CSE 535 Mobile Computing - Project 1 - Group 14

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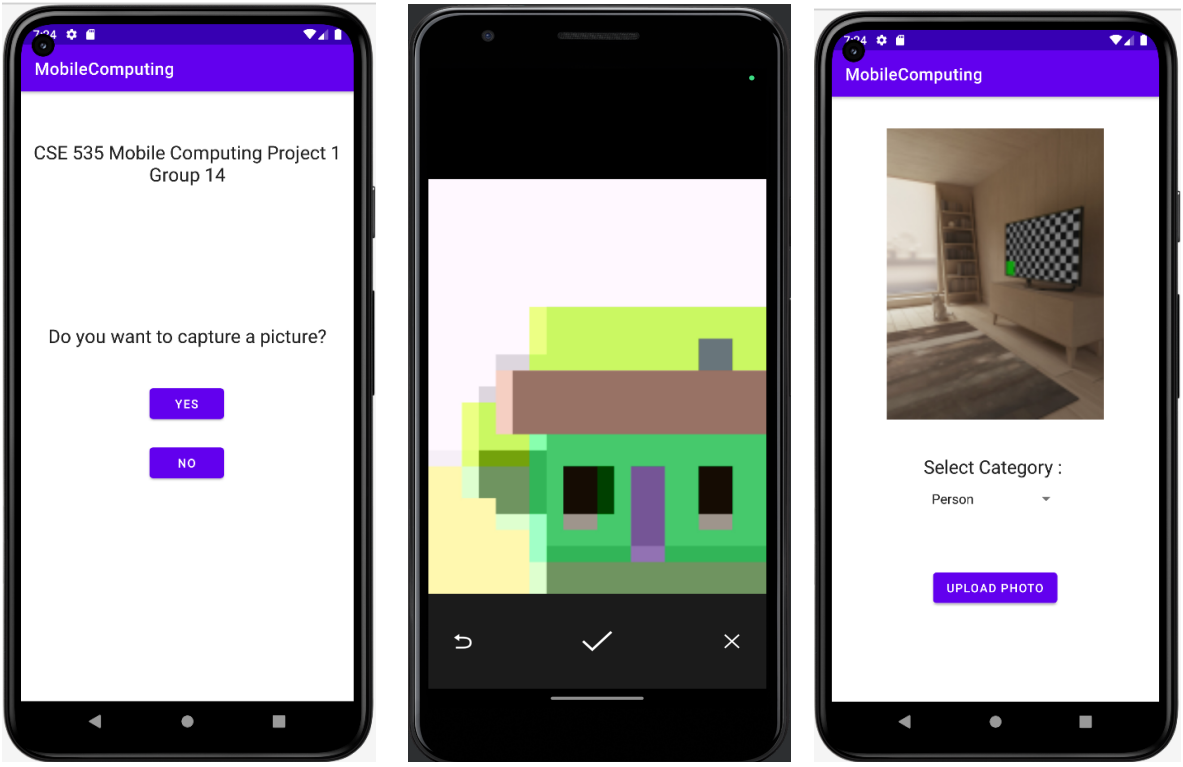
Technical Details

The objective of our project was to create an android application which lets the user capture a photo and upload it to a server along with other information. The server would in turn save this image and the information received. The project mainly consists of two parts, first is the android application and second is the flask server. The details of these have been explained further.

Android Application

The android application was developed with the help of Android Studio. The application was written in Java language. The application consists of two pages. In the first page the user is asked whether they want to capture a photo or not. The user is provided with two buttons namely yes and no. If the user clicks on the yes button, they are navigated to the camera to capture a photo. If the user clicks the no button they are exited from the app. These activities are implemented with the help of listeners which are initialized when the app is started. So whenever the user clicks on these buttons the corresponding methods are triggered.

After the user clicks on the yes button they are taken to the camera functionality.[1] Here they can capture a photo. Once they capture a photo they have the option to confirm or recapture. Once they confirm the photo they are taken to the second page of the application. The camera functionality is provided with the help of the underlying camera application which is in the operating system. This is done with the help of camera intent. This photo is initially loaded into a bitmap class variable. Later the bitmap photo is converted into a byte array which is sent to the second page in the application.



In the second page the user can view the image that they just captured. This is done using image view class. Below the image the user can select a category for the image from a dropdown list.[2] After selecting the category the user can click on the upload button. When the user clicks on the upload button a post request is made to the server. The post request is made on the ip address and port number in which the server is running. The body of the post request also contains the image and category selected by the user. If the image is successfully saved the user is navigated back to the first page of the application. The dropdown functionality is achieved with the help of spinner class. The body of the post request is created using the multipartbody class which helps to add multiple data components.

Flask Server

The backend was developed using Flask server and python. Flask server is defined as server software that is capable of running HTTP requests on the public world wide web, private LAN, and private WANs and comprises one or many computers bundled together and dedicatedly working for running the software application on the worldwide web. The server receives a post request from the App via internet - local connection.[3] The server receives both image and category from the application and stores the image in the desired category folder and then proceeds to wait for the next request. If the folder does not exist it will create the folder for that category and save inside that folder. This application is really useful for large scale storage operations where we have store images.

References

1. https://developer.android.com/training/camera/photobasics
2. https://developer.android.com/develop/ui/views/components/spinner
3. https://www.freecodecamp.org/news/how-to-build-a-web-application-using-flask-and-deploy-it-to-the-cloud-3551c985e492/