Programming Environment Setup for Android Studio

TEAM 13380

Android Studio

- Android Studio is an integrated development Environment (IDE) for writing code in a collaborative environment

- Some advantages of Android Studio as compared to other IDEs include
  - Its ability to debug in real-time
  - The ease of integrating libraries such as OpenCV or DogeCV

- Android Studio works especially well with GitHub, as it allows multiple people to collaborate effectively

GitHub

- GitHub is a Git repository hosting service that offers distributed version control and source code management

- When integrated with Android Studio, it allows people to share their code, obtain other collaborators' code, and access different iterations of the same code
  - This is known as "Version Control"

- You can think of it as a collaborative "Google Drive" that can store all of your team's code but also gives individuals the flexibility to work on specific programs

Installing Android Studio

- Search up "Download Android Studio" and click on the link
  - It looks like this: "https://developer.android.com/studio"
- Here is a video showing the installation process: https://www.youtube.com/watch?v=hP0u-ib_Tm8
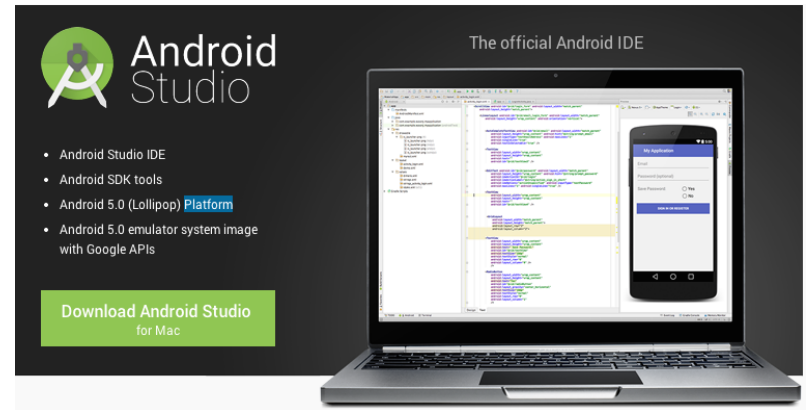
Configuring GitHub

- Click on this link: "https://github.com/" and make an account there

- Open up Android Studio and select
  - "File" >> "Settings" >> "Version Control"

- Click on "Git" and select "Test" (to the right of "Path to Git executable")

- Then click on "GitHub" and then on "Create API Token" and enter your GitHub account details there

- Select "Apply" and then "OK"

- This way you can access GitHub directly within Android Studio

Creating Your Team Repository

- Create a team account on GitHub

- In order to create your team repository, fork the most current version of the FTC SDK using your team account The most current version of the SDK can be found at: https://github.com/ftctechnh/ftc_app.git

  - You can select "fork" in the top right hand corner

- This will allow you to create a repository for your team which is built off of the FTC SDK repository, allowing you to access those libraries

FTC Skystone Repository

Clone

Team Repository

Student 1's copy

Student 2's copy

Student 3's copy

Student 4's copy

Student 5's copy
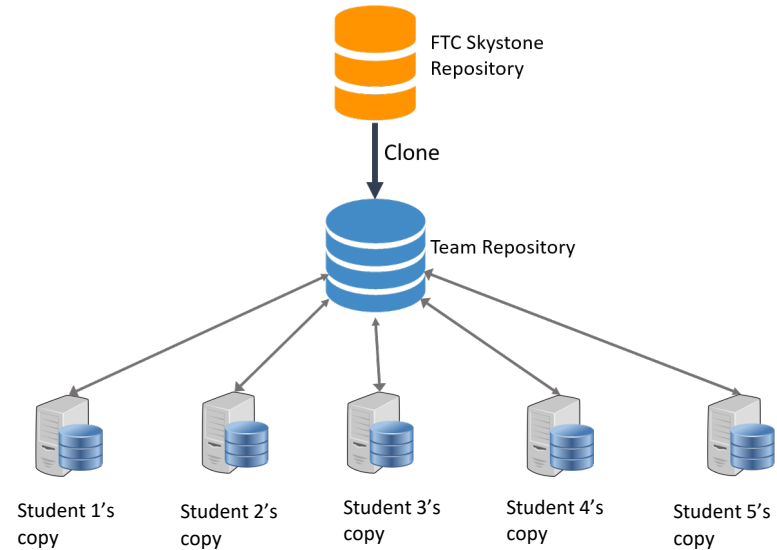
Getting Your Team on the Repository

- In order for team members to access the repository, they need to create a GitHub account and request access from the repository admin (the person that created the team repository)

- After the admin grants access, team members have to follow the following steps:

  - Go to the homepage of Android Studio (the one that shows up when you first open it up)

  - Click on "Check Out Project From Version Control"

  - Enter your team's Git Repository URL

  - Then click "Test" and "Clone"

- After successfully cloning the repository, team members can start contributing to the team repository

Creating a New File

- Go to the folder where you want to add a file

- Right click on the folder

- Select "File" >> "new" >> "Java Class" >> Give it a name >> "OK"

Committing & Pushing Files

- Committing
  - Press the check mark at the top right or go to VCS and press "Commit"
  - Enter a commit message and press "Commit"

- Pushing
  - Instead of pressing "Commit," click on the arrow near the commit button
  - Click "Commit and Push"
  - Select branch to push onto and press "Push"

Transferring Programs onto the Phones

- Connect your Robot Controller phone (The phone that connects to the robot) to the computer you are working on using a USB

- Build your program

- Press the play button in the top right of Android Studio to download your program onto the phone

- Wait for the phone to complete installation (A message will appear that says "Installed successfully in x seconds")

Credits

- This lesson was written by Ansh Kharbanda for FTCTutorials.com

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- More lessons for FIRST Tech Challenge are available at www.FTCtutorials.com