# CSP203

Smart Attendance using face recognition

# Parts of Application

1) **Android Application:** Android App performs the following functions:
a) allows the **Instructor only** to login
b) **select a photo** from his/her gallery and upload it to server
c) retrieve the image with detected faces marked red
d) Retrieve the entry numbers of the students recognized from the photo sent

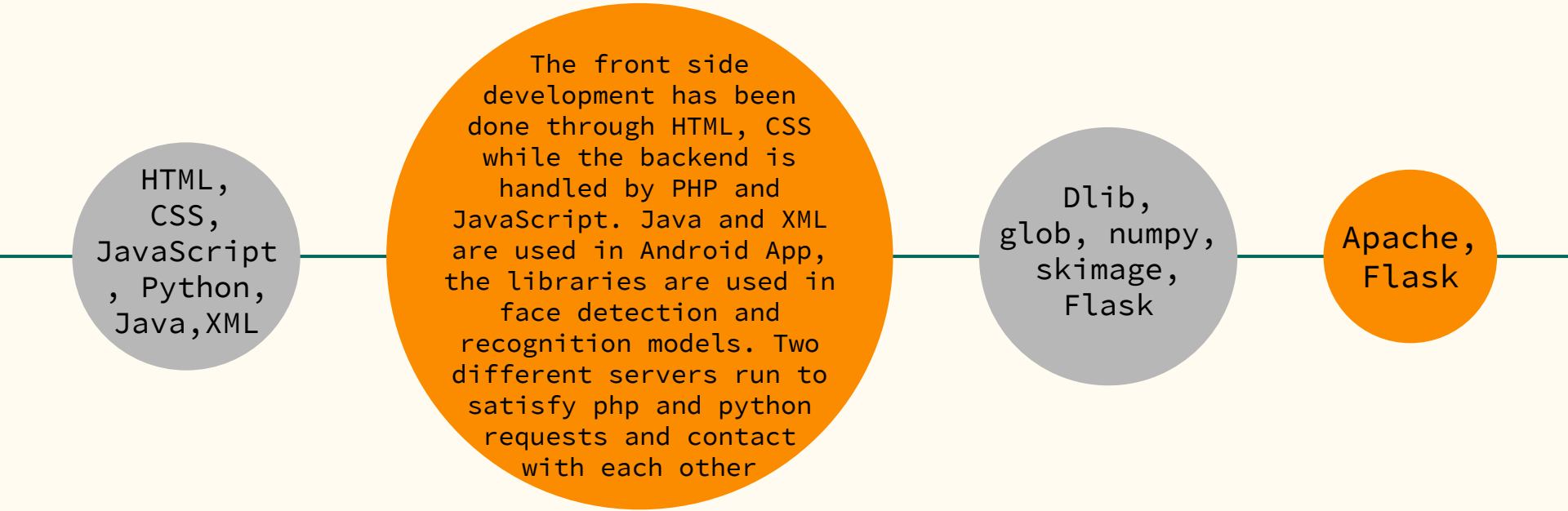
2) **Back-end:** Responds to requests of Android App for login, image upload and attendance retrieval. Processes the requests of signup and login and interacts with mySql database. Processes the uploaded images of student and converts them to feature vectors and stores them in the database. Creates suitable directories and csv files for courses added by the instructor.

# Parts of Application

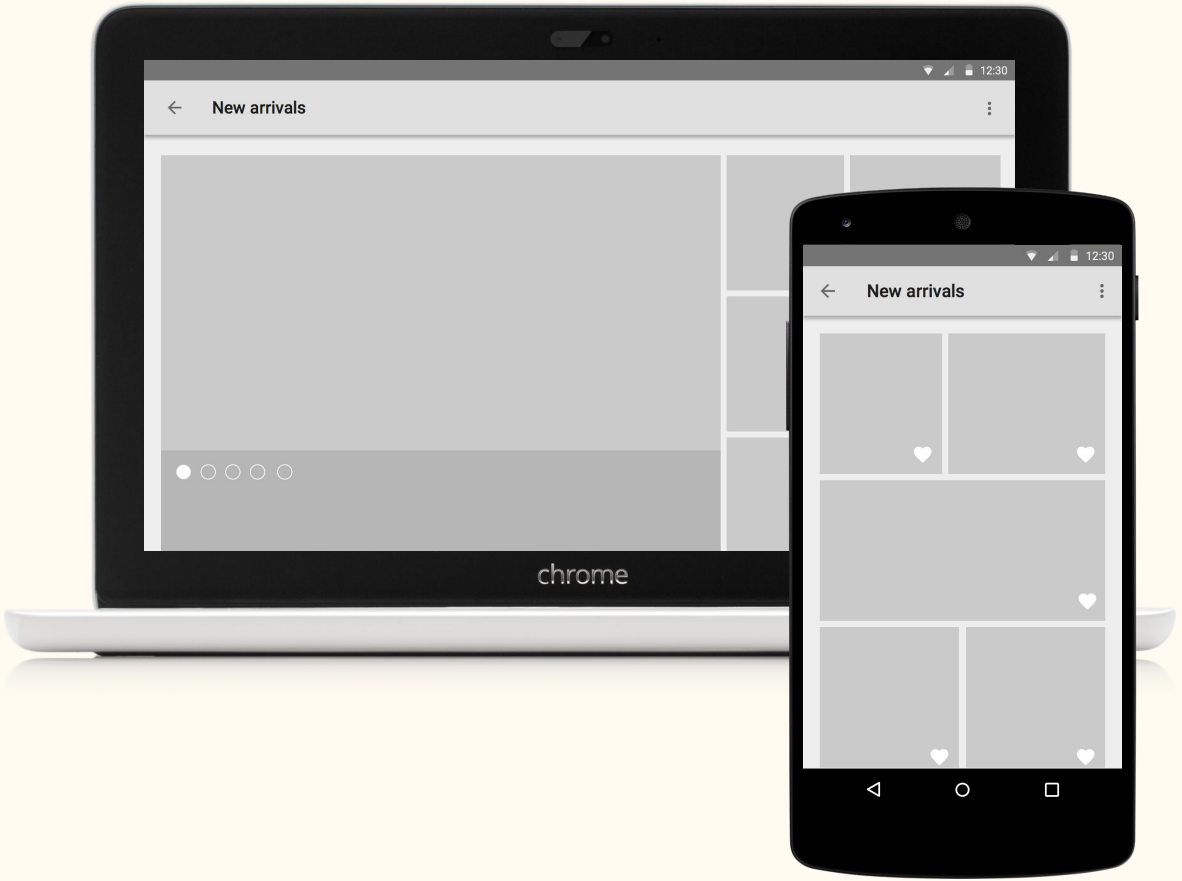
3) **Web Interface**: The web portal is an interactive portal different for student and instructor ensuring different permissions being given to them. The instructor can register a new course, **view and edit** his courses and the attendance status of students while the students have options to join courses, **view** courses and attendance, upload desired number of photos to the portal to get his attendance marked. The portal basically demands images of the student in their different hairstyles, shades of light, expressions, with and without glasses etc.
The portal displays all the usage information on the user's home page.

4) **Face recognition**: Face detector and recogniser models of dlib library of python have been used to satisfy the purpose.

# Technical Requirements



An integration of an android application and a web application using another integration of two servers python and apache with appropriate communications and redirections. The entire data storage is through .csv file handling.



# Features

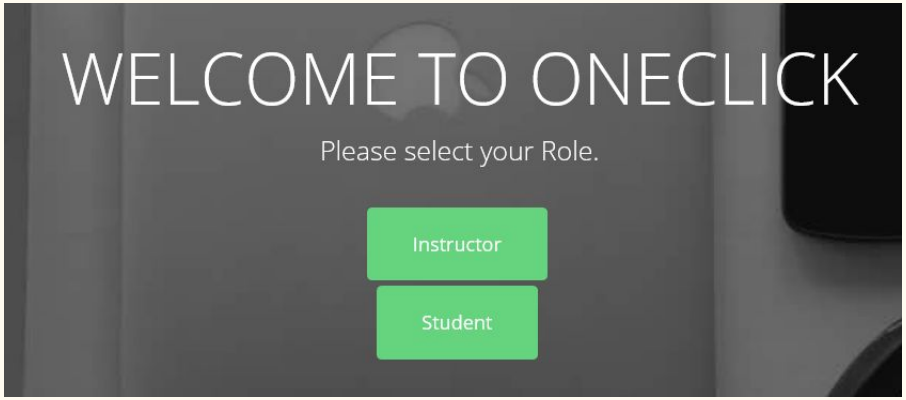
1) Safe handling of files using sessions and different portal for student and instructor.
2) The professor has two working options in the home file which allow him to register a new course, and the other one to mark the attendance of the picture taken by the android app under the name of the course.
3) The student has an option to join a course add by an instructor.
4) He must add his 3-5 front face photographs before he registers for any course so that he is eligible to be present. Without pre-entered images this privilege would not be given.
5) Both student and instructor have the option to view the courses they have registered for.

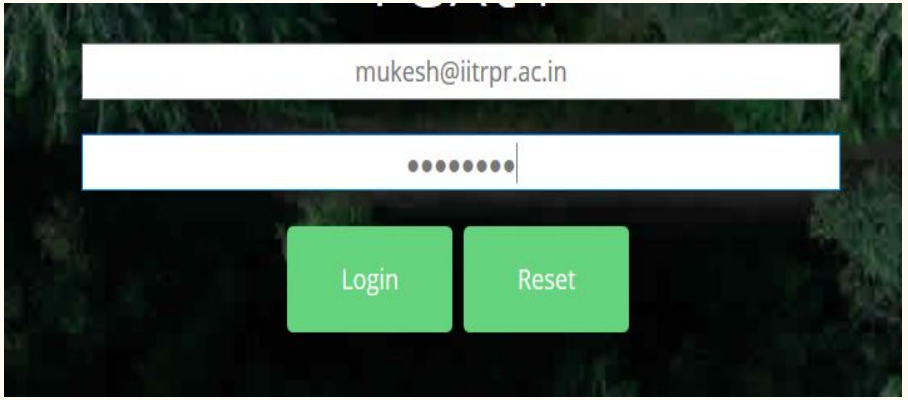
1) The android application will take a photo from your gallery and save it in a folder names ImagesUpload.
2) Whenever the instructor wants the attendance to be marked,he has to enter the course name in the web portal.
3) All the requisites for using the application have been mentioned in the home page of all users.
4) Multiple requests to mark attendance will be efficiently queued by the browser itself avoiding data leakage.

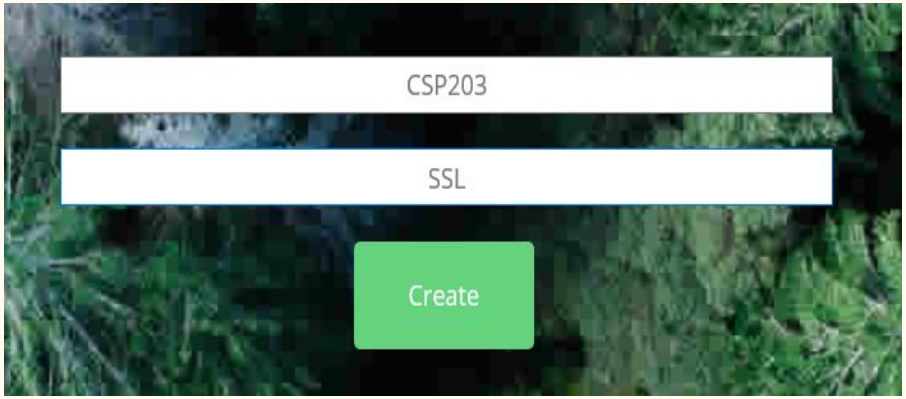
# Explanation of what is happening under the hood

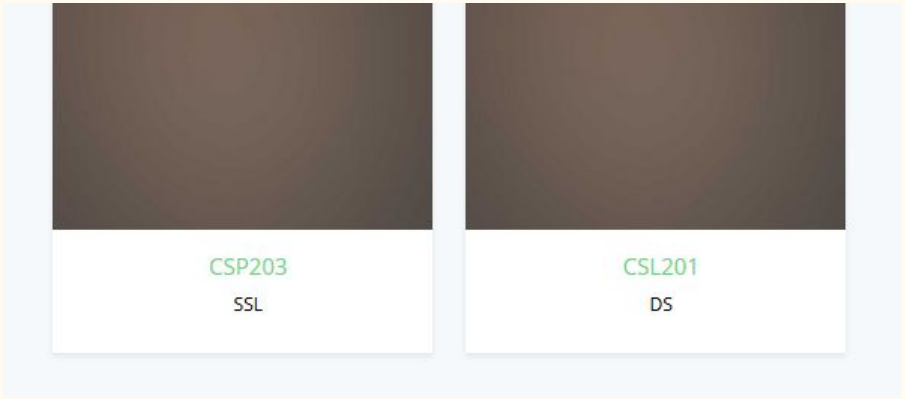
Whenever a user requests marking attendance for a particular course the apache server contacts the flask server to execute the python script that takes input the image and looks for students in the course folder and returns names of the people found and add them to the csv file. After writing the output to a file the flask declares that it is done and apache takes back the control to further process user queries.

Any request to the web application is secured through sessions and all possible user-input errors will be shown to the user to alert that he has been giving wrong inputs. The corresponding pages will be reloaded in order to take the input once again.
Note: In the case of two instructors having same course, the app would demand section in the form as: CSP203-I , CSP203-II , etc.




## Some snapshots of the web portal


Following is the list of available courses:

- ☑ **Course:** CSL111 - **Instructor:** Mukesh Saini
- ☐ **Course:** CSL112 - **Instructor:** Mukesh Saini
- ☑ **Course:** CSL311 - **Instructor:** Puneet Goyal

Submit

Name: Aditya Tiwari

Email: 2016csb1029@iitrpr.ac.in

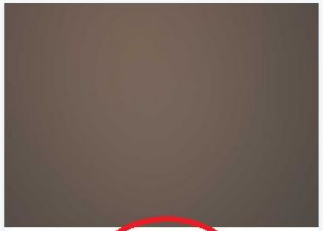
Add Photos

CSP203

Click to view the attendance details ...

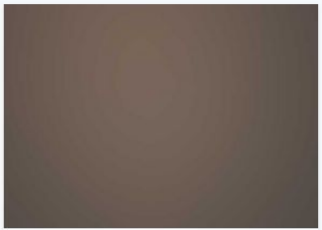
CSL201

Click to view the attendance details ...



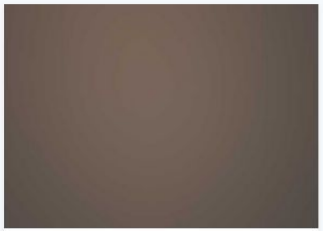
CSL111

Click to view the attendance details ...



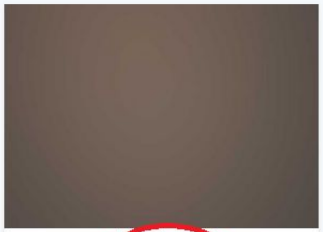
CSL461

Click to view the attendance details ...



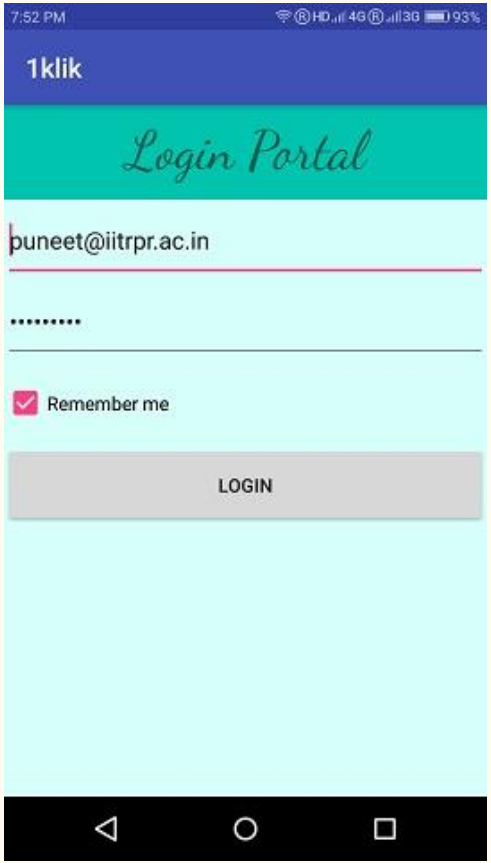
CSL471

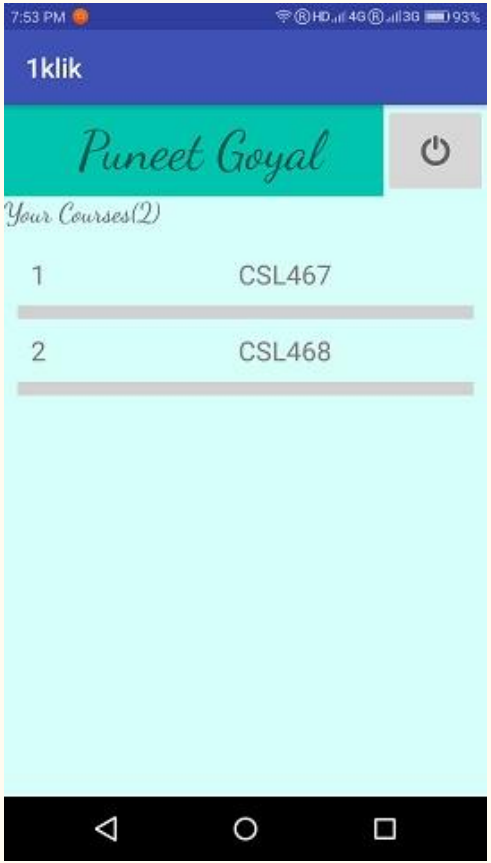
Click to view the attendance details ...

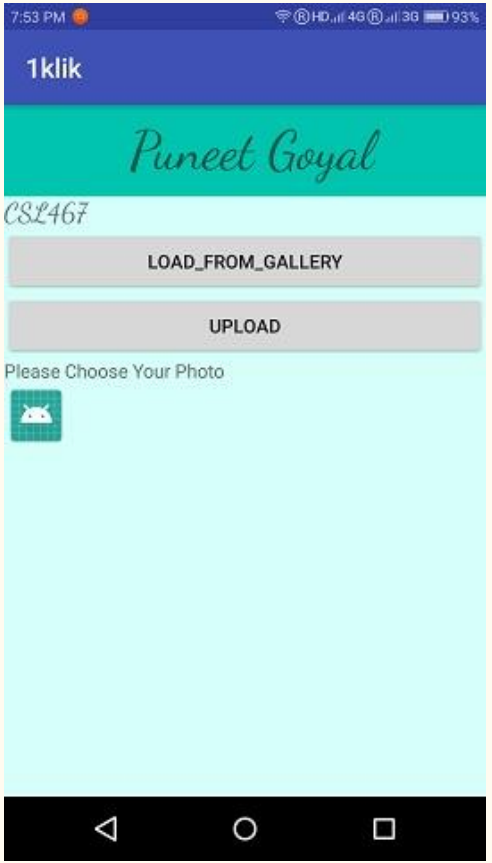


CSL311

Click to view the attendance details ...




## Some snapshots of the android app

# THANK YOU