# Emotion Album

CS409
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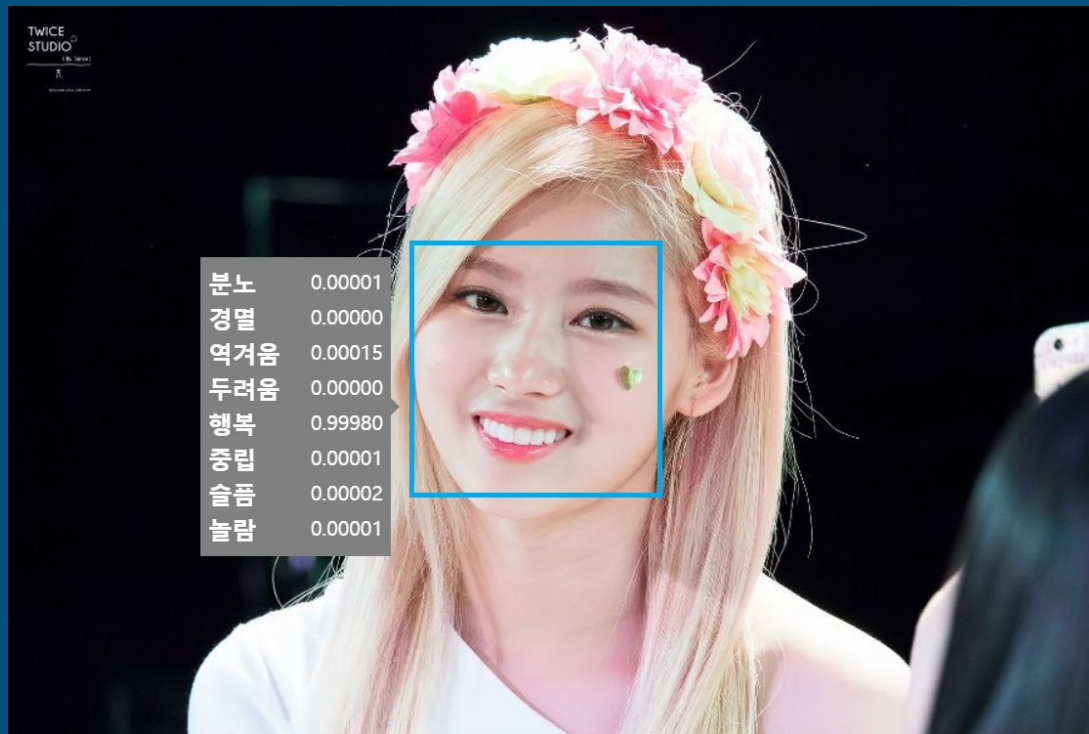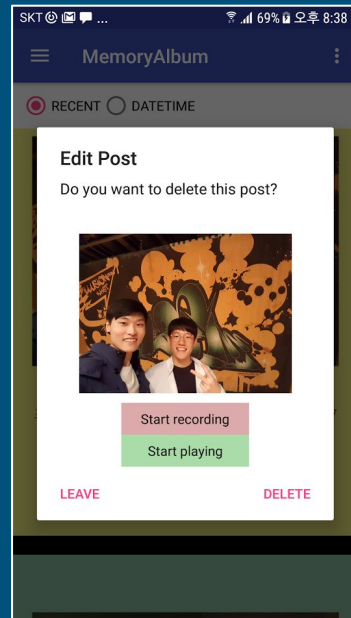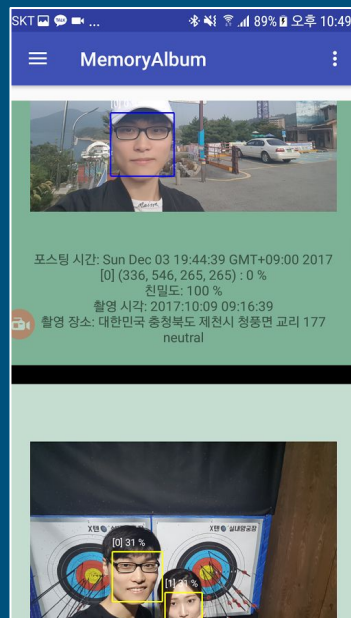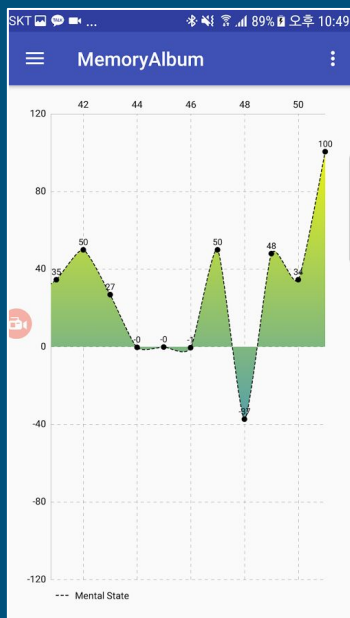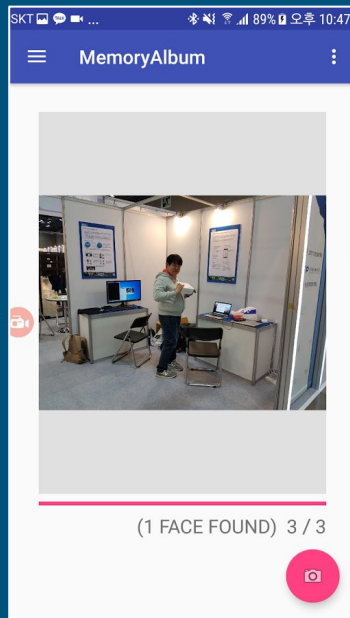
# Introduction

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



| | |
|---|---|
| 분노 | 0.00001 |
| 경멸 | 0.00000 |
| 역겨움 | 0.00015 |
| 두려움 | 0.00000 |
| 행복 | 0.99980 |
| 중립 | 0.00001 |
| 슬픔 | 0.00002 |
| 놀람 | 0.00001 |

TWICE STUDIO

# Features

# Categorization

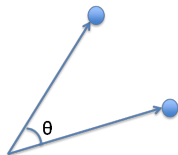MS API: Original 8 categories → Convert into 5 categories

- 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 $v\_1, v\_2, \ldots v\_n$ emotion vectors.
- μ $= mean(v\_1, v\_2, \ldots v\_n)$
- Similarity:

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

- Familiarity = (Deviation) $\sqrt{\sum \frac{|\mu - v_i|^2}{n}}$
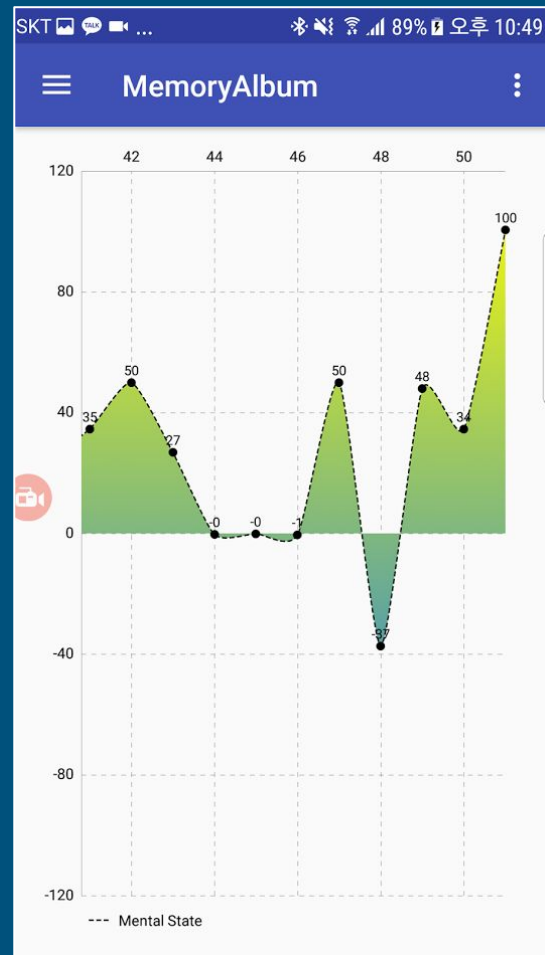
- Color ⇒ RGB and **interpolate** value using familiarity.

■ anger
■ fear
■ neutral
■ happiness
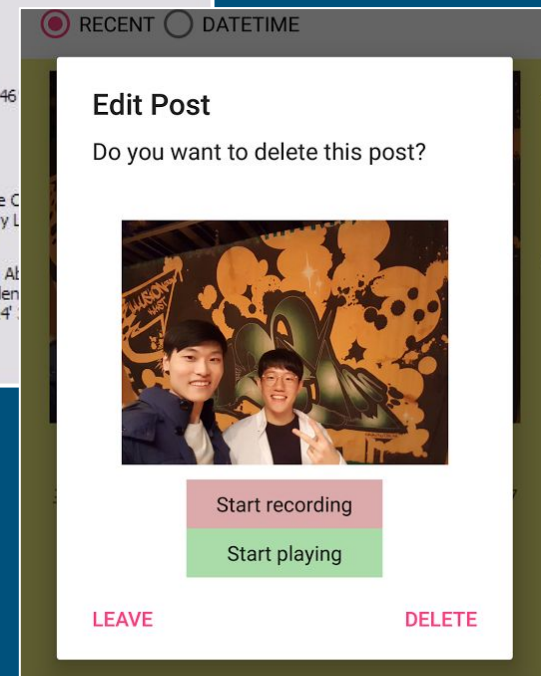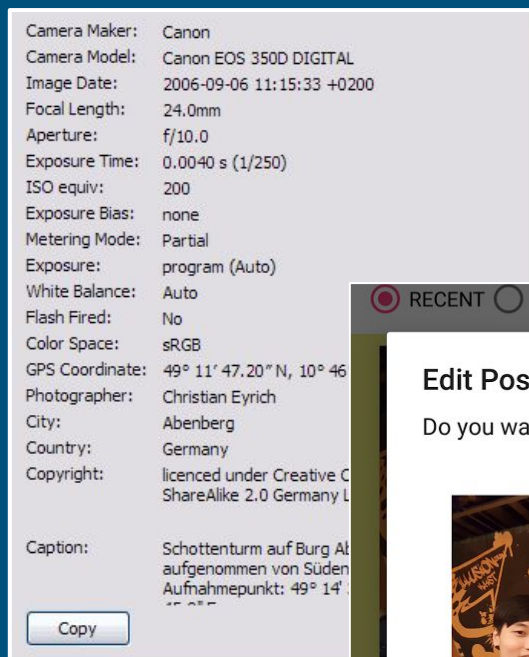■ surprise

# 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);
```
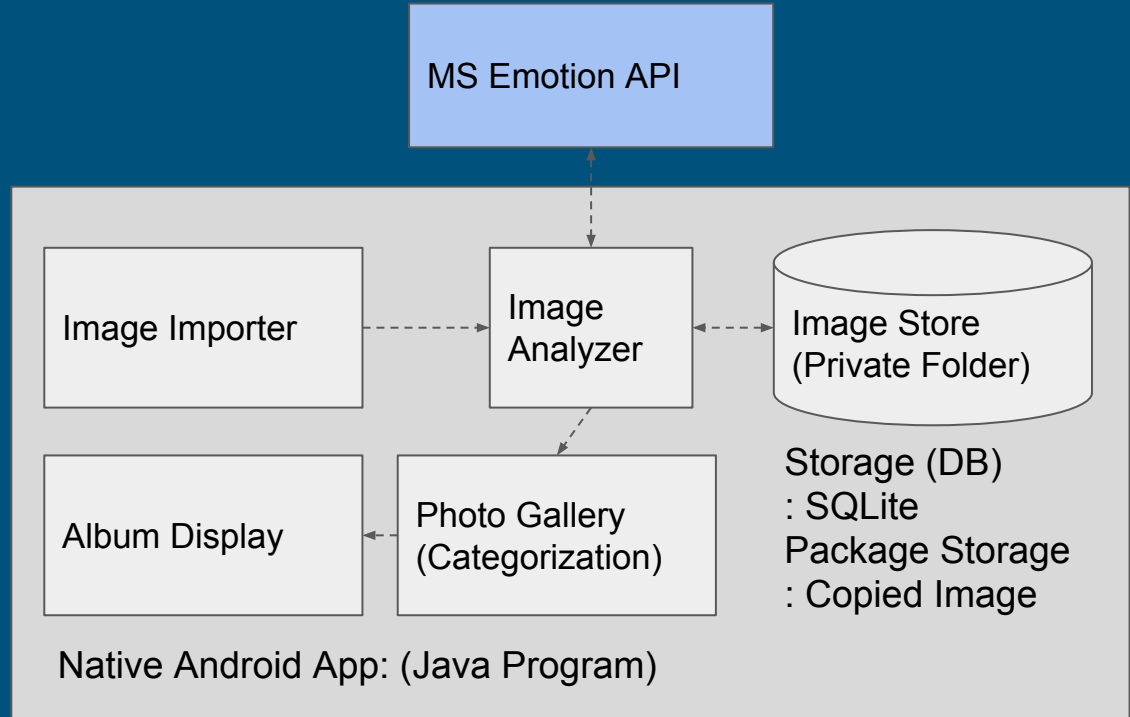
# GeoCode & Recording

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

# System Architecture

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

MS Emotion API

Image Importer

Image Analyzer

Image Store (Private Folder)

Photo Gallery (Categorization)

Album Display

Storage (DB) : SQLite
Package Storage : Copied Image

Native Android App: (Java Program)

# 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.

# Future work

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