# MOBILE COMPUTING PROJECT REPORT: PROJECT 1

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## Problem Statement:

The main aim of the project is to create an android application, where we are able to take a picture by accessing the camera. We are sending this picture to a server with a category of our choice for storage. In order to create this application, we used the below softwares:

- Android Studio
- Python - Flask Server

## Approach:

1. The application is created with two activities as per the problem statement: The first page consists of a camera button. The second page displays the image.
2. After we click this button, the application asks the user for permissions. If, the permission is denied we get a popup as ‘permission denied’.
3. Once the permissions are granted, the camera opens, and the user can capture images. On capturing an image, the application gives you an option to retry or click ok to continue with the image.
4. After the user clicks Ok, application takes you to the second activity and displays the clicked image, a drop-down box to select category, an upload button to upload the image to server, and a message that displays the image status.
5. After user has selected the category, user need to click on upload button to upload the image along with the category information to the Flask server through a HTTP POST request.
6. The Flask server reads the image and the category information from the POST request and saves the image in the corresponding category folder on the PC.

## Code Functionality:

### A. Client-Side Functionality – Android Studio

1. There to activities in the project: MainActivity.java and MainActivity2.java.
2. In MainActivity.java in the onCreate() function, we have “myButton” onClickListener() which opens the openCamera() function to capture the image.
3. The openCamera() function calls the onRequestPermissionResult() function to check for the permissions. If they are granted, we head back to openCamera() to capture the image.
4. Once the picture is clicked and the user clicks on “OK”, the onActivityResult() function is called and the new Intent is created which is the passed to

MainActivity2.java.

5. In the MainActivity2.java, the image is placed at captureImage2 Imageview.
6. The user has to select the category from the dropdown menu.
7. After selecting the category, if the user clicks the upload button, the onClick listener function is called.
8. The image is converted to byteArray and is sent to the Flask server as using HTTP POST request through MultipartBody Form along with the category information.
9. The POST request is made to http://{IP_ADDRESS_OF_THE_SERVER}:{PORT_NUMBER}/ link.
10. The POST request is made using OkHttpClient class.
11. The textview below the upload button shows the status of the image uploaded.

### B. Server-Side Functionality -FLASK python server

1. The Flask server “app.py” should be up and running when the user is uploading the image.
2. Make sure the server and client are connected to the same network.
3. The server is configured with host=”0.0.0.0” to make sure that client can access using the ip address of the server and port number.
4. Once everything is up and running, the server listens on the specified port number, receives the image, category, and the file name.
5. The server checks for the folder with the category name. If there is one, the server saves the Image there or else creates the folder with the category name and then saves the file.

### Summary:

Our team used Android studio to create the front end of the application. The front end is to capture the image, upload the image to the server. We implemented the backend using flask server to store the image in the local PC in the specified category folder.

### References:

[1]. https://square.github.io/okhttp/4.x/okhttp/okhttp3/-ok-http-client/
[2]. https://developer.android.com/docs
[3]. https://flask.palletsprojects.com/en/2.2.x/