CSE 535: Mobile Computing
Project 1
Group - 7

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Problem Statement: To create a Camera App to Upload Images based on category.

Approach:

1. We have developed the application using Java in android studio which consists of 2 pages: MainActivity (Layout - activity_main.xml) and MainActivity2 (Layout - activity_main2.xml).
2. The MainActivity page is where we open the camera and capture the image and the MainActivity2 page is where we select the category from the dropdown and upload the image by clicking on the "UPLOAD" button.
3. If the user is not satisfied with the captured image, then the user can re-capture it by clicking on the "CAMERA" button once again.
4. After clicking on the "UPLOAD" button, the image is stored in a bitmap and the category is stored in a string state. Based on the category type selected, the image is encoded into base64 format and the POST API is called.
5. We have created a Flask server that has a generic POST request API. The API decodes the encoded base64 image and creates a unique filename using the dateTime function.
6. The filename which will be saved to the specified folder is created in this format - "{CategoryName}-{Year-month-date}--{hours-min-sec}.jpeg"
7. The image will be stored in the imagePath specified in the code. If the specified imagePath exists, the image will be added to the specified folder else, it creates a new folder and adds the image.
8. The server will return a "Success" message once it is stored in the specified folder.

Technologies/Tools Used:

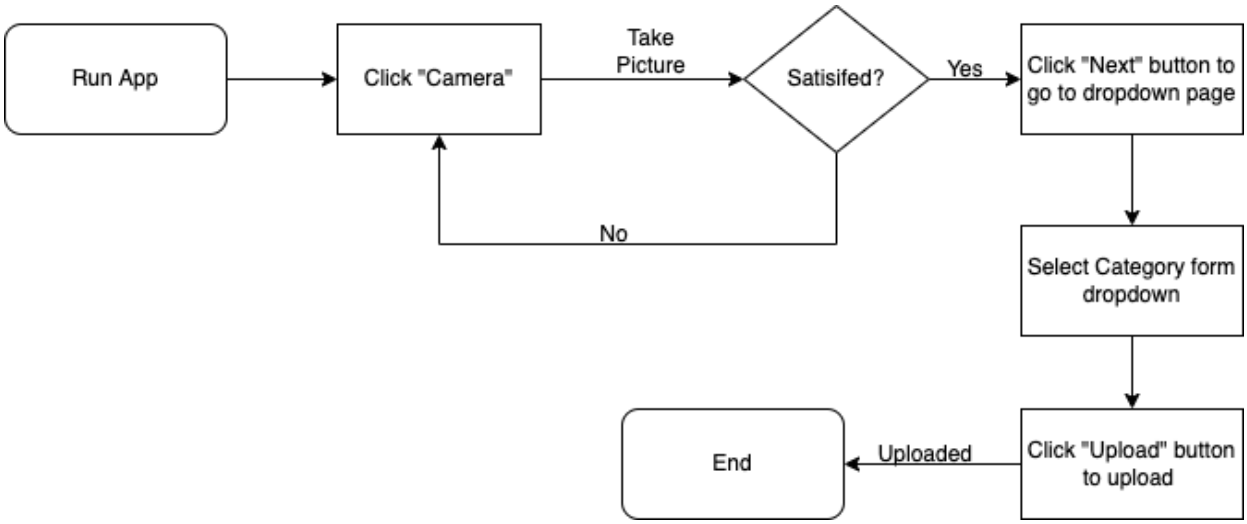
1. Android Studio
2. Flask Server
3. AVD Manager
4. Postman

Steps To Execute:

1. **Start the Flask Server:** Update the "dirPath"(Line no. 24) variable in the server code with the current directory path.

2. Open command prompt and run the following command “python BackendFlask.py”. The server can be accessed from localhost or IP address (or open the file directly).
3. Copy the url from the server command prompt.
4. **Start Android Application:** Replace the String “url” in line 43 of MyActivity2 (java/com/example/myapplication/MainActivity2.java) with the copied URL.
5. Sync Gradle and start the Android application.

Flow Chart:



Result:

Video Demonstration.mp4

References:

1. **Passing image from one activity another activity - Stack Overflow(Reference to observe the code to send image from one window to another using intent)**
2. **Android Bitmap to Base64 String - Stack Overflow(To encode bitmap image to bytearray and then to string using base 64 encoding)**
3. **Convert string in base64 to image and save on filesystem - Stack Overflow(How to decode Base 64 string in python)**