



Emotion Album

<https://github.com/SuminHan/MemoryAlbum>



CS409
Sumin Han

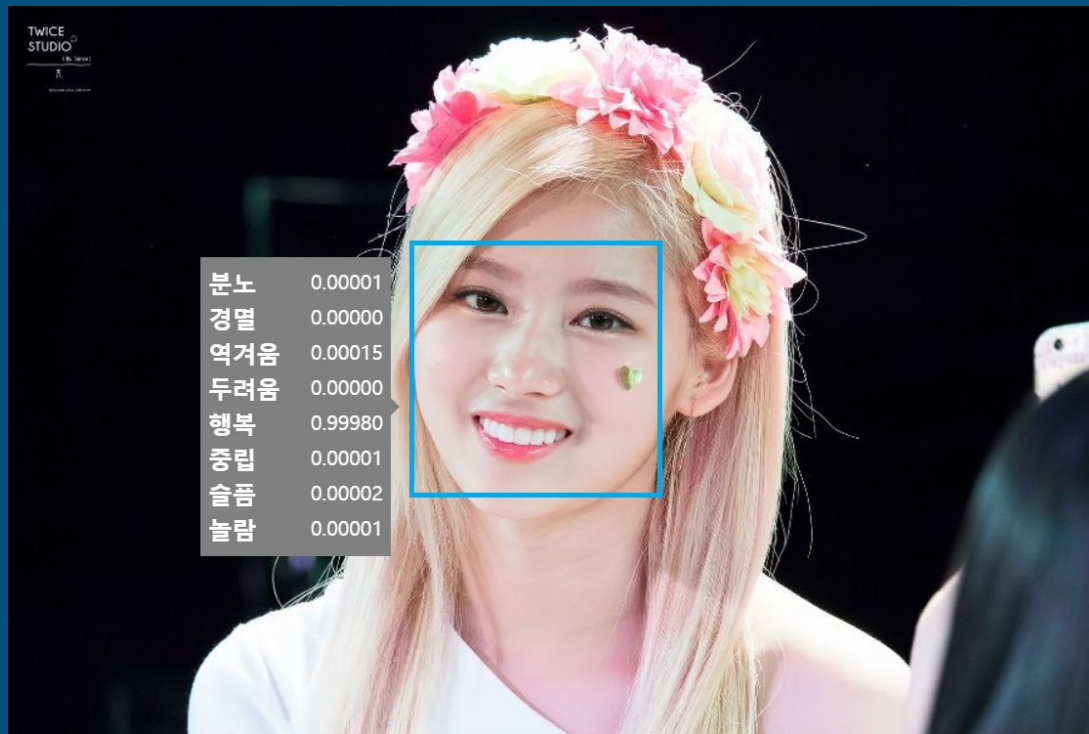


Introduction

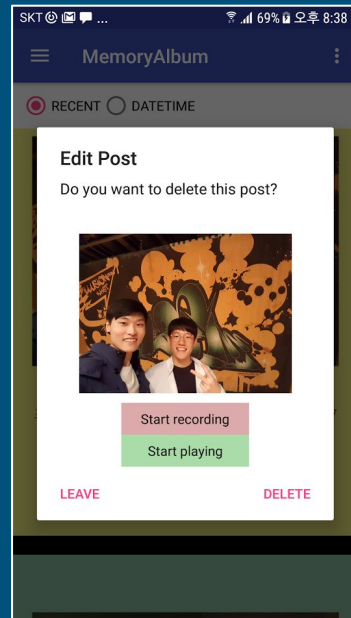
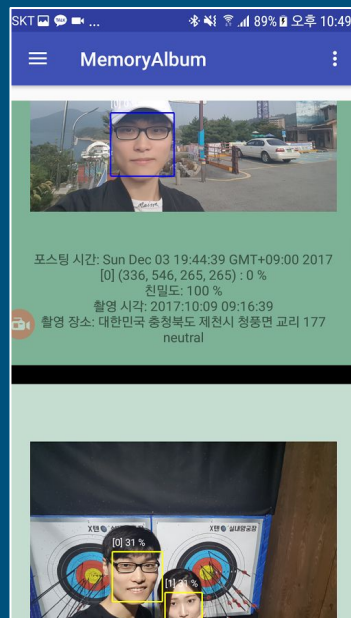
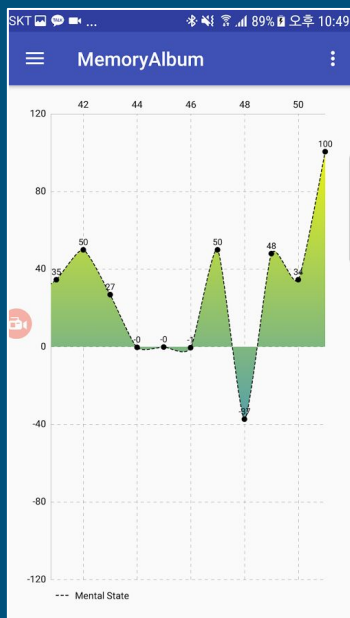
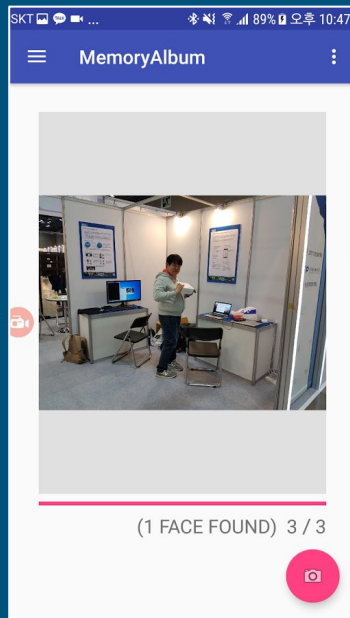
There is only pictures when the time passes by.

Would there be an application that manages the memory efficiently and visually?

- MS Emotion API
- Categorize emotion
- Visualize using Graph



Features



Categorization

MS API: Original 8 categories → Convert into 5 categories

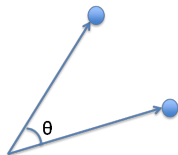
- Anger, Contempt, Disgust → Anger
- Fear, Sadness → Sadness
- Neutral → Neutral
- Happiness → Happiness
- Surprise → Surprise

Then, **normalize** the vector.

Mean value

- Emotion vector v_i with 5th dimension, $|v_i| = 1$
- If there's n faces, there are $v_1, v_2, \dots v_n$ emotion vectors.
- $\mu = \text{mean}(v_1, v_2, \dots v_n)$
- Similarity:

$$\text{sim}(A, B) = \cos(\theta) = \frac{A \cdot B}{\|A\| \|B\|}$$



- Familiarity = (Deviation)

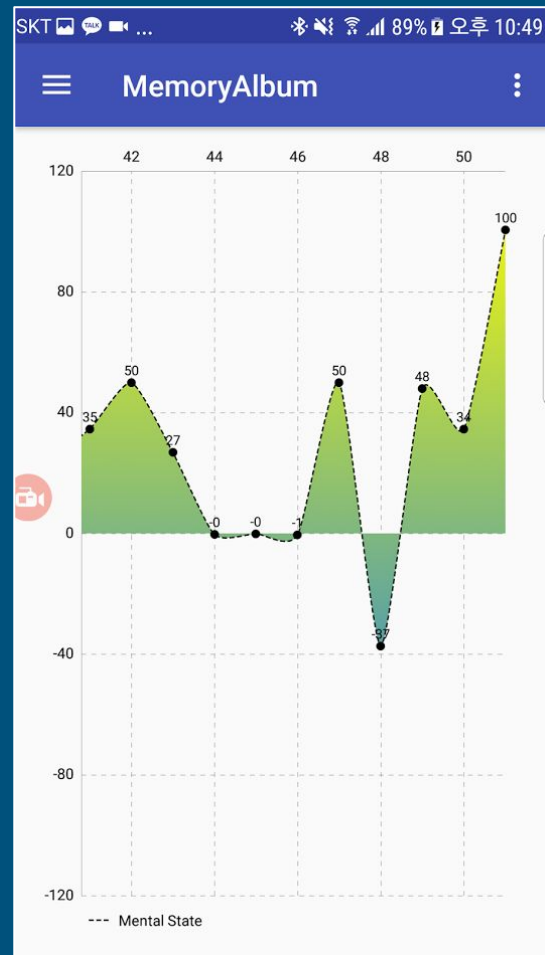
$$\sqrt{\sum \frac{|\mu - v_i|^2}{n}}$$

- Color \Rightarrow RGB and **interpolate** value using familiarity.



Scala value

```
float val = (float)(im.FACE_ANGER * -100  
+ im.FACE_FEAR * -50  
+ im.FACE_NEUTRAL * 0  
+ im.FACE_HAPPINESS * 50  
+ im.FACE_SURPRISE * 100);
```

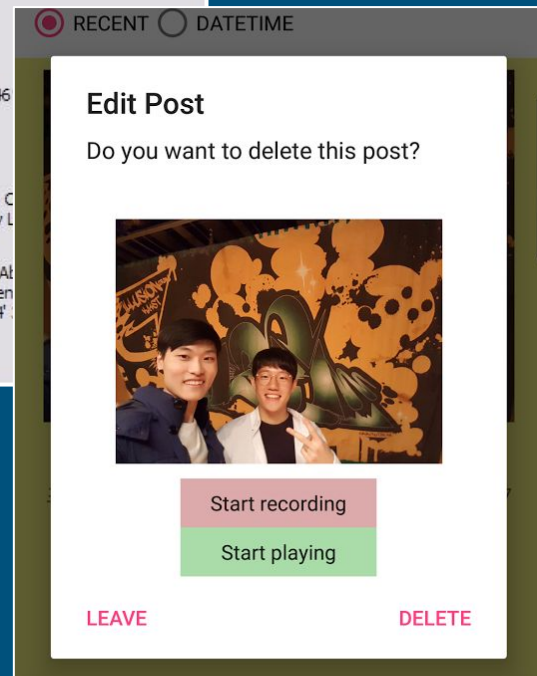


GeoCode & Recording

- Exif Data
 - latitude, longitude
→ Convert to real address (Geocoder)
 - datetime → shooting time (sorting)
- Recording
 - Record message to each post (instead of typing)

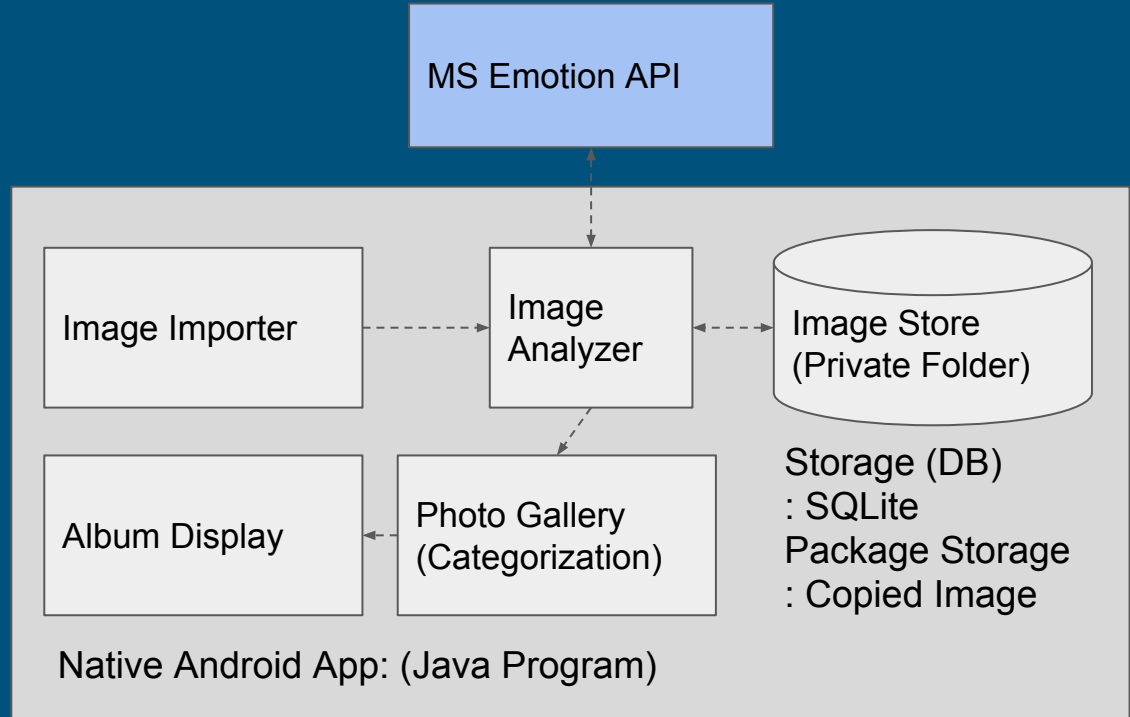
Camera Maker:	Canon
Camera Model:	Canon EOS 350D DIGITAL
Image Date:	2006-09-06 11:15:33 +0200
Focal Length:	24,0mm
Aperture:	f/10.0
Exposure Time:	0.0040 s (1/250)
ISO equiv:	200
Exposure Bias:	none
Metering Mode:	Partial
Exposure:	program (Auto)
White Balance:	Auto
Flash Fired:	No
Color Space:	sRGB
GPS Coordinate:	49° 11' 47.20" N, 10° 46'
Photographer:	Christian Eyrich
City:	Abenberg
Country:	Germany
Copyright:	licenced under Creative C ShareAlike 2.0 Germany L
Caption:	Schottenturm auf Burg Al aufgenommen von Süden Aufnahmepunkt: 49° 14'

Copy



System Architecture

- CRUD sqlite
- Upload
 - Detect Face
 - Analyze mean value
 - get Exif info
 - Copy image in package storage



Schedule

- Firebase... web image storage
- Face detection
- MP Android Chart
- Menu design
- Exif data, list view
- Add more views
- Album

User Feedback

- Happiness, Neutral are quite good, but Anger, Sadness are bad. Mostly the pictures are in Neutral.
- The pictures with many faces are almost Neutral or Happiness.
- Better if I target to make a personal album or a diary would be more perspective.

Feedback

- Happiness, Neutral은 잘 나오는데 Anger, Sadness는 잘 안나옴. 거의 Neutral에서 그 정도의 차이가 나는 정도.
- 카메라를 많이 안찍는 사람에게는 활용도 낮음 (인스타그램 비사용자 등)
- 단체사진에서 Neutral, Happiness 이외의 표정은 찾기 드뭄
- 개인 소장용 앨범, 다이어리 측면으로 접근하는 것이 더 전망있어보임

Future work

- Auto filter
- Photo Sticker
- Private diary, security↑
- Voice emotion detection

