Team Name :- Coding Devils
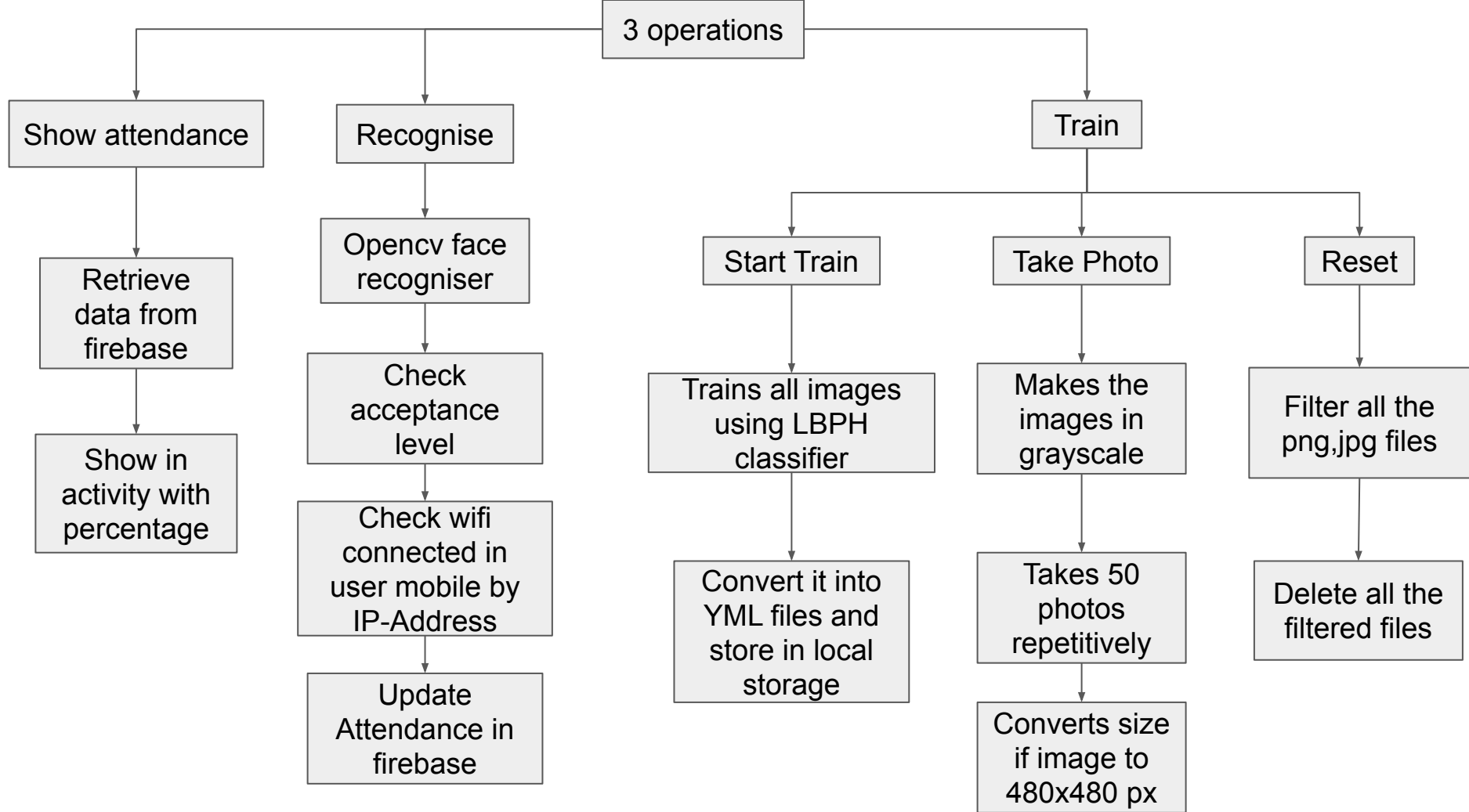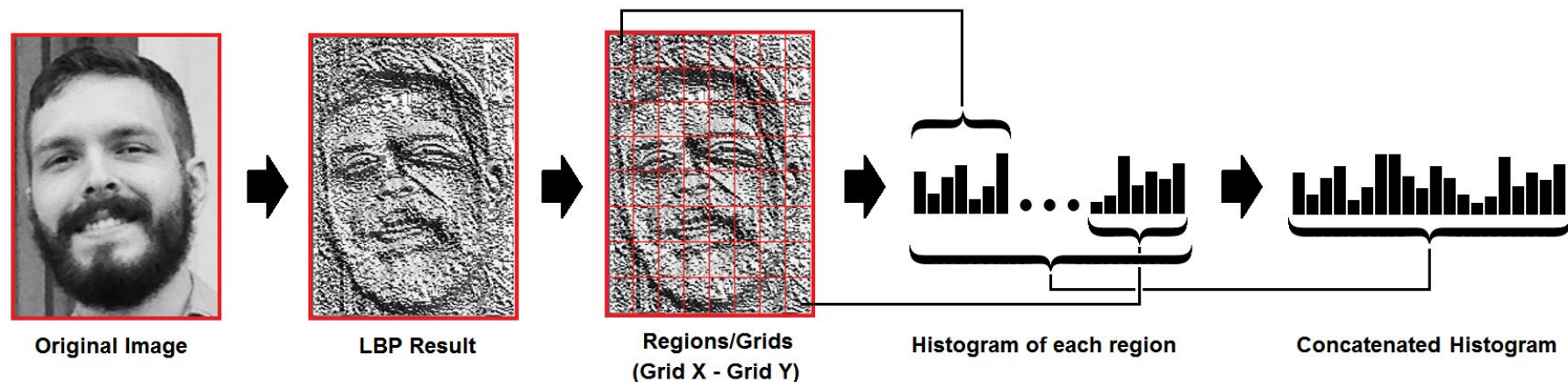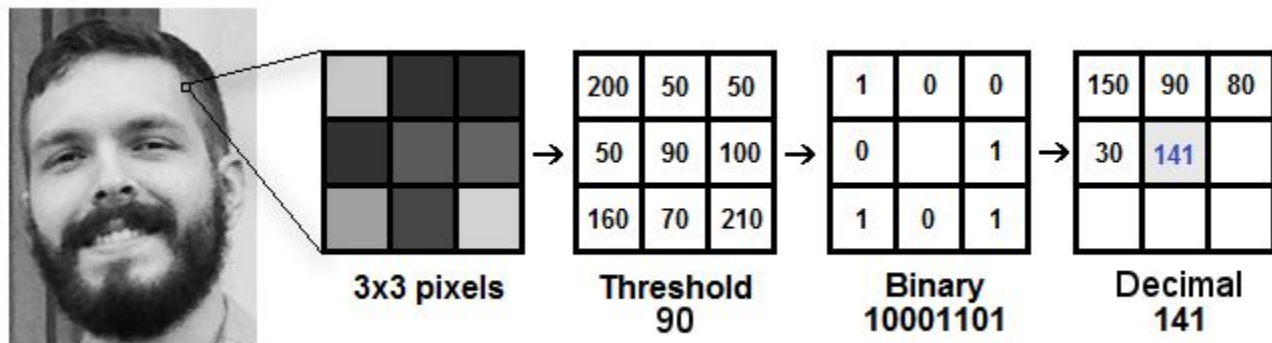
Team Members:-

1) Vishal Kriplani (RCOEM)
2) Piyush Chotiya (RCOEM)
3) Kunal Khadkeshwar (RCOEM)
4) Krunal Pande (RCOEM)
5) Nachiket Satpute(RCOEM)
6) Aditya Sharma (RCOEM)

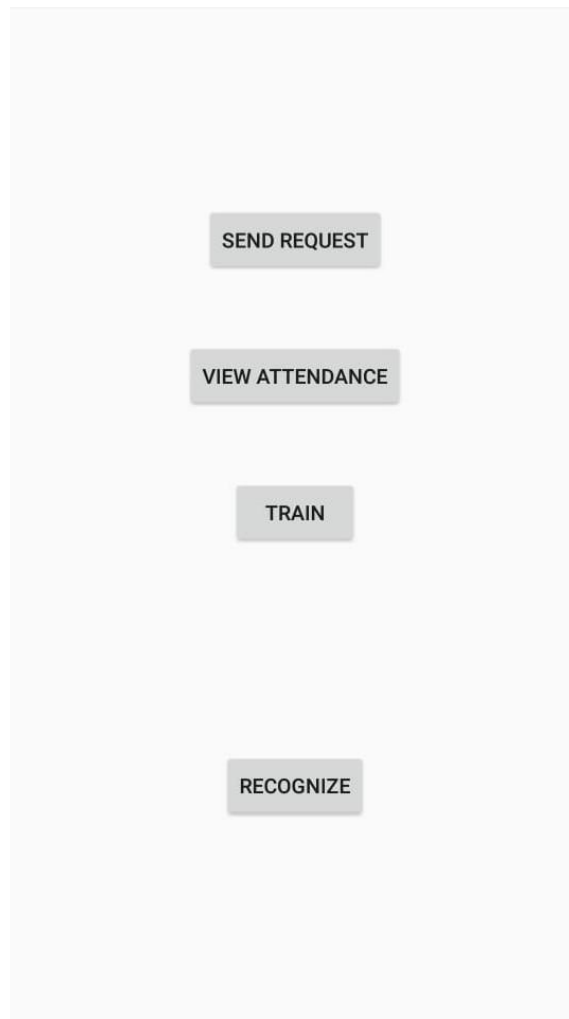(Work is equally distributed so no specific work for individual is written.)

```
                              3 operations

Show attendance      Recognise                    Train

Retrieve          Opencv face        Start Train    Take Photo      Reset
data from         recogniser
firebase
                  Check           Trains all images   Makes the      Filter all the
Show in           acceptance      using LBPH          images in      png,jpg files
activity with     level           classifier          grayscale
percentage
                  Check wifi      Convert it into     Takes 50       Delete all the
                  connected in    YML files and       photos         filtered files
                  user mobile by  store in local      repetitively
                  IP-Address      storage
                                                      Converts size
                  Update                              if image to
                  Attendance in                       480x480 px
                  firebase
```

How Face Detection Works:-

3x3 pixels → Threshold 90 → Binary 10001101 → Decimal 141

| Original Image | LBP Result | Regions/Grids (Grid X - Grid Y) | Histogram of each region | Concatenated Histogram |

Screenshots:-
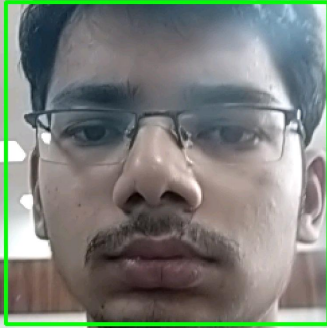
Tech Stack:-

1) Android
2) OpenCv api (Java) for facial recognition.
3) Firebase for data storage.

How system is scalable and efficient :-

1) Training on device itself.
2) All Validations on device itself.
3) Realtime efficient database is used (Firebase).
4) Reliability because of two factor confirmation (facial recog and wifi location).

Future Work :-

1) Accuracy of Face Recognition Algorithm can be improved.
2) Multiple Account Support.
3) High Accuracy GPS Location.
4) Reduce User's Training Effort using Video Capture and Frame Extraction.