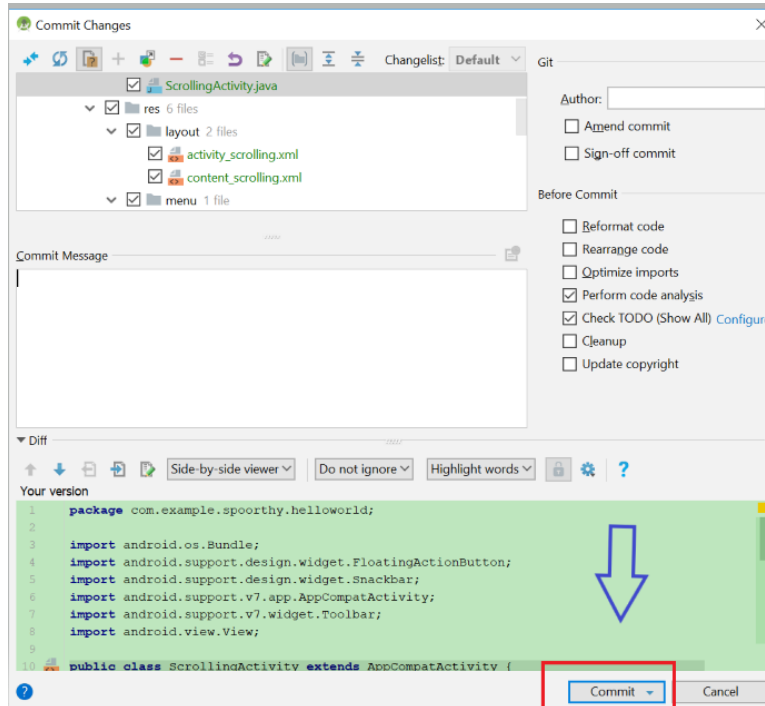
3. Create a new branch other than the master, to facilitate code integration. Click on “VCS” → “Git” → “Branches”.



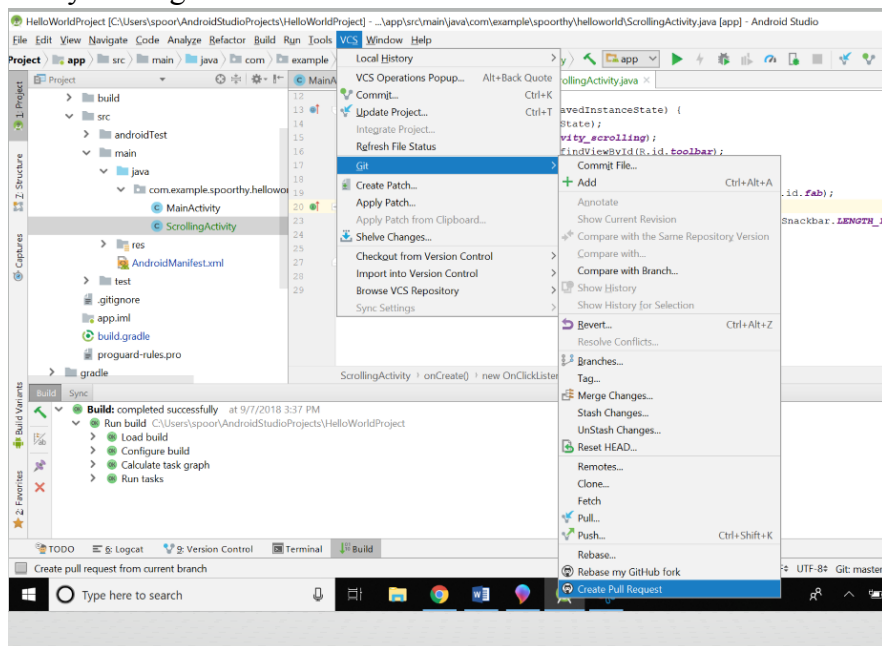
4. Click on “New Branch”. Label the branch as per choice and click “OK”.



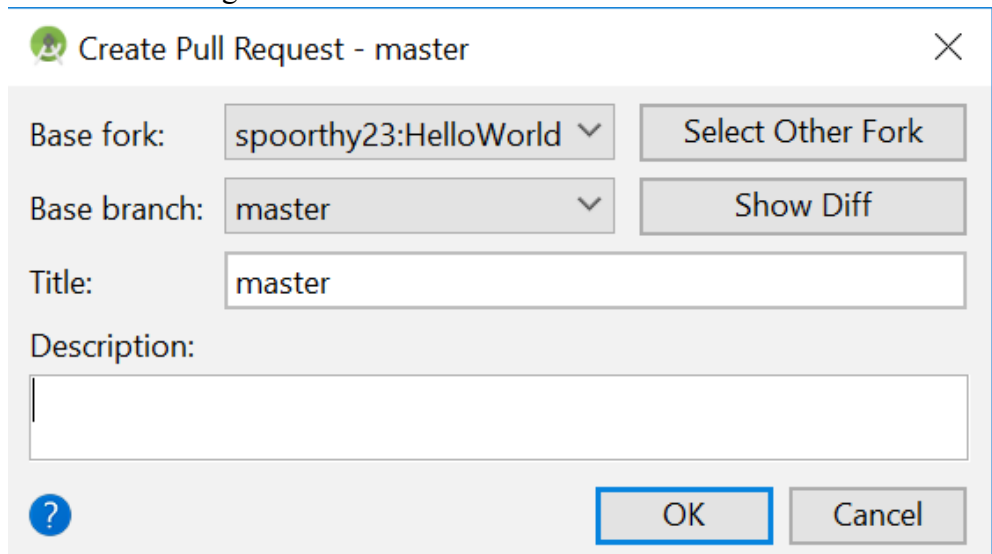
5. Then you need to “commit” (add these changes made in local system to the remote system). Go to “VCS” → click on “Commit”.



- Now that you have committed the changes, you will “push” these changes to the remote system (github.com). Click on “VCS” → “Git” → “Push”. Enter your login details and click on “Push”.
- To inform your team of the changes you made and would like to integrate to the shared project on github, create a pull request. Go to “VCS” → click on “Git” → “Create Pull Request”. Give your Login Credentials.



8. Give a brief description as to what changes you are making to the project (e.g. create a new screen with my name displayed in it) and then click on “OK”. If you click on “Show Diff” you will see the changes of the file before and after.



Create Pull Request - master

Base fork: spoorthy23:HelloWorld Select Other Fork

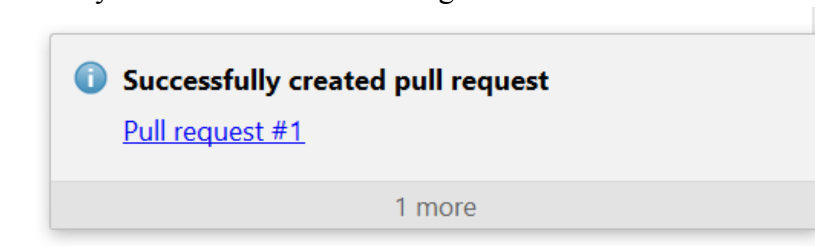
Base branch: master Show Diff

Title: master

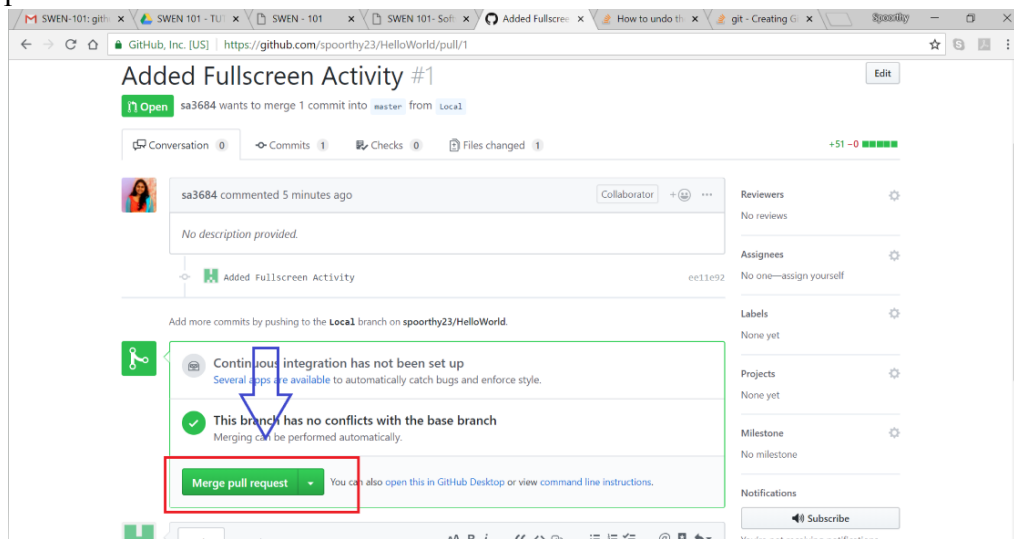
Description:

? OK Cancel

9. Once that is done you will see a status message.



10. This is how your GitHub page will look like after the pull request is made. Once everyone reviewed the changes and all the team members are satisfied with the changes, click on the “Merge Pull Request” and the branches will combine. Now your master branch is up-to-date.

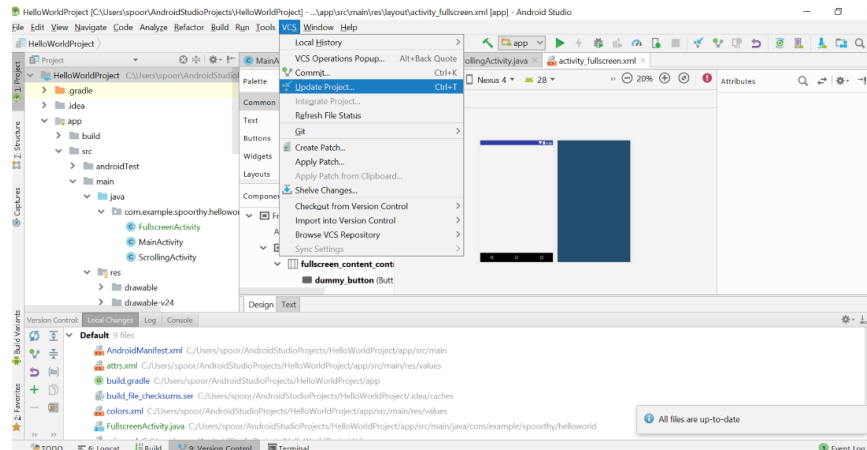


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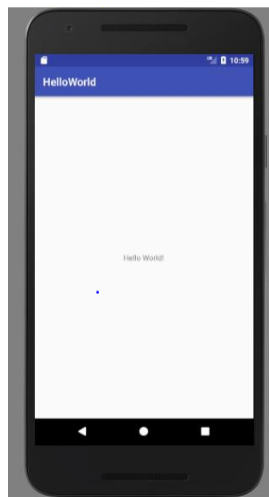
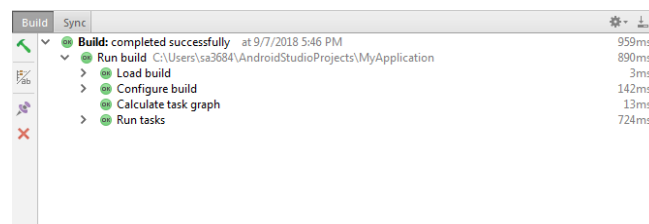
Part 5: Download the latest version of the shared project on Github

Now that we have seen how a technical coordinator can create a new project and add collaborators to it on GitHub, and how team members can contribute to the project. We will download the updated project from github and run it.

1. Click on “VCS” → “Update Project”. You will see a message at right bottom corner that says, “All files are up-to-date”. So, now you have the same project that is there on GitHub. Now click on “run”.



2. You will see a build successful message and the emulator will look as shown below.



#end_of_part_5

#end_of_tutorial_4