CSE 535: Mobile Computing
Project 1 Report - FlaskDroid

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Responsbilities

Name	Responsibility
Ashutosh Garg	● Developed source code related to camera component (CameraX). ● Ensuring that data is stored/deleted safely based on control flow.
Akshay Malhotra	● Developed source code related to sending POST request from app. (using Volley) ● Ensuring that user is informed incase of success/failure.
Himanshu Pahadia	● Developed source code related to backend-server (using Flask), ● Contributed and coordinated with app-side dev to ensure request is correct. (Volley)
Keenan Rahman	● Responsible for drafting the report and ensure it meets submission guidelines. ● Responsible for recording demo video.
Ninad Bharat Gund	● Responsible for other activities of the app (other than camera). ● Ensured that flow is uniform and required permissions are acquired.

Git URL

All source code is mentioned in the below-mentioned GIT URL. It contains application source code (android app) and server source code. Please refer to the README for more details.

GIT URL: https://github.com/pahadiahimanshu/Flaskdroid.git

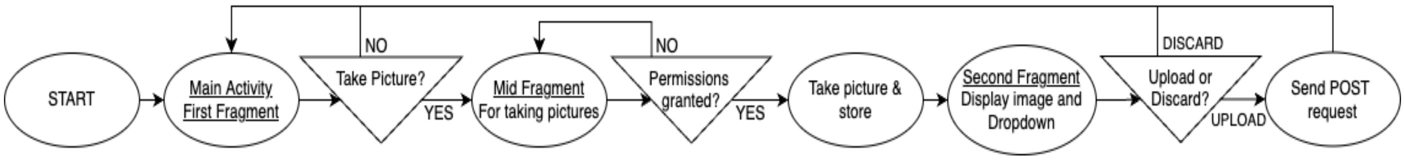
Technologies Used

1. Flask - For developing a backend application server that accepts REST requests.
2. Postman - For testing and integration purposes.
3. Android Studio - Software used for developing the Android Application.
4. Kotlin - The language used for developing the Android Application.
5. Volley - The HTTP library used for sending REST requests to the backend application server.
6. CameraX - A camera-based library used in the android application.

Introduction

In this project, we were responsible for developing an Android Application that lets user click a picture and upload it to the server. There are two components to the project - Android Application and backend server.

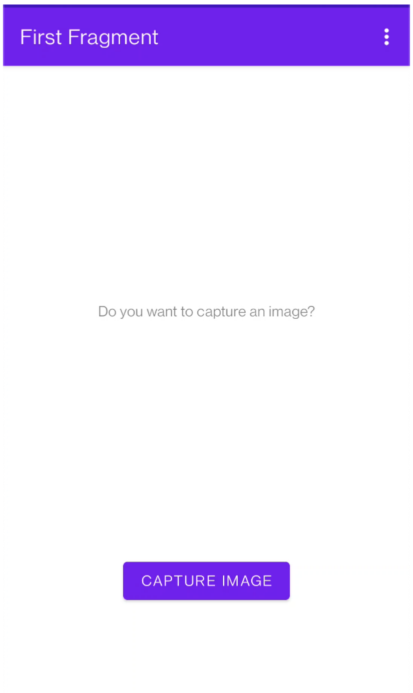
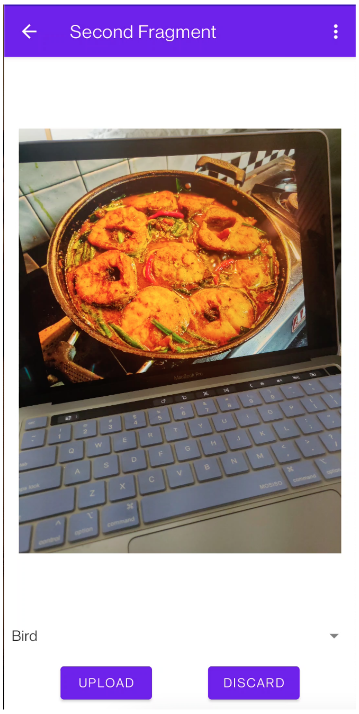
Application Flow



Android Application

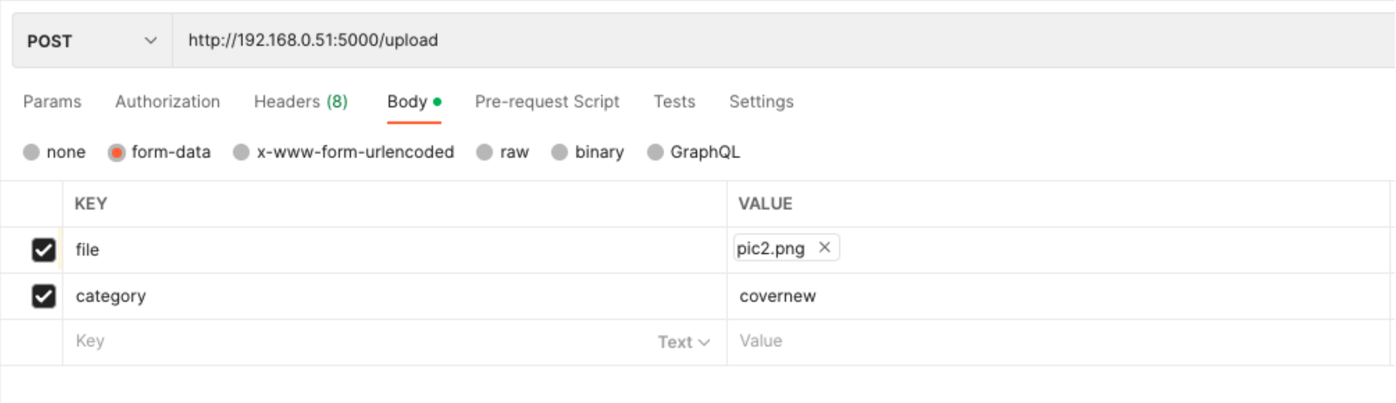
Android applications are developed using fragments. Fragments are the reusable components in the application UI and it helps us in modular application design. It helped us in task creation of multi screen UI. Android application is developed using various frameworks -

- Camera system: A Jetpack library called **CameraX** is used to make the use of cameras in the application simpler. CameraX gives us the ability to create these use cases, add listeners to them, and then connect them to the activity lifecycle since it is a use-case-based approach.
- Network system: An HTTP library called **Volley** makes networking for Android apps quicker and easier. We have implemented our HTTP communication of mobile apps to the flask backend using this library. (Ref - Link)

 First Fragment Do you want to capture an image? CAPTURE IMAGE	 Second Fragment Bird UPLOAD DISCARD
This 1st page consists of a button that, when pressed, opens the back camera to take the picture. Once the picture is taken, it shows you the image and directs you to the second page of the application	This 2nd page of the application lets the user select the Category from the drop-down list. Once the category is selected, it lets the user upload it, which sends a http POST request to the backend server.

Flask Server

This backend Flask application contains one POST API. This API takes image and category as multipart form request. Once the request is received the image gets saved locally into the folder of the category that is specified in the request. For example, if the category “human” is selected, the image will get saved in the /human/ folder in the local drive. POST Request: http://baseURL/upload.



POST http://192.168.0.51:5000/upload

Params Authorization Headers (8) Body ● Pre-request Script Tests Settings

○ none ● form-data ○ x-www-form-urlencoded ○ raw ○ binary ○ GraphQL

	KEY	VALUE
☑	file	pic2.png ×
☑	category	covernew
	Key Text	Value