



ROYAL UNIVERSITY OF BHUTAN
COLLEGE OF SCIENCE AND TECHNOLOGY
PHUENTSHOLING: BHUTAN



PLAGIARISM DECLARATION FORM

Student Name: Divyash Chhetri

Student No: 02200174

Module No and Title of the module: CTE306 - Mobile Application Development
Assignment no and Title of the Assignment: Lab Work 01

Section H2 of the Royal University of Bhutan's *Wheel of Academic Law* provides the following definition of academic dishonesty:

"Academic dishonesty may be defined as any attempt by a student to gain an unfair advantage in any assessment. It may be demonstrated by one of the following:

Collusion: the representation of a piece of unauthorized group work as the work of a single candidate.

Commissioning: submitting an assignment done by another person as the student's own work.

Duplication: the inclusion in coursework of material identical or substantially similar to material which has already been submitted for any other assessment within the University.

False declaration: making a false declaration in order to receive special consideration by an Examination Board or to obtain extensions to deadlines or exemption from work.

Falsification of data: presentation of data in laboratory reports, projects, etc., based on work purported to have been carried out by the student, which have been invented, altered or copied by the student.

Plagiarism: the unacknowledged use of another's work as if it were one's own.

Examples are:

- verbatim copying of another's work without acknowledgement
- paraphrasing of another's work by simply changing a few words or altering the order of presentation, without acknowledgement
- ideas or intellectual data in any form presented as one's own without acknowledging the source(s)
- making significant use of unattributed digital images such as graphs, tables, photographs, etc. taken from test books, articles, films, plays, handouts, internet, or any other source, whether published or unpublished
- submission of a piece of work which has previously been assessed for a different award or module or at a different institution as if it were new work
- use of any material without prior permission of copyright from appropriate authority or owner of the materials used"

Student Declaration

I confirm that I have read and understood the above definitions of academic dishonesty. I declare that I have not committed any academic dishonesty when completing the attached piece of work.

Signature of Student: Divyash Chhetri

Date: 07 Aug 2022



Lab 01

CTE306 – Mobile Application Development

Date – 2nd August 2020

Divyash Chhetri

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BE 3 IT

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Department of Information Technology
College of Science and Technology

Aim

1. Download and Install Android Studio software
2. Create New Empty Android App
3. Add Emulator
4. Setup Git Configuration and Integrate with your Android App

Theory

Android Studio

The official Integrated Development Environment (IDE) for developing Android apps is called Android Studio, and it is based on IntelliJ IDEA. In addition to the robust code editor and developer tools provided by IntelliJ, Android Studio provides additional capabilities to increase your efficiency when creating Android apps.

VCS and GitHub

A version control system, or VCS, keeps track of the changes made while individuals and groups work together on projects. Any older version of the project may always be retrieved when developers make modifications to it.

Developers can look into a project's history to learn:

- What modifications were made?
- Who changed the situation?
- What time did the adjustments occur?
- What made adjustments necessary?

A organization called GitHub provides a service for hosting Git repositories on the cloud. In essence, it makes it more simpler for both individuals and teams to utilize Git for collaboration and version control.

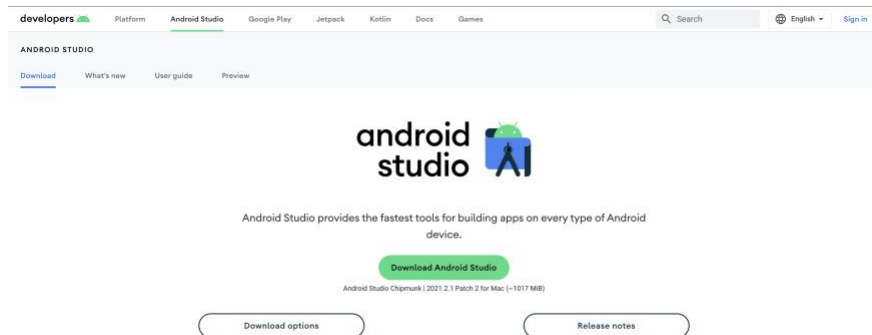
Because of GitHub's user-friendly design, even newbie programmers may benefit from Git. Without GitHub, utilizing Git often necessitates a little more command-line experience and technical know-how.

However, because GitHub is so user-friendly, some individuals even use it to handle different kinds of projects, including authoring books.

Procedures

Download and Install Android Studio

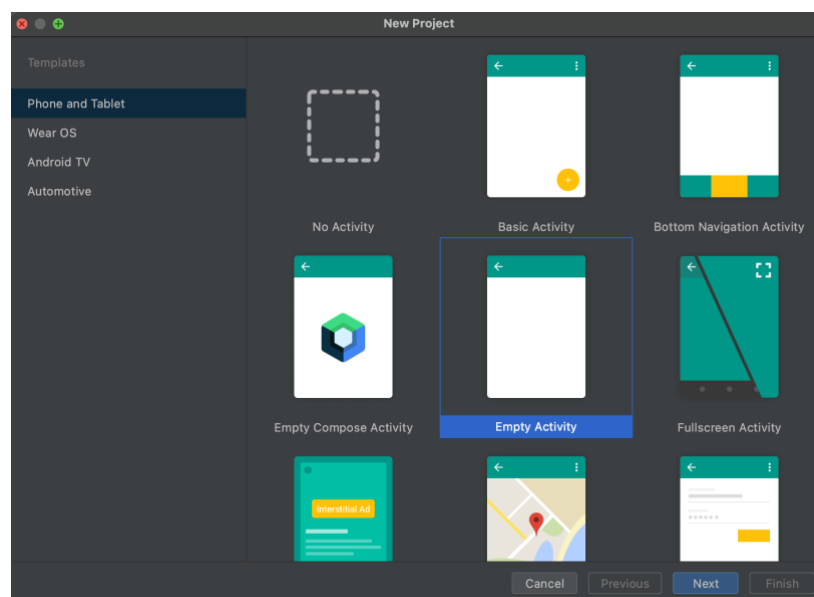
1. Download the latest version of Android Studio compatible with your machine from Android's official website (<https://developer.android.com/studio>)



2. Launch the Android Studio DMG file.
3. Drag and drop Android Studio into the Applications folder, then launch Android Studio.
4. The Android Studio Setup Wizard guides you through the rest of the setup, which includes downloading Android SDK components that are required for development.

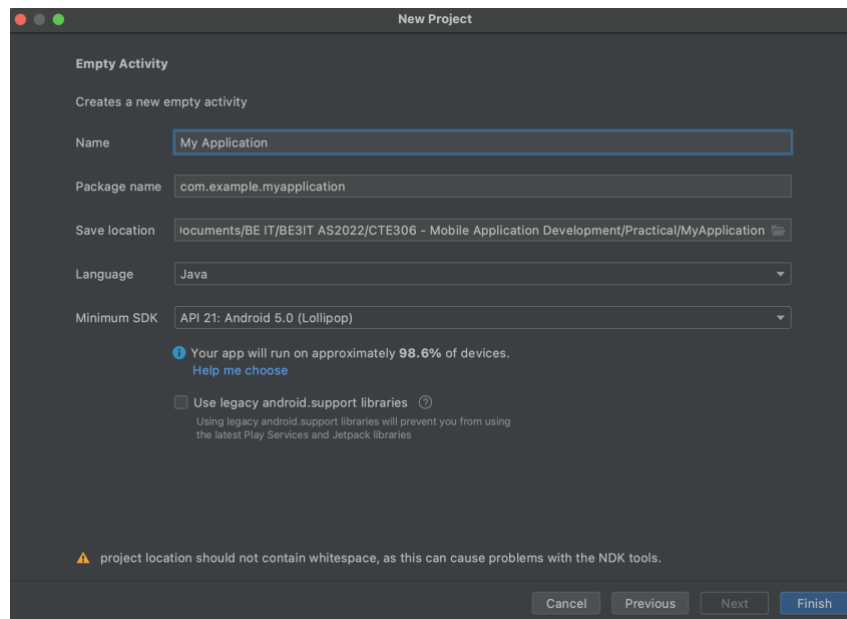
Creating a Empty New Project

1. Click on New Project
2. Choose an empty activity



3. Give an appropriate name and project location

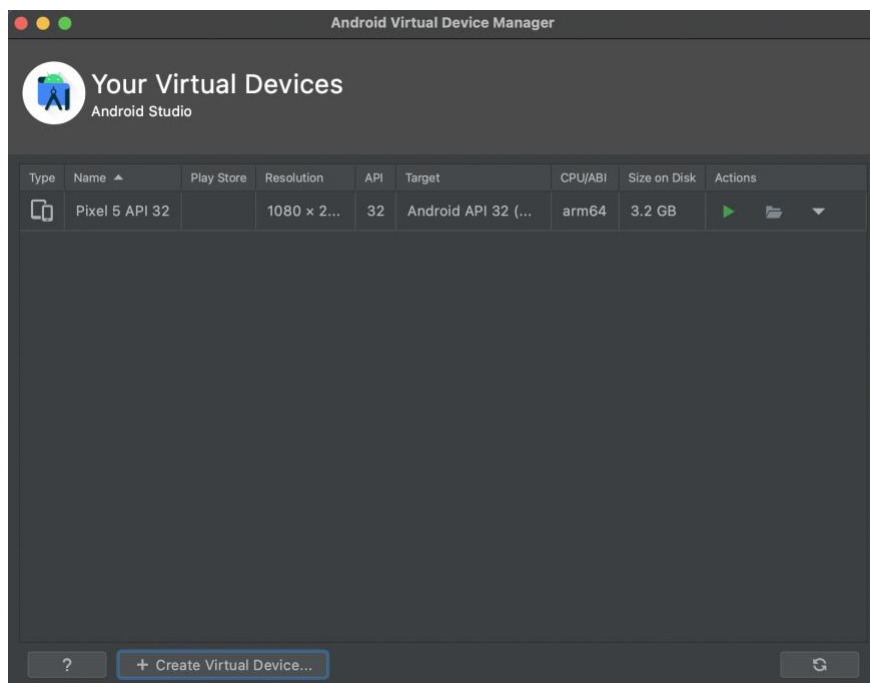
4. Choose the minimum SDK



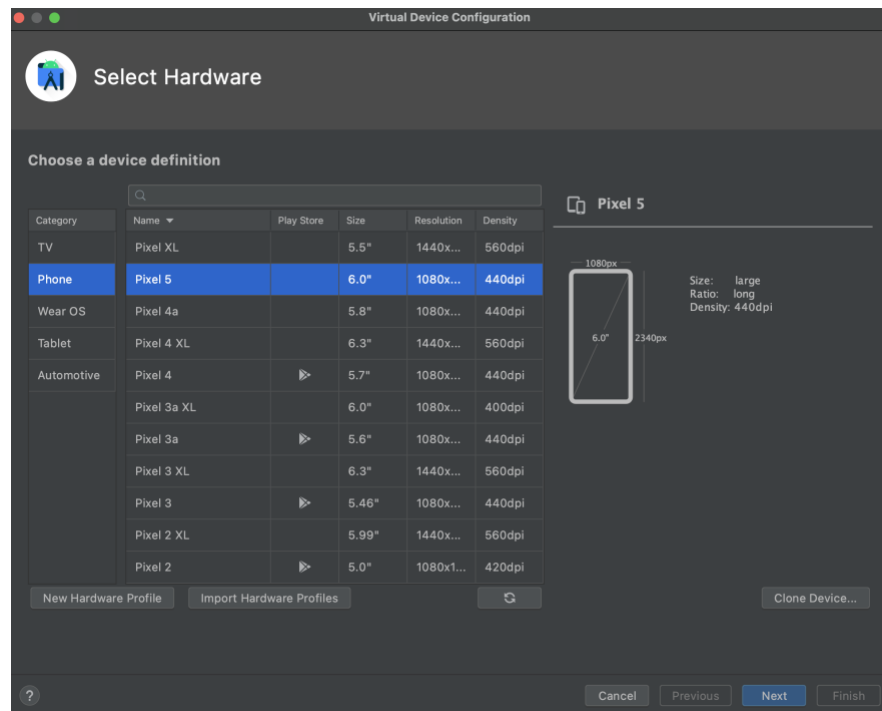
5. Click Finish

Creating an Emulator

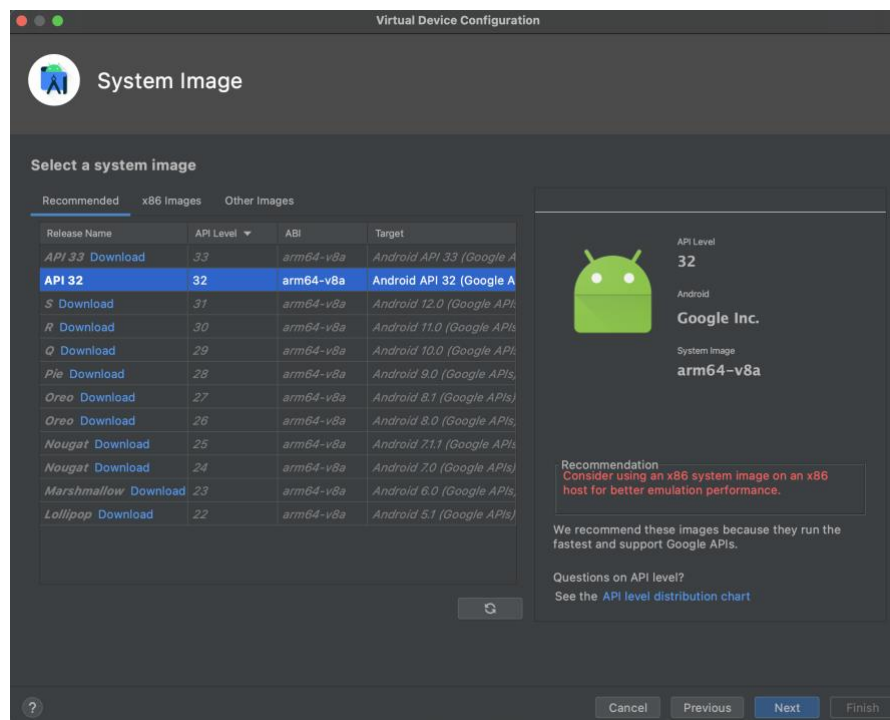
1. Open Android Virtual Device Manager
2. Click on Create Virtual Device



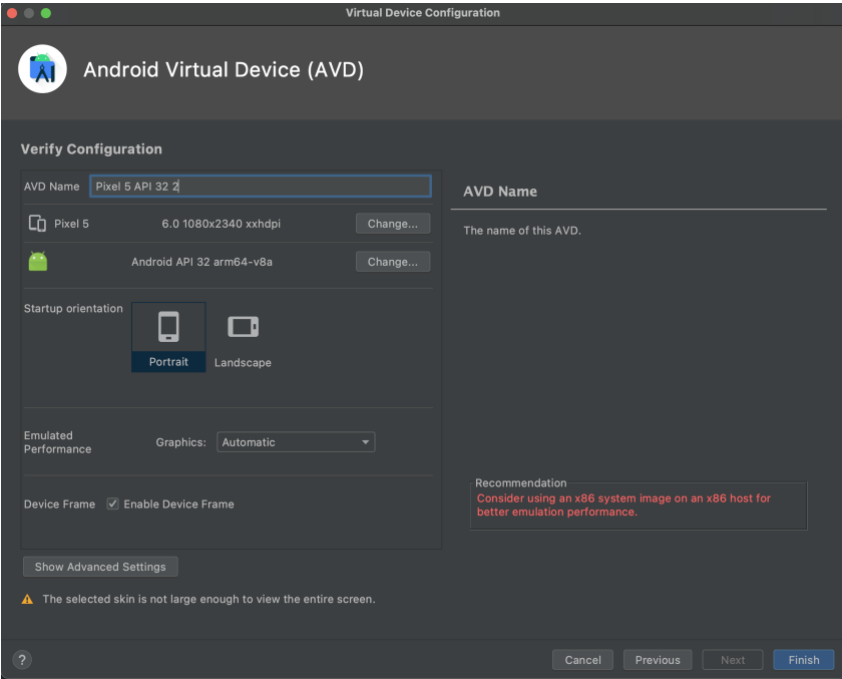
3. Choose the Device of your choice



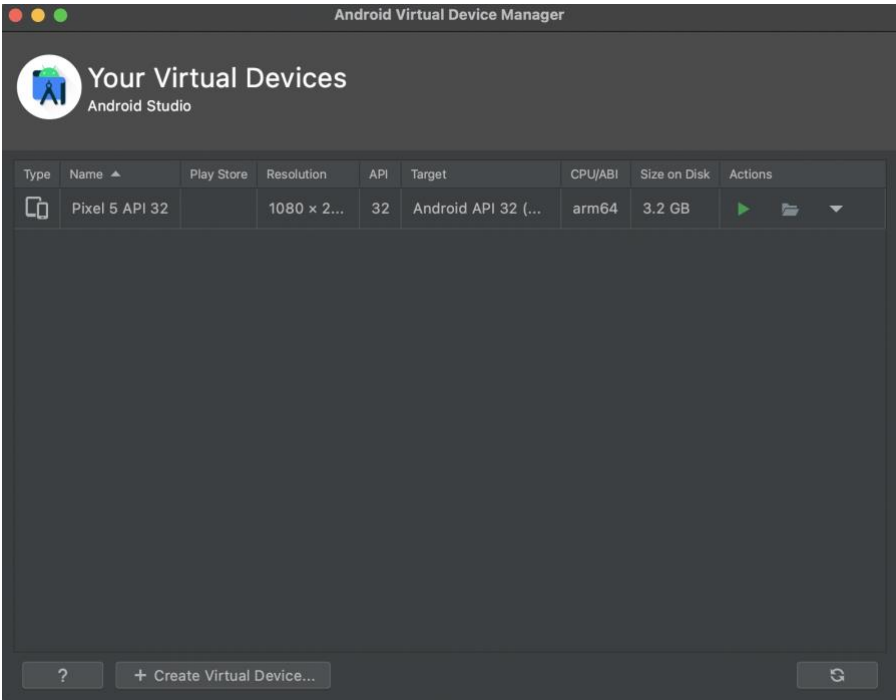
4. Select a system image



5. Configure upon your requirements



6. Device is Ready



Installing Git

1. Use the `brew install git` command to install git on your machine

```
Dork ~ > brew install git
Running 'brew update --auto-update'...
==> Auto-updated Homebrew!
Updated 3 taps (homebrew/core, homebrew/cask and homebrew/services).
==> New Formulae
aws2-wrap          datatype99          helix               mprocs
berkeley-db@5      docker-buildx       hyx                 mypaint-brushes
bfgminer            dooit               interface99         neovide
c2rust              dunamai             jupp                nmrpflash
cargo-bundle        dura                ksh93               ocl-icd
cargo-crev           editorconfig-checker libbpf              onlykey-agent
cargo-depgraph       enex2notation       libbeatmydata       open62541
cargo-nexttest      felinks             licenser             openvi
```

Enabling Git on Android Studio and Pushing a Repository on GitHub

1. Enable VCS on Android Studio
2. Generate a token for Android Studio from GitHub

Settings / Developer settings

GitHub Apps

OAuth Apps

Personal access tokens

New personal access token

Personal access tokens function like ordinary OAuth access tokens. They can be used instead of a password for Git over HTTPS, or can be used to [authenticate to the API over Basic Authentication](#).

Note

Android Studio GitHub integration plugin

What's this token for?

Expiration *

30 days

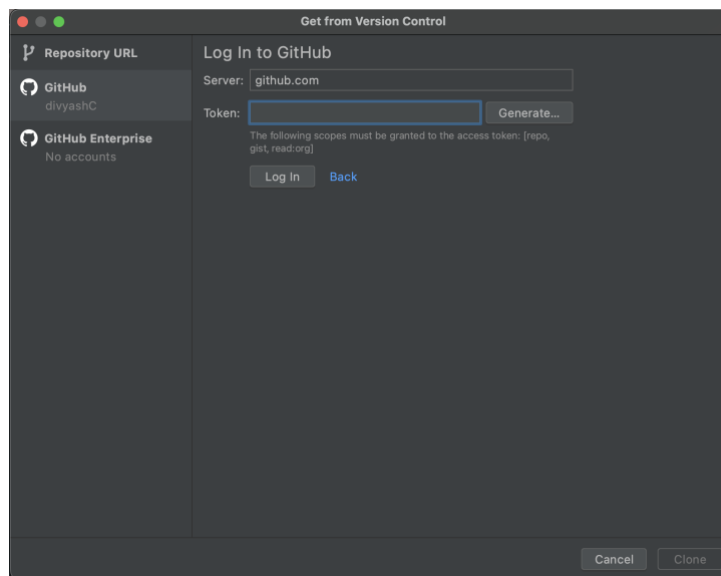
 The token will expire on Mon, Sep 5 2022

Select scopes

Scopes define the access for personal tokens. [Read more about OAuth scopes](#).

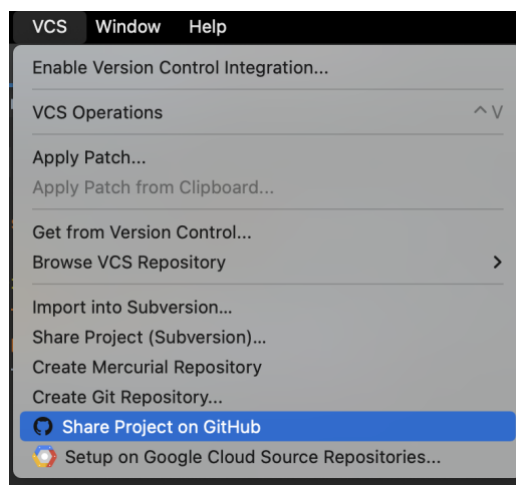
<input checked="" type="checkbox"/> repo	Full control of private repositories
<input checked="" type="checkbox"/> repo:status	Access commit status
<input checked="" type="checkbox"/> repo:deployment	Access deployment status
<input checked="" type="checkbox"/> public_repo	Access public repositories
<input checked="" type="checkbox"/> repo:invite	Access repository invitations
<input checked="" type="checkbox"/> security_events	Read and write security events
<input type="checkbox"/> workflow	Update GitHub Action workflows
<input type="checkbox"/> write:packages	Upload packages to GitHub Package Registry
<input type="checkbox"/> read:packages	Download packages from GitHub Package Registry
<input type="checkbox"/> delete:packages	Delete packages from GitHub Package Registry
<input type="checkbox"/> admin:org	Full control of orgs and teams, read and write org projects
<input type="checkbox"/> write:org	Read and write org and team membership, read and write org projects
<input checked="" type="checkbox"/> read:org	Read org and team membership, read org projects
<input type="checkbox"/> admin:public_key	Full control of user public keys

3. Login to your GitHub account using Token

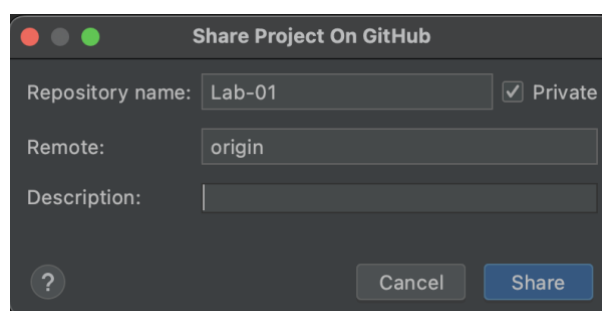


Creating a GitHub Repository

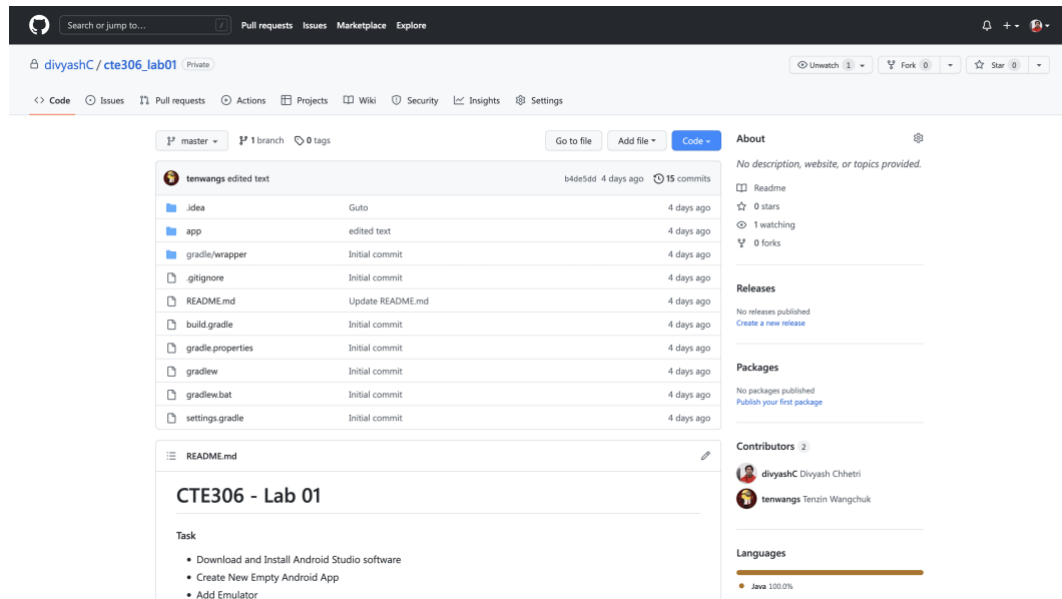
1. Click on `Share project on GitHub`



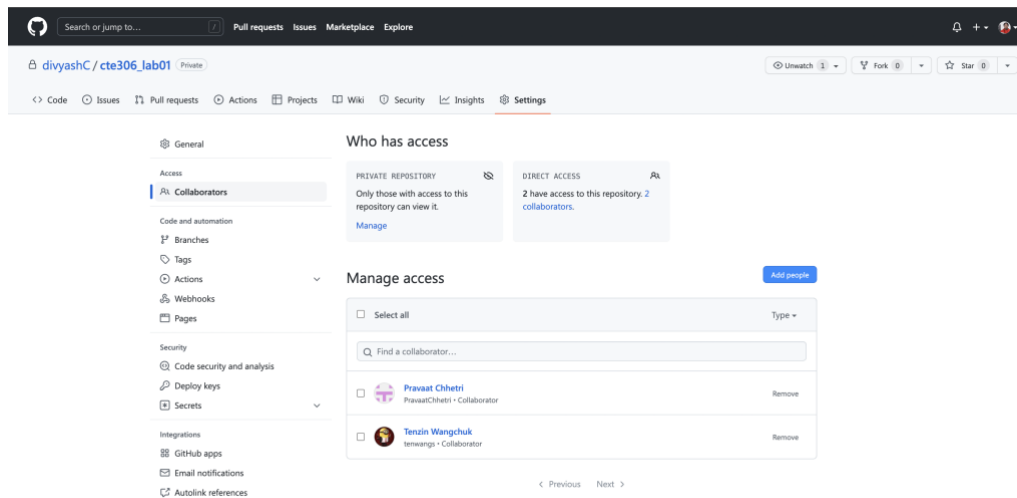
2. Fill in the Details and Click on `Share`



3. Project is published on GitHub



4. Add Collaborators from Settings > Collaborators > Add People



Git Controls using Terminal

1. Install Git and create an account in GitHub

You need to install Git in your machine and create a GitHub account.

WINDOWS - To install Git follow the directions on the git-scm site, just click next and proceed with the installation once you download it.

MAC – Type `brew install git` on terminal

Once you have installed Git, you can create a free account on GitHub.

Some basic commands are:

cd - Change directory

mkdir - Create new directory

ls - List the contents of the directory

pwd - View the present working directory

touch - Create files

2. Create local git repository

Once you are in your desired directory, you may create the project directory by using mkdir command and get inside the project directory.

```
$ cd Desktop
```

```
$ mkdir demo
```

```
$ cd demo
```

To initialize a git repository in the root of the folder, run the \$ git init command.

Once you run the \$ git init command, you get some commands at the end showing that the git repository is initialized in your particular directory.

```
Dork > ~ cd Desktop 12:48:26 PM
Dork > ~/Desktop mkdir demo 12:48:40 PM
Dork > ~/Desktop cd demo 12:48:45 PM
Dork > ~/Desktop/demo git init 12:48:47 PM
hint: Using 'master' as the name for the initial branch. This default branch name
hint: is subject to change. To configure the initial branch name to use in all
hint: of your new repositories, which will suppress this warning, call:
hint:
hint:   git config --global init.defaultBranch <name>
hint:
hint: Names commonly chosen instead of 'master' are 'main', 'trunk' and
hint: 'development'. The just-created branch can be renamed via this command:
hint:
hint:   git branch -m <name>
Initialized empty Git repository in /Users/divyash/Desktop/demo/.git/
Dork > ~/Desktop/demo > master 12:50:14 PM
```

3. Add new files to the repository

Create files using desired text editor or terminal.

All your changes can be tracked using ``git status`` command.

```
Dork > ~/Des/demo > master touch README.md ✓ < 12:50:14 PM
Dork > ~/Des/demo > master ?1 touch index.html ✓ < 01:36:41 PM
Dork > ~/Des/demo > master ?2 git status ✓ < 01:36:48 PM
On branch master

No commits yet

Untracked files:
  (use "git add <file>..." to include in what will be committed)
  README.md
  index.html

nothing added to commit but untracked files present (use "git add" to track)

Dork > ~/Des/demo > master ?2
```

4. Add file to staging environment

A commit is a record of when and what you did in the last state or change in the project. For example, if you add a file or modify a file in your repository you tell git to put those changes into a commit.

The staging environment tells which changed file to push in a commit. Creating a file doesn't do anything to a commit even when we know that a file has been created.

To add a file to a commit, first, you need to add it to the staging environment. Add a file to the staging environment by using the `$ git add <filename with extension>` command.

If you see the git status the file has not been committed yet but the file has been staged for now.

```
Dork > ~/Des/demo > master ?2 git add README.md ✓ < 01:42:35 PM
Dork > ~/Des/demo > master +1 ?1 git add index.html ✓ < 01:42:39 PM
Dork > ~/Des/demo > master +2 git status ✓ < 01:43:29 PM
On branch master

No commits yet

Changes to be committed:
  (use "git rm --cached <file>..." to unstage)
  new file:   README.md
  new file:   index.html

Dork > ~/Des/demo > master +2
```

5. Create a commit

Run a command `$ git commit -m <Your commit message>` to create a commit from your staged file.

```
Dork > ~/Des/demo > master +2 git commit -m "First Commit" 01:43:44 PM
[master (root-commit) 9d6a9c2] First Commit
2 files changed, 15 insertions(+)
create mode 100644 README.md
create mode 100644 index.html
```

6. Configure git

```
Dork > ~/Des/demo > master git config --global user.name "divyashC" 01:45:27 PM
Dork > ~/Des/demo > master git config --global user.email "divyashchhetri@gmail.com"
```

7. Create a repository on GitHub'. Click on `Repository`, then select `New` and fill in the required Details

Create a new repository

A repository contains all project files, including the revision history. Already have a project repository elsewhere?
[Import a repository.](#)

Owner *

Repository name *

divyashC / lab-01

Great repository names are short and memorable. Need inspiration? How about [redesigned-disco](#)?

Description (optional)

☐ Public

Anyone on the internet can see this repository. You choose who can commit.

☒ Private

You choose who can see and commit to this repository.

Initialize this repository with:

Skip this step if you're importing an existing repository.

☐ Add a README file

This is where you can write a long description for your project. [Learn more.](#)

Add .gitignore

Choose which files not to track from a list of templates. [Learn more.](#)

.gitignore template: None

Choose a license

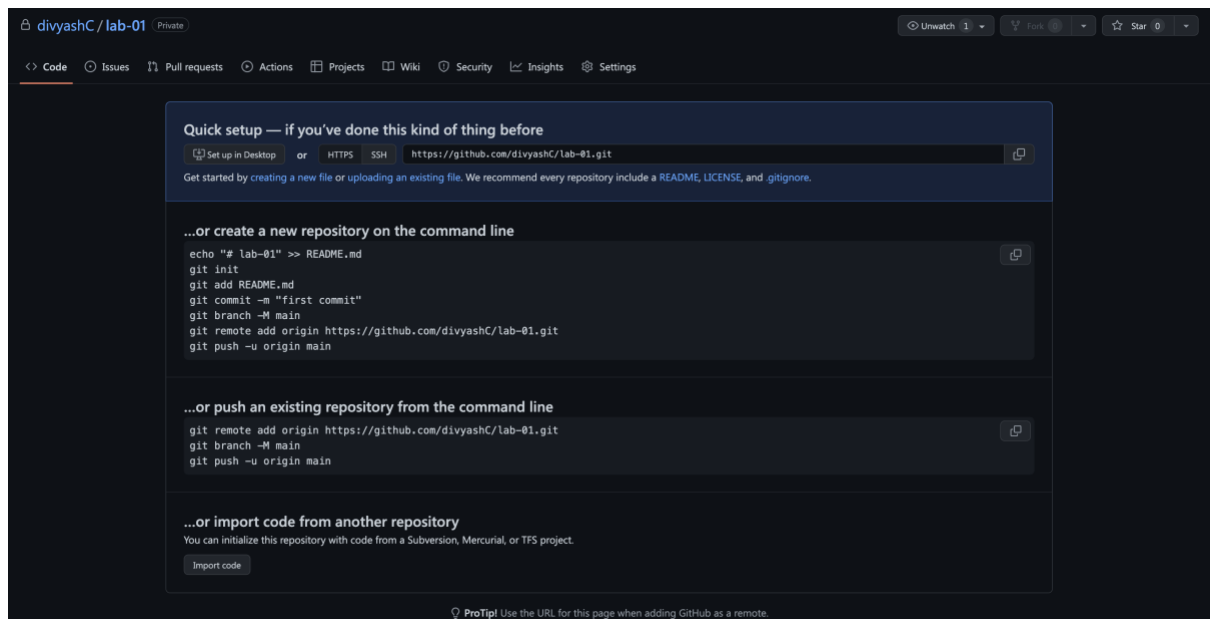
A license tells others what they can and can't do with your code. [Learn more.](#)

License: None

You are creating a private repository in your personal account.

Create repository

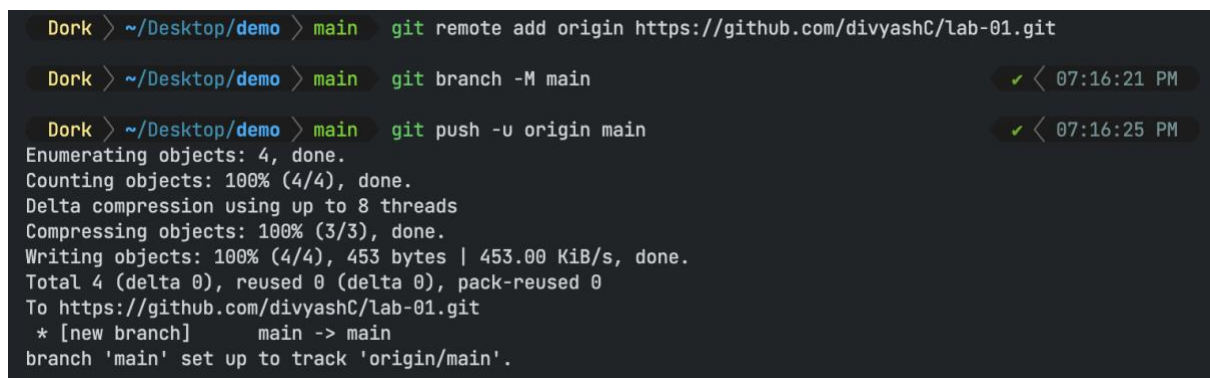
If this information pops up, it indicates that the repository is successfully created.



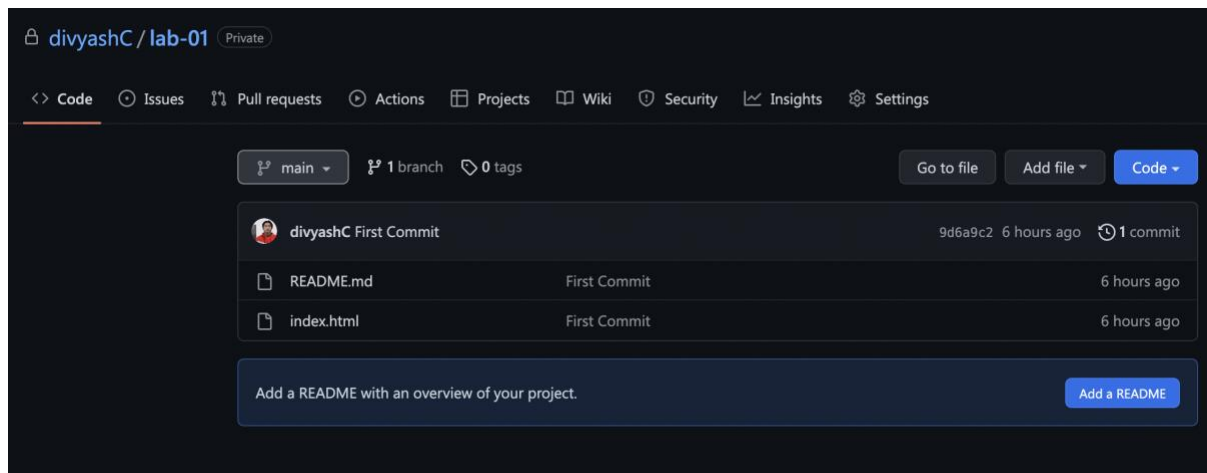
8. Push local repository to GitHub

Once you get your own repository link, you can paste it in your bash and add origin using `$ git remote add origin <your repo link>` command. You need to specify the branch you are pushing to by using the `$ git branch -M main` command.

Finally, you push your commit by using `$ git push -u origin main`. This command will push the local repository to GitHub.



Your local repository is successfully pushed to GitHub.



9. Check current status using `git status` command

```
Dork > ~/Des/demo > main git status
On branch main
Your branch is up to date with 'origin/main'.

nothing to commit, working tree clean
```

Conclusion

By completing this lab, I learnt about Android and Android Studio IDE. Now I am capable enough to create a project in Android Studio and then integrate it with a VCS. I used Git VCS for the local repository and GitHub. I also became familiar with Git and GitHub and learnt to use it with Android Studio and even through the terminal.

References

- Sherpa, P. D., & Chhetri, D. (2022, 02 16). *Git GitHub Tutorial*. (B. D. Community, Producer) Retrieved 08 07, 2022 from GitHub:
<https://github.com/btdevcommunity/documentation/blob/main/git-github-tutorial.md>
- Brown, K. (2019, 11 13). *What Is GitHub, and What Is It Used For?* Retrieved 08 07, 2022 from How To Geek?: <https://www.howtogeek.com/180167/htg-explains-what-is-github-and-what-do-geeks-use-it-for/>
- GitHub. (n.d.). *GitHub Docs*. Retrieved 08 07, 2022 from GitHub: <https://docs.github.com/en>
- Android. (n.d.). *Android Studio Docs*. Retrieved 08 07, 2022 from Developers Android:
<https://developer.android.com/docs>
- Git SCM. (n.d.). *Git SCM Documentation*. Retrieved 08 07, 2022 from Git SCM: <https://git-scm.com/doc>