PinPlace: CNN based location image search And its adaptation to social network

TEAM H Week 7

CNN Build

- Collect image dataset

  CHE SEUNG YUN, HONG SEONGJUN
- Build simple cnn model & test it

  CHE SEUNG YUN

Front end

- UI design with Figma

  JEONG CHAEWON, LEE JI SEOP

Back end

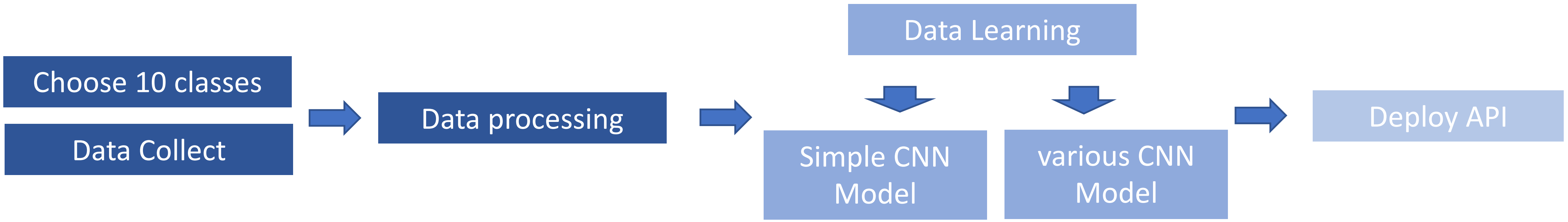
- Build login page with MySQL UHM JI YONG
- Test simple CNN model in web application UHM JI YONG

CNN Model build > Week 7

CNN Build

Our CNN model development process

1. Collect and process data necessary for learning.
2. Train an appropriate artificial intelligence model using the processed learning data.
3. Deploy the trained model to utilize it in application.



~ 10/14

~ 10/28

04. Proposed Solution

Choose 10 classes

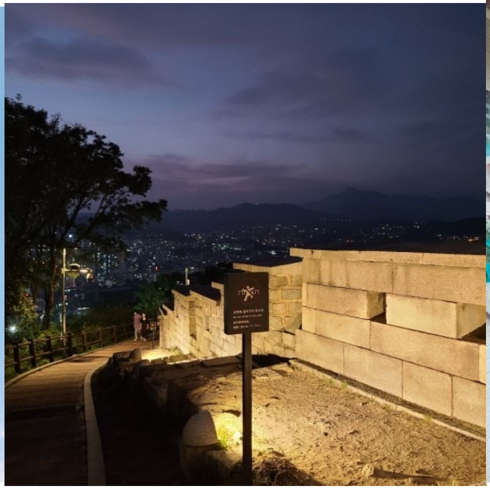
Choose 10 hot places in Seoul

where MZ generation likes

The hyundai seoul mall

Jamsil lotte tower

Naksan park



N seoul tower

Ickseon
hanok vilage

CNN Model build > Week 7

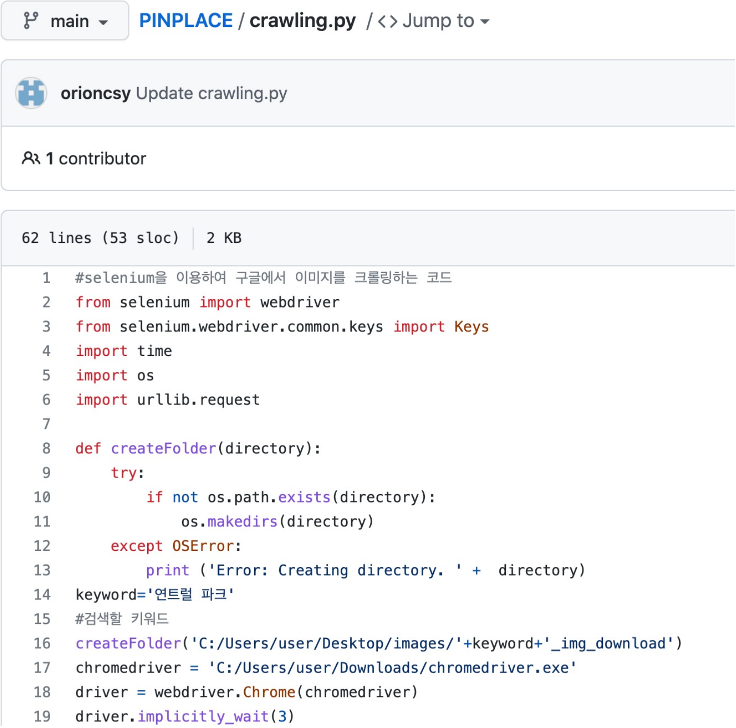
Data Collect

Library

Selenium

Platform

jupyter


main
PINPLACE / crawling.py / <> Jump to
orioncsy Update crawling.py
1 contributor

62 lines (53 sloc) | 2 KB

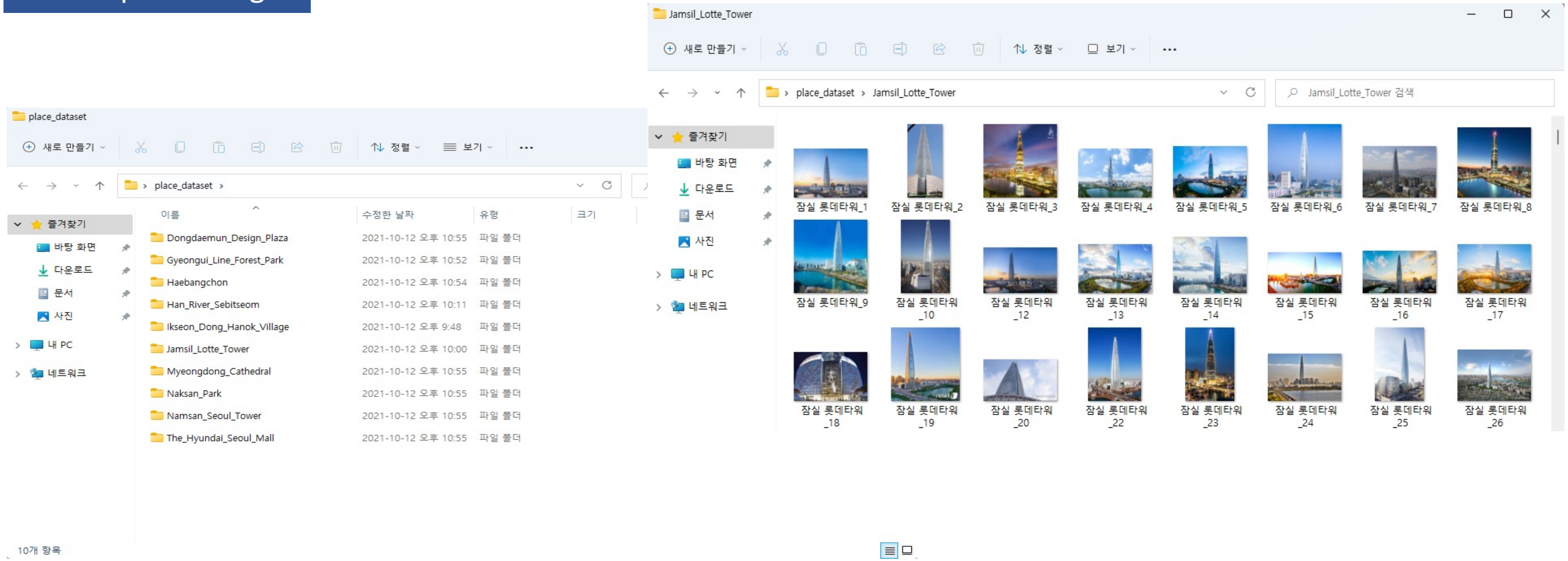
```python
#selenium을 이용하여 구글에서 이미지를 크롤링하는 코드
from selenium import webdriver
from selenium.webdriver.common.keys import Keys
import time
import os
import urllib.request

def createFolder(directory):
    try:
        if not os.path.exists(directory):
            os.makedirs(directory)
    except OSError:
        print ('Error: Creating directory. ' +  directory)
keyword='엔트럴 파크'
#검색할 키워드
createFolder('C:/Users/user/Desktop/images/'+keyword+'_img_download')
chromedriver = 'C:/Users/user/Downloads/chromedriver.exe'
driver = webdriver.Chrome(chromedriver)
driver.implicitly_wait(3)
```

▶ Collect image data by crawling. Using Python, selenium library.

Collect 1000 images for each class

CNN Model build > Week 7

Data processing



place_dataset

새로 만들기 · 정렬 · 보기 · ...

place_dataset ›

이름	수정한 날짜	유형	크기
Dongdaemun_Design_Plaza	2021-10-12 오후 10:55	파일 폴더	
Gyeongui_Line_Forest_Park	2021-10-12 오후 10:52	파일 폴더	
Haebangchon	2021-10-12 오후 10:54	파일 폴더	
Han_River_Sebitseom	2021-10-12 오후 10:11	파일 폴더	
Ikseon_Dong_Hanok_Village	2021-10-12 오후 9:48	파일 폴더	
Jamsil_Lotte_Tower	2021-10-12 오후 10:00	파일 폴더	
Myeongdong_Cathedral	2021-10-12 오후 10:55	파일 폴더	
Naksan_Park	2021-10-12 오후 10:55	파일 폴더	
Namsan_Seoul_Tower	2021-10-12 오후 10:55	파일 폴더	
The_Hyundai_Seoul_Mall	2021-10-12 오후 10:55	파일 폴더	

10개 항목

Jamsil_Lotte_Tower

place_dataset › Jamsil_Lotte_Tower

Jamsil_Lotte_Tower 검색

잠실 롯데타워_1, 잠실 롯데타워_2, 잠실 롯데타워_3, 잠실 롯데타워_4, 잠실 롯데타워_5, 잠실 롯데타워_6, 잠실 롯데타워_7, 잠실 롯데타워_8

잠실 롯데타워_9, 잠실 롯데타워_10, 잠실 롯데타워_12, 잠실 롯데타워_13, 잠실 롯데타워_14, 잠실 롯데타워_15, 잠실 롯데타워_16, 잠실 롯데타워_17

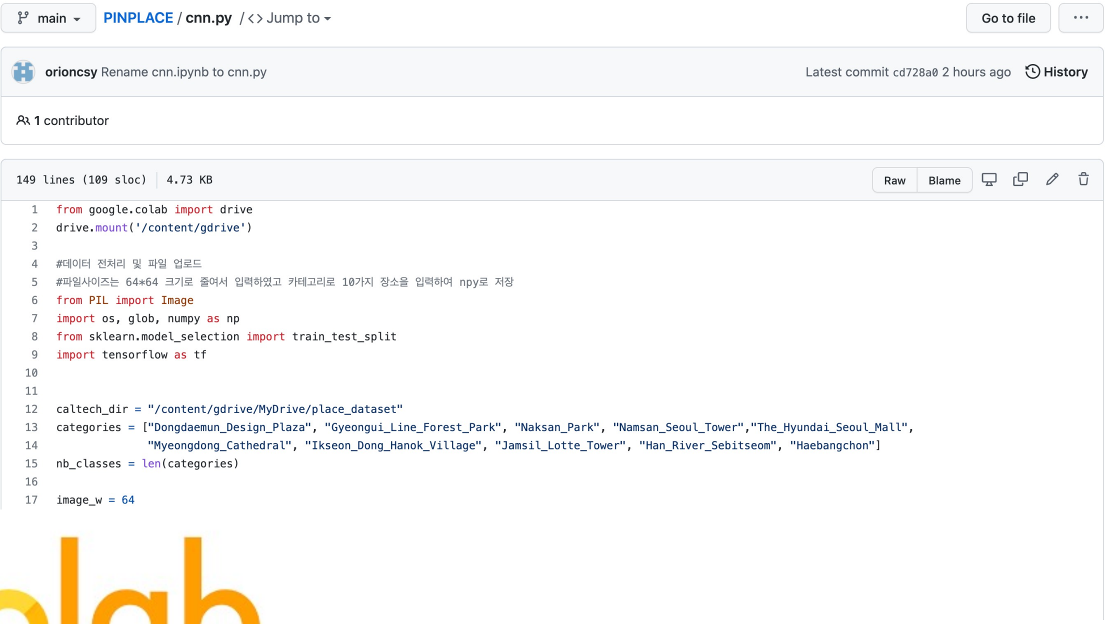
잠실 롯데타워_18, 잠실 롯데타워_19, 잠실 롯데타워_20, 잠실 롯데타워_22, 잠실 롯데타워_23, 잠실 롯데타워_24, 잠실 롯데타워_25, 잠실 롯데타워_26

▶ Remove irrelevant images and duplicate data.

After image processing, 600 ~ 700 images remain for each class.

CNN Model build > Week 7

Simple CNN model & test it


main
PINPLACE / cnn.py / <> Jump to
Go to file
orioncsy Rename cnn.ipynb to cnn.py
Latest commit cd728a0 2 hours ago
History
1 contributor
149 lines (109 sloc) | 4.73 KB
Raw
Blame

```python
from google.colab import drive
drive.mount('/content/gdrive')

#데이터 전처리 및 파일 업로드
#파일사이즈는 64*64 크기로 줄여서 입력하였고 카테고리로 10가지 장소을 입력하여 npy로 저장
from PIL import Image
import os, glob, numpy as np
from sklearn.model_selection import train_test_split
import tensorflow as tf


caltech_dir = "/content/gdrive/MyDrive/place_dataset"
categories = ["Dongdaemun_Design_Plaza", "Gyeongui_Line_Forest_Park", "Naksan_Park", "Namsan_Seoul_Tower","The_Hyundai_Seoul_Mall",
              "Myeongdong_Cathedral", "Ikseon_Dong_Hanok_Village", "Jamsil_Lotte_Tower", "Han_River_Sebitseom", "Haebangchon"]
nb_classes = len(categories)

image_w = 64
```

Library

TensorFlow

Platform

colab

Build a CNN model using TenserFlow on google colab.

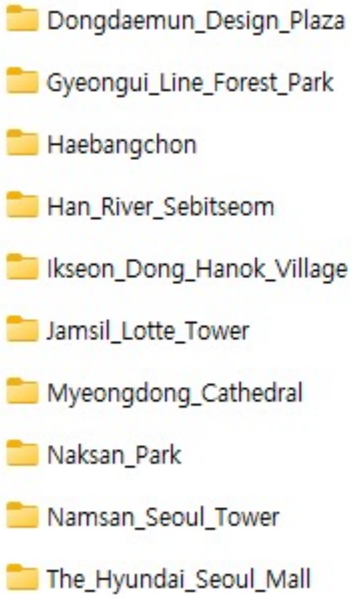
The collected and processed learning data is trained on the simple CNN model.

Check the accuracy.

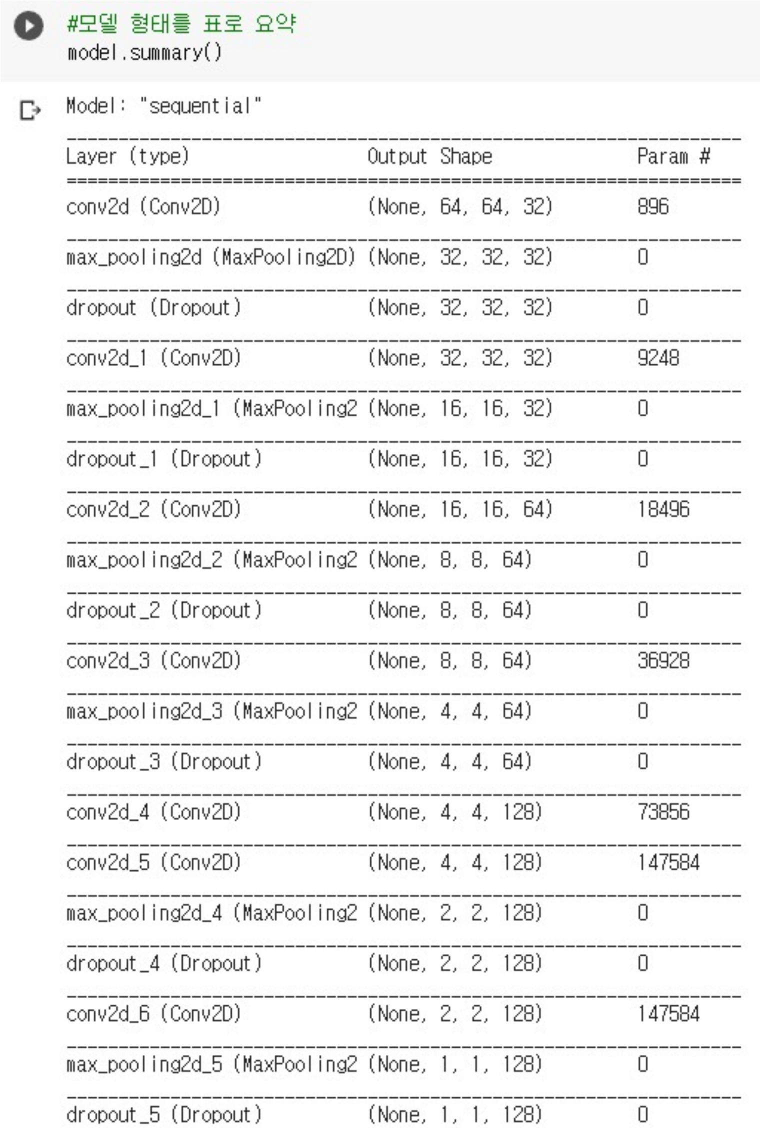
CNN Model build > Week 7

Simple CNN model & test it

10 classses



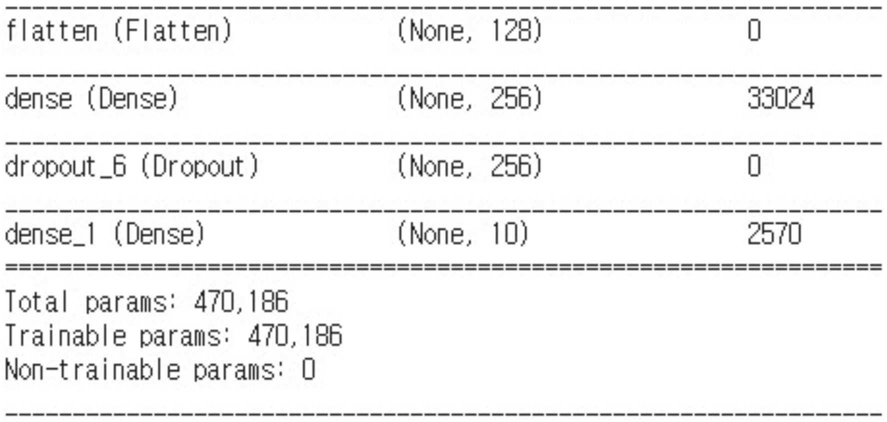
- Dongdaemun_Design_Plaza
- Gyeongui_Line_Forest_Park
- Haebangchon
- Han_River_Sebitseom
- Ikseon_Dong_Hanok_Village
- Jamsil_Lotte_Tower
- Myeongdong_Cathedral
- Naksan_Park
- Namsan_Seoul_Tower
- The_Hyundai_Seoul_Mall



```
#모델 형태를 표로 요약
model.summary()
```

```
Model: "sequential"
_________________________________________________________________
Layer (type)                 Output Shape              Param #
=================================================================
conv2d (Conv2D)              (None, 64, 64, 32)        896
_________________________________________________________________
max_pooling2d (MaxPooling2D) (None, 32, 32, 32)        0
_________________________________________________________________
dropout (Dropout)            (None, 32, 32, 32)        0
_________________________________________________________________
conv2d_1 (Conv2D)            (None, 32, 32, 32)        9248
_________________________________________________________________
max_pooling2d_1 (MaxPooling2 (None, 16, 16, 32)        0
_________________________________________________________________
dropout_1 (Dropout)          (None, 16, 16, 32)        0
_________________________________________________________________
conv2d_2 (Conv2D)            (None, 16, 16, 64)        18496
_________________________________________________________________
max_pooling2d_2 (MaxPooling2 (None, 8, 8, 64)          0
_________________________________________________________________
dropout_2 (Dropout)          (None, 8, 8, 64)          0
_________________________________________________________________
conv2d_3 (Conv2D)            (None, 8, 8, 64)          36928
_________________________________________________________________
max_pooling2d_3 (MaxPooling2 (None, 4, 4, 64)          0
_________________________________________________________________
dropout_3 (Dropout)          (None, 4, 4, 64)          0
_________________________________________________________________
conv2d_4 (Conv2D)            (None, 4, 4, 128)         73856
_________________________________________________________________
conv2d_5 (Conv2D)            (None, 4, 4, 128)         147584
_________________________________________________________________
max_pooling2d_4 (MaxPooling2 (None, 2, 2, 128)         0
_________________________________________________________________
dropout_4 (Dropout)          (None, 2, 2, 128)         0
_________________________________________________________________
conv2d_6 (Conv2D)            (None, 2, 2, 128)         147584
_________________________________________________________________
max_pooling2d_5 (MaxPooling2 (None, 1, 1, 128)         0
_________________________________________________________________
dropout_5 (Dropout)          (None, 1, 1, 128)         0
```

Simple CNN model

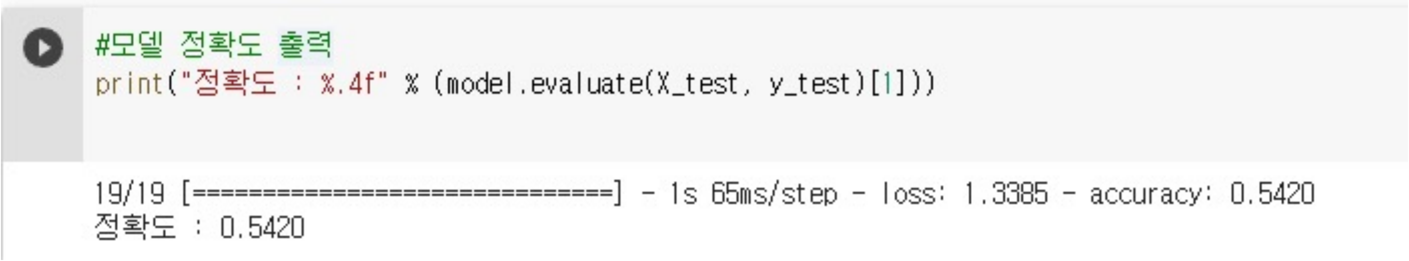


```
_________________________________________________________________
flatten (Flatten)            (None, 128)               0
_________________________________________________________________
dense (Dense)                (None, 256)               33024
_________________________________________________________________
dropout_6 (Dropout)          (None, 256)               0
_________________________________________________________________
dense_1 (Dense)              (None, 10)                2570
=================================================================
Total params: 470,186
Trainable params: 470,186
Non-trainable params: 0
_________________________________________________________________
```

CNN Model build > Week 7

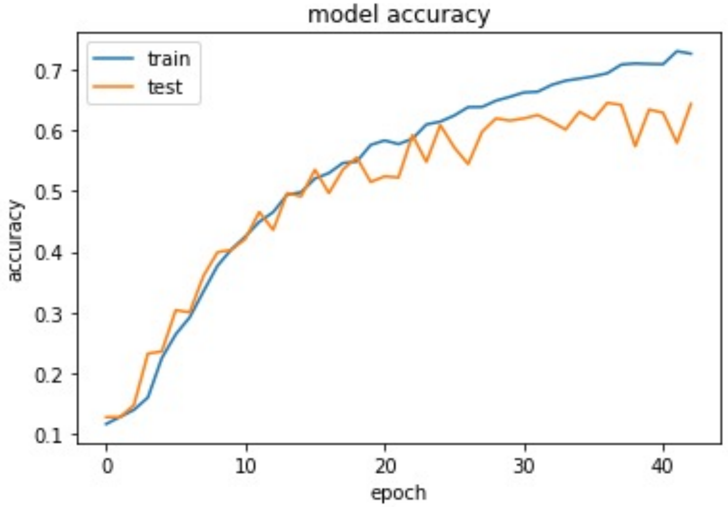
Simple CNN model & test it

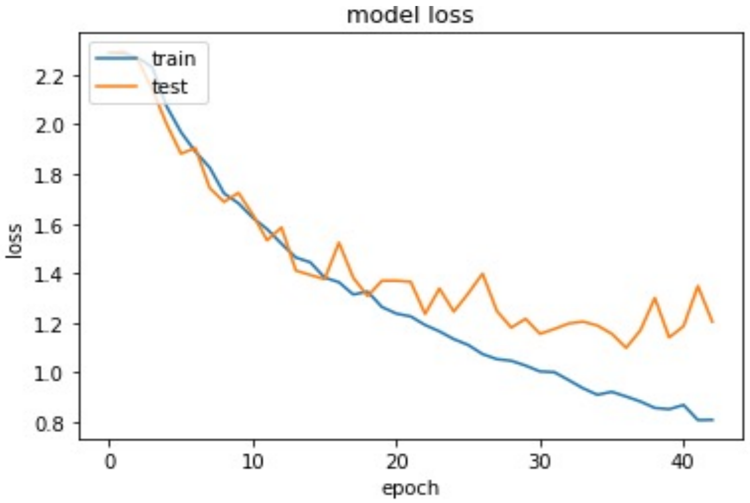
- Accuracy of model is 0.5420



```
#모델 정확도 출력
print("정확도 : %.4f" % (model.evaluate(X_test, y_test)[1]))
```

```
19/19 [==============================] - 1s 65ms/step - loss: 1.3385 - accuracy: 0.5420
정확도 : 0.5420
```





CNN Model build > Week 7

Next week

1. Improve the accuracy by changing CNN models with different parameters

   CHE SEUNG
   YUN

2. Refine image dataset or increase number of data(crawling or ImageDataGenerator)

   HONG SEONG
   JUN

3. Save the model by file

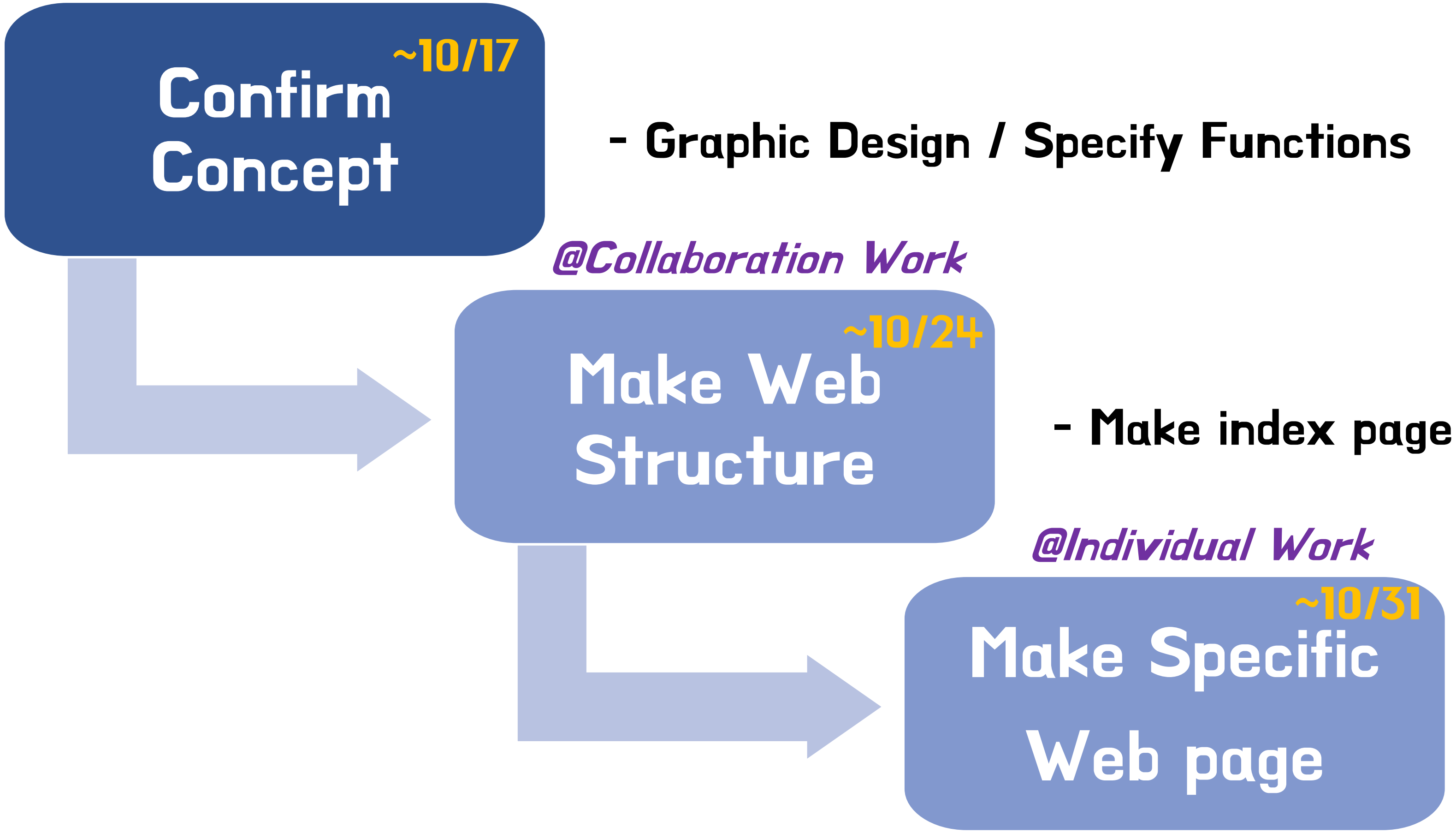
   CHE SEUNG
   YUN

4. check the model works well

   UHM JI
   YONG

Web Programming Part > October Plan

Front end



@Collaboration Work

Confirm Concept ~10/17

- Graphic Design / Specify Functions

@Collaboration Work

Make Web Structure ~10/24

- Make index page(html) & main CSS file

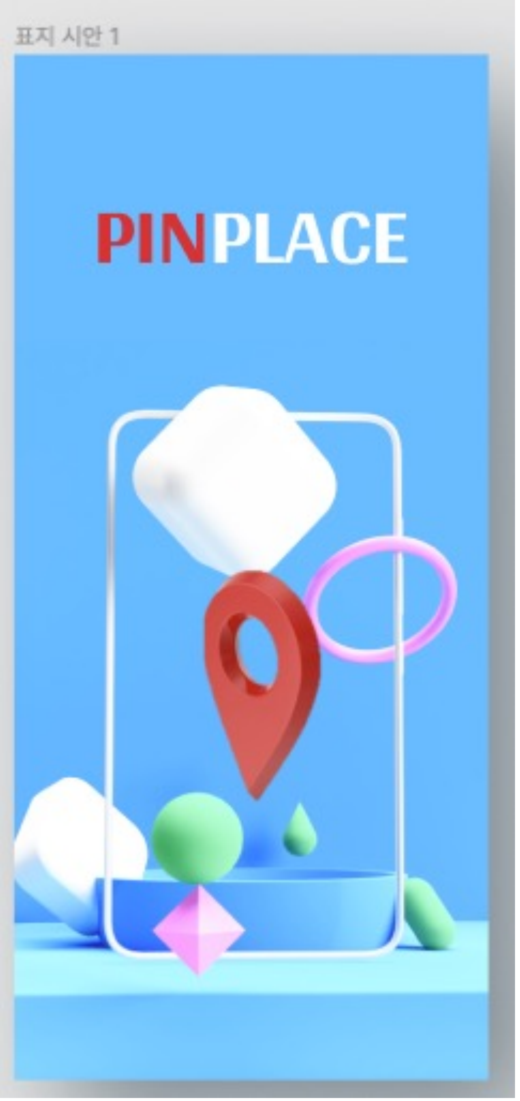
@Individual Work

Make Specific Web page ~10/31

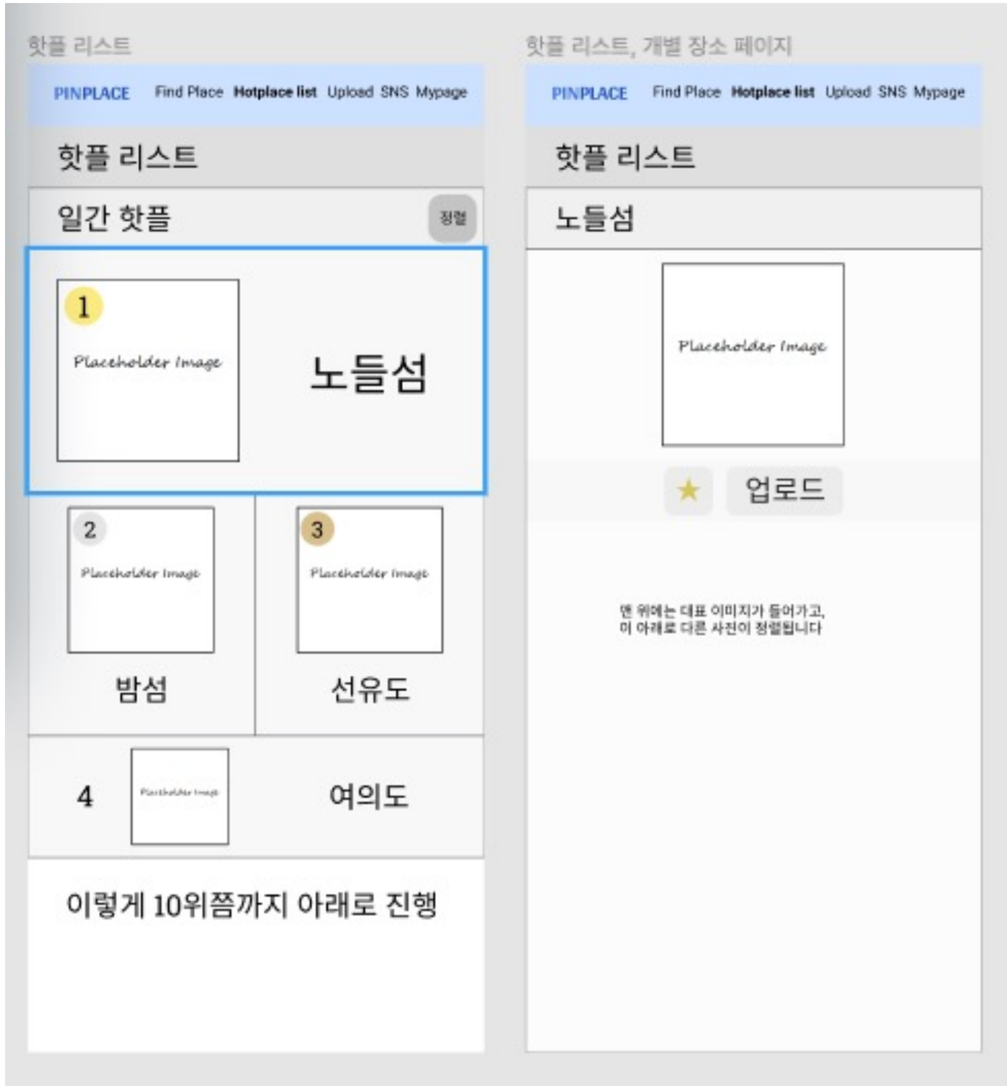
@채원 : Search Location page
@지섭 : List up Page

Web Programming Part > Specify Functions

# Cover Page



List Up Page



핫플 리스트

PINPLACE Find Place **Hotplace list** Upload SNS Mypage

핫플 리스트

일간 핫플 정렬

1 Placeholder Image 노들섬

2 Placeholder Image 밤섬

3 Placeholder Image 선유도

4 Placeholder Image 여의도

이렇게 10위쯤까지 아래로 진행

핫플 리스트, 개별 장소 페이지

PINPLACE Find Place **Hotplace list** Upload SNS Mypage

핫플 리스트

노들섬

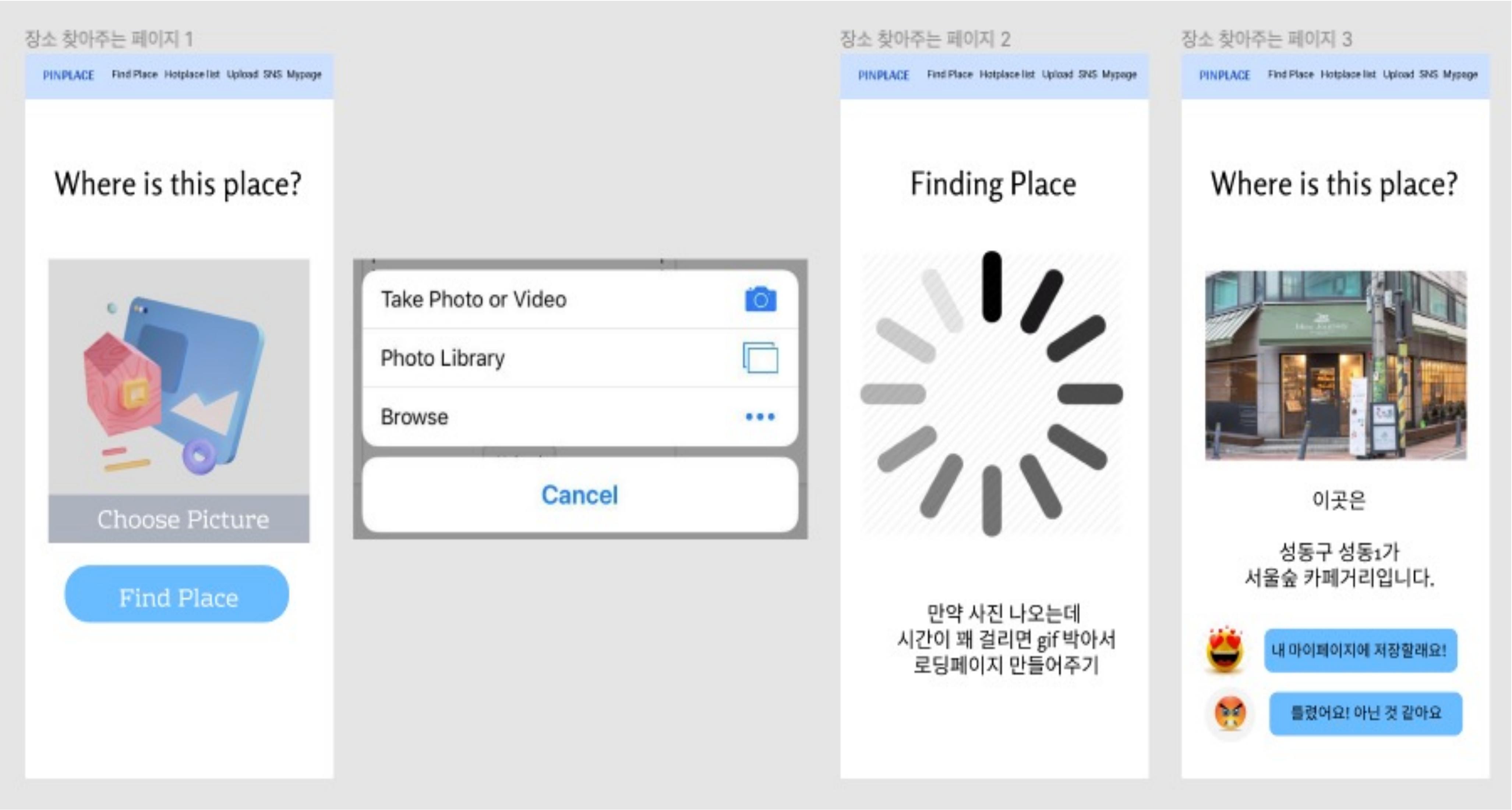
Placeholder Image

★ 업로드

맨 위에는 대표 이미지가 들어가고,
미 아래로 다른 사진이 정렬됩니다

Web Programming Part > Specify Functions

# Search Location Page



장소 찾아주는 페이지 1

장소 찾아주는 페이지 2

만약 사진 나오는데
시간이 꽤 걸리면 gif 박아서
로딩페이지 만들어주기

장소 찾아주는 페이지 3

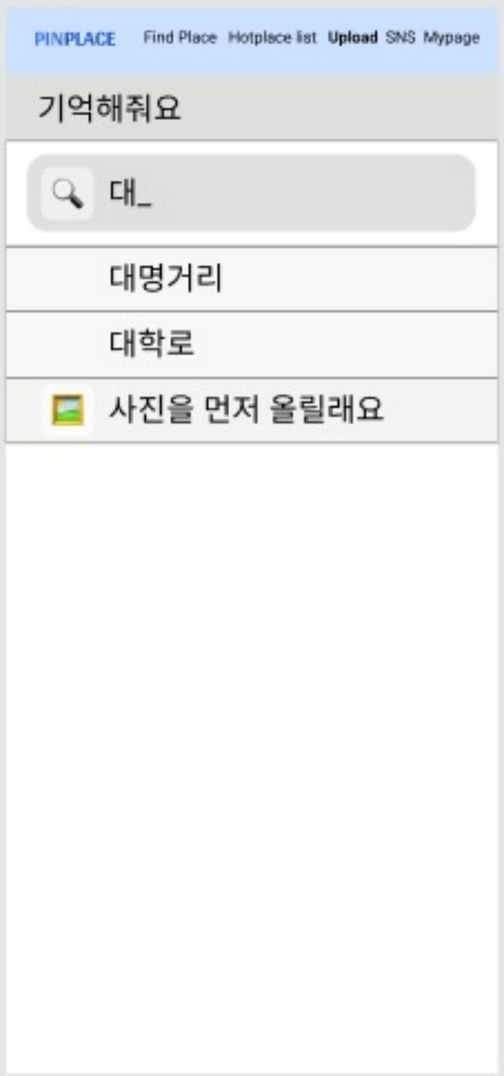
이곳은

성동구 성동1가
서울숲 카페거리입니다.

Web Programming Part > Specify Functions

# Upload Page(User-side)

업로드



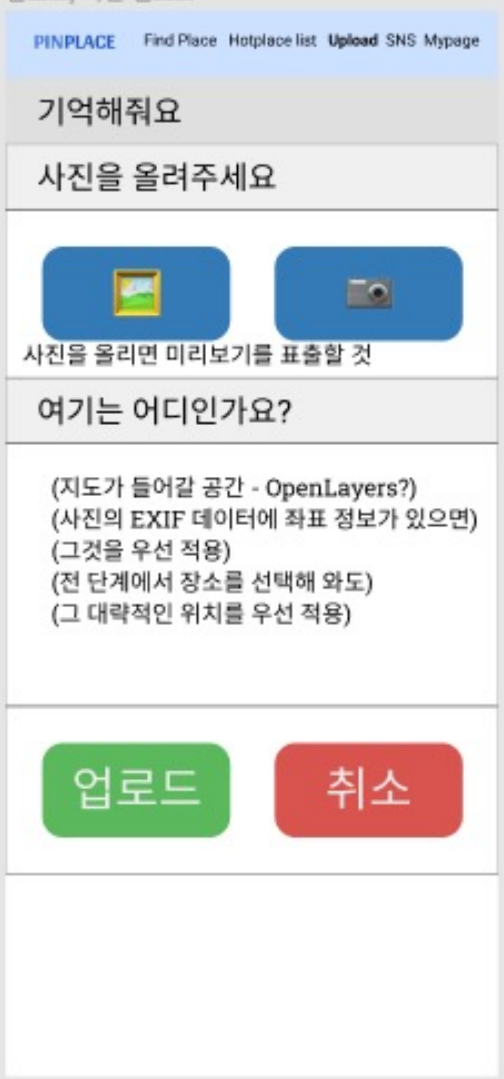
기억해줘요

대명거리

대학로

사진을 먼저 올릴래요

업로드, 사진 업로드



기억해줘요

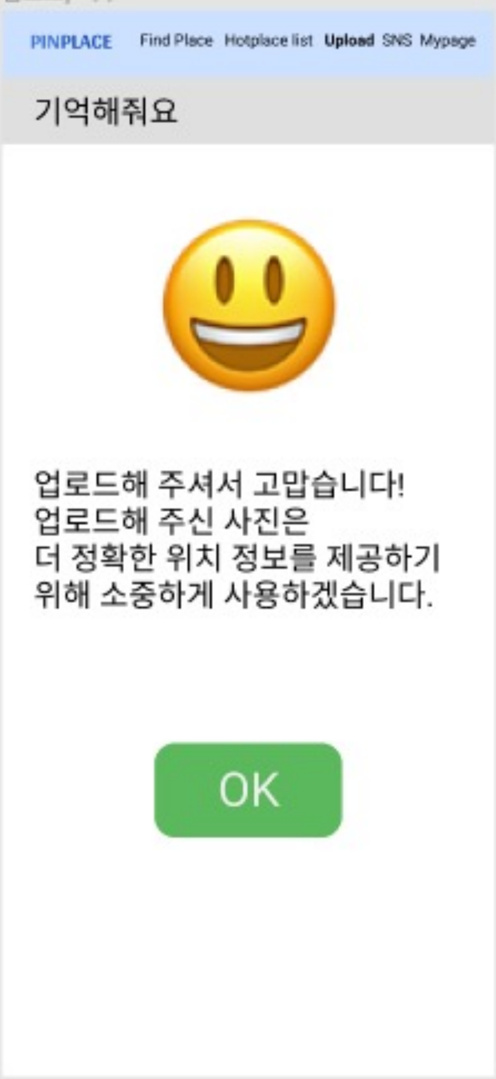
사진을 올려주세요

사진을 올리면 미리보기를 표출할 것

여기는 어디인가요?

(지도가 들어갈 공간 - OpenLayers?)
(사진의 EXIF 데이터에 좌표 정보가 있으면)
(그것을 우선 적용)
(전 단계에서 장소를 선택해 왔도)
(그 대략적인 위치를 우선 적용)

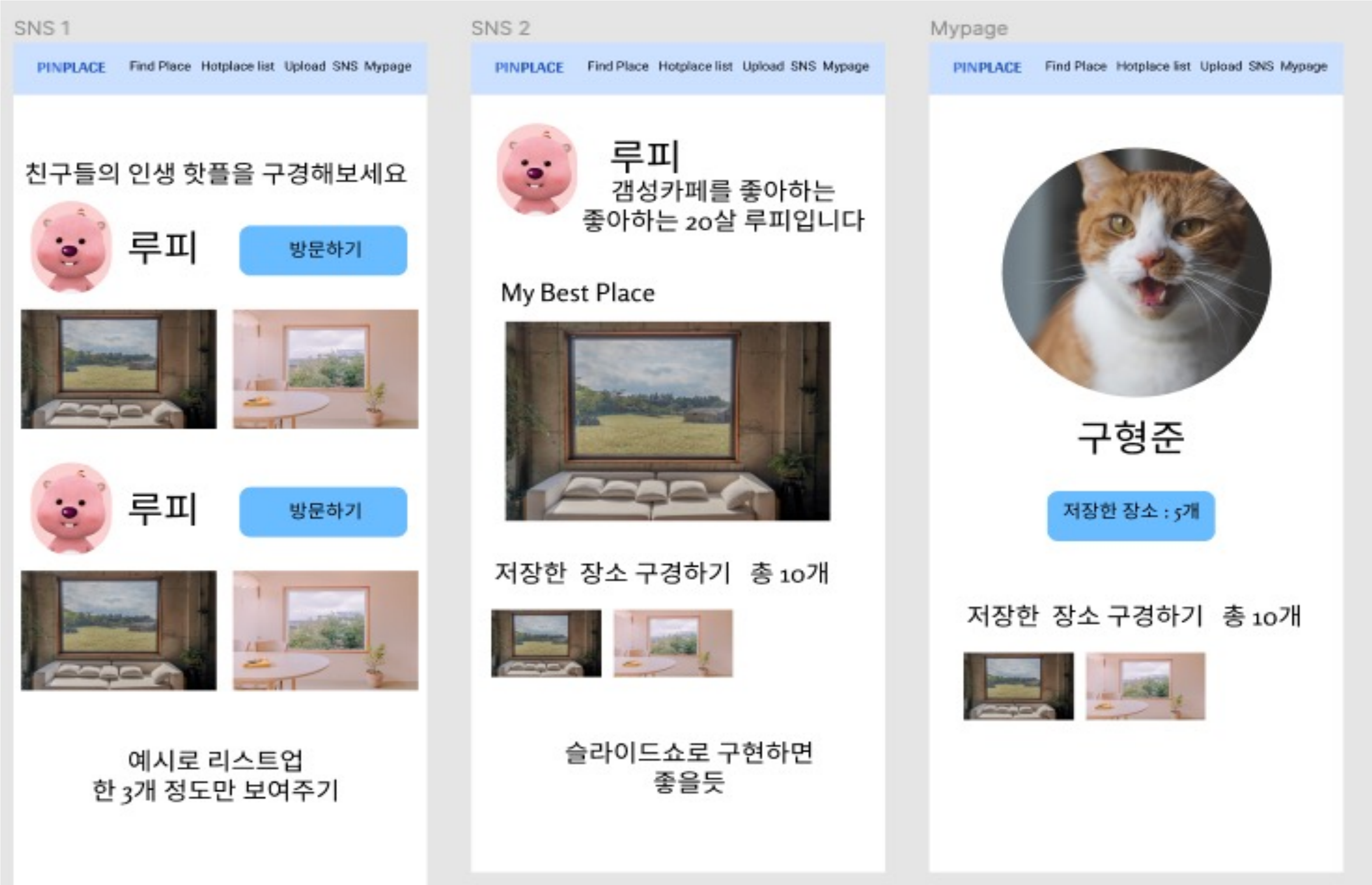
업로드, 이후



기억해줘요

업로드해 주셔서 고맙습니다!
업로드해 주신 사진은
더 정확한 위치 정보를 제공하기
위해 소중하게 사용하겠습니다.

# SNS Page



친구들의 인생 핫플을 구경해보세요

예시로 리스트업
한 3개 정도만 보여주기

갬성카페를 좋아하는
좋아하는 20살 루피입니다

My Best Place

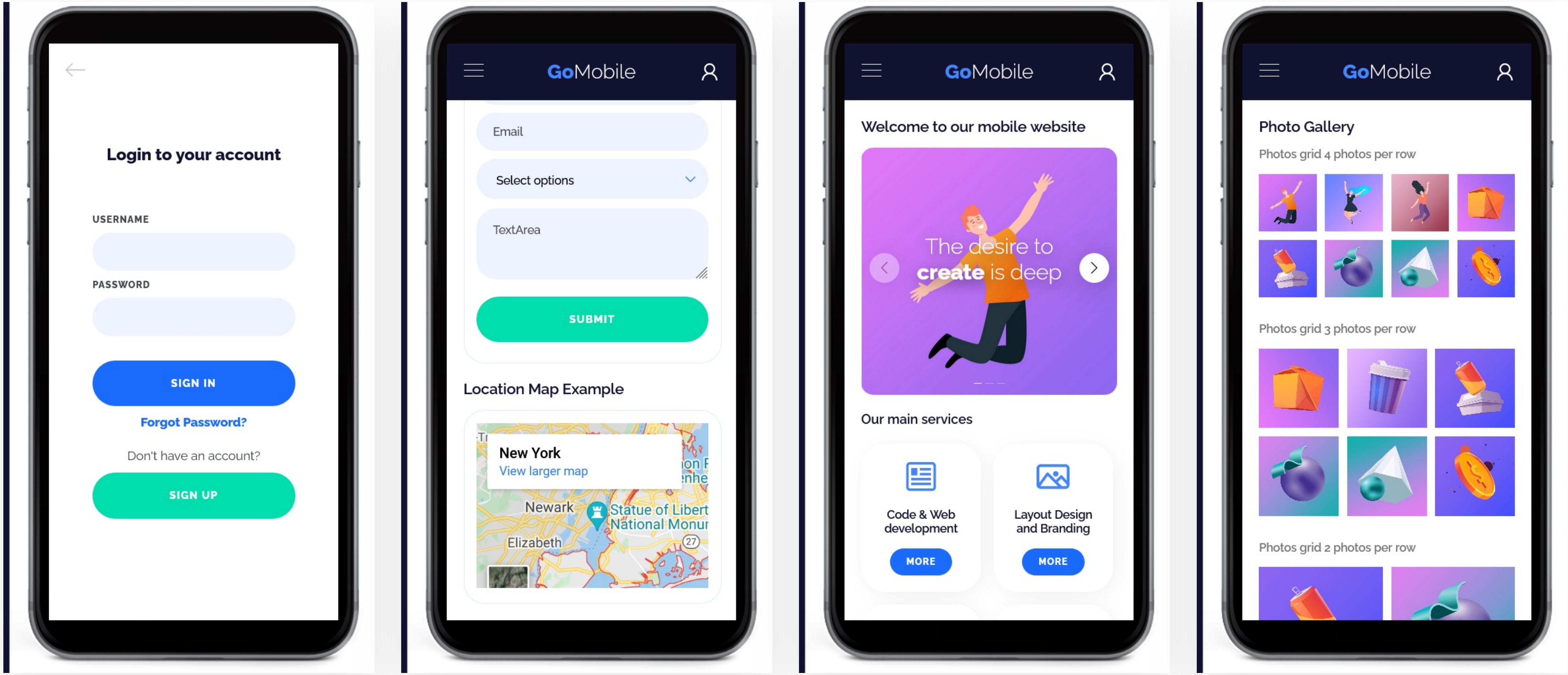
저장한 장소 구경하기 총 10개

슬라이드쇼로 구현하면
좋을듯

저장한 장소 구경하기 총 10개

Web Programming Part > Graphic Concept Reference

Example of graphic concept we're planning



Login to your account

USERNAME

PASSWORD

GoMobile

Email

Select options

TextArea

Location Map Example

GoMobile

Welcome to our mobile website

Our main services

Code & Web development

Layout Design and Branding

GoMobile

Photo Gallery

Photos grid 4 photos per row

Photos grid 3 photos per row

Photos grid 2 photos per row

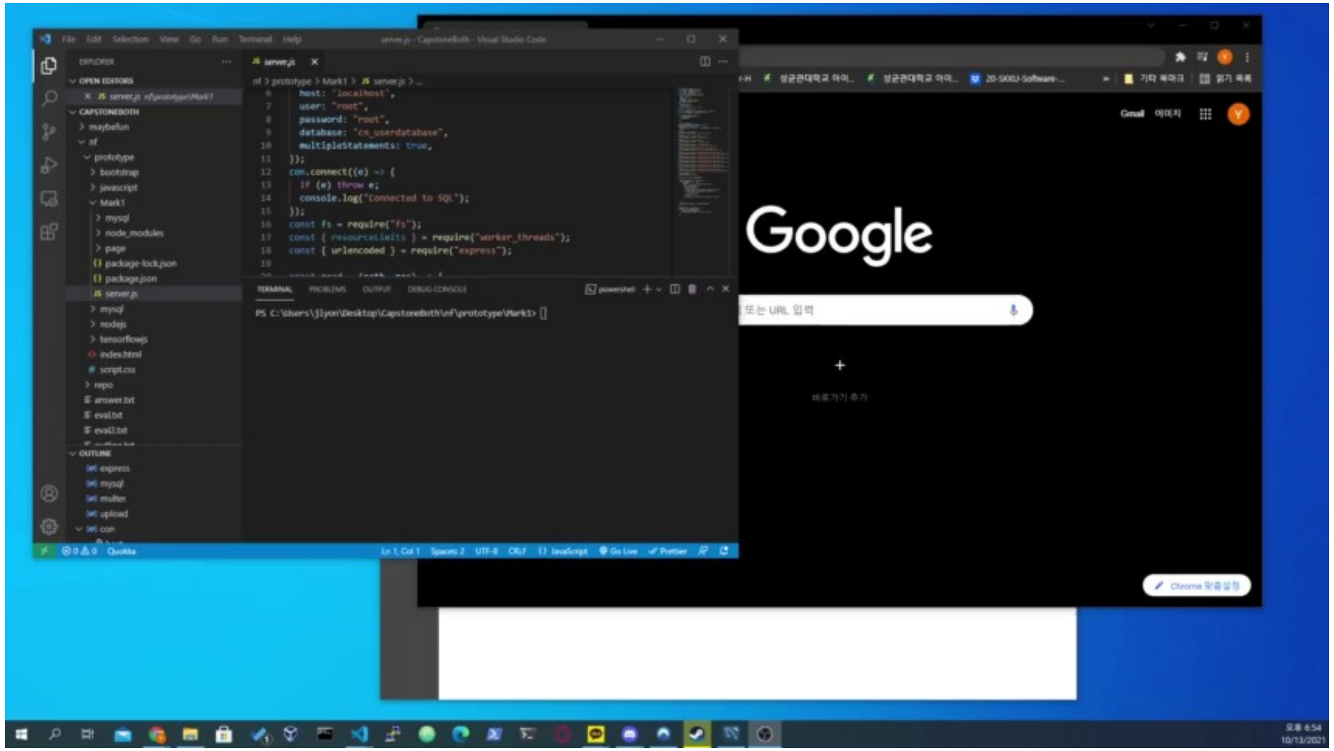
We're still thinking about it, but we're thinking about making a final decision this weekend.

Back end > Week 7

Back end

Login page & test AI in web app

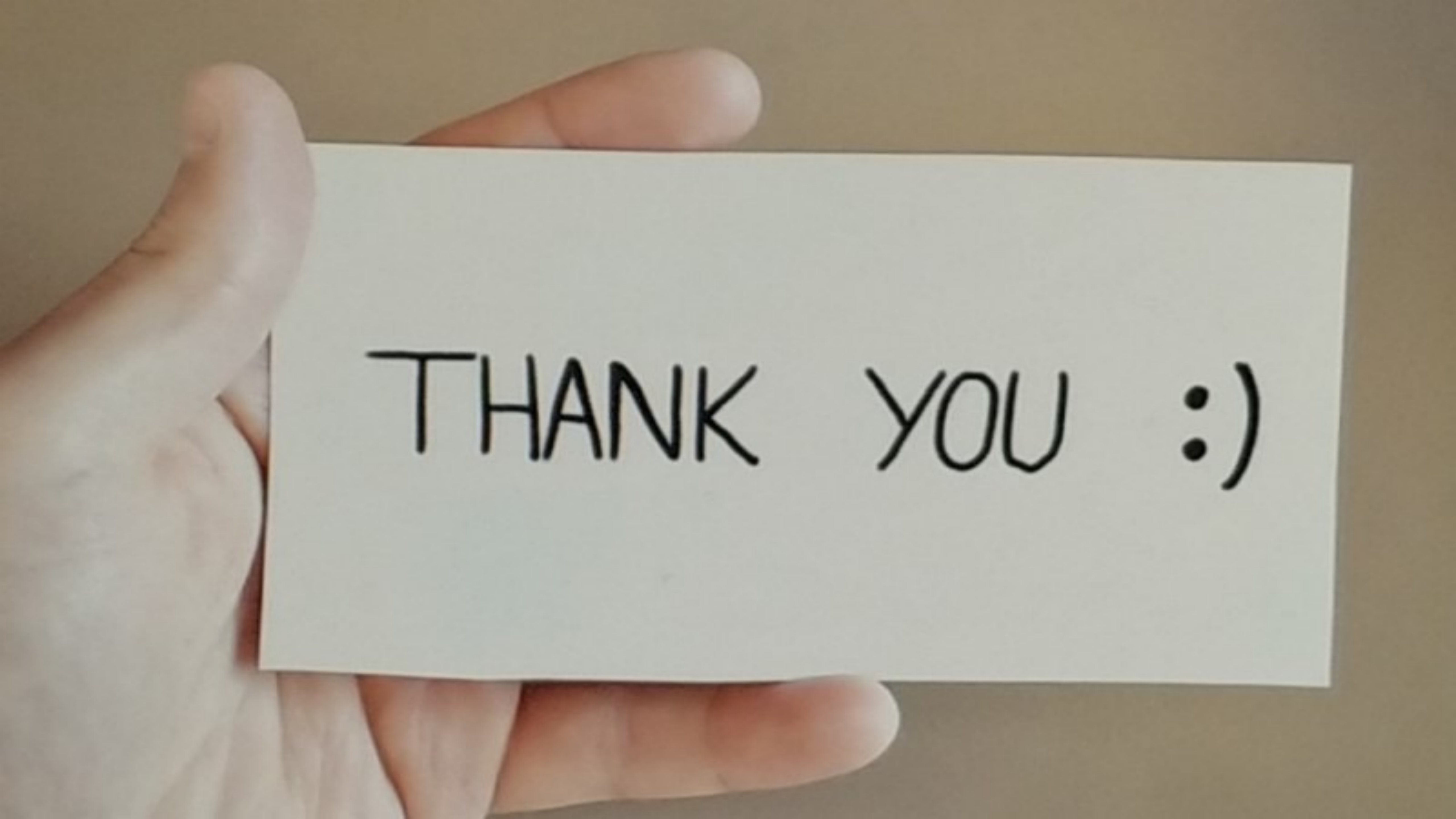
Demo



```
    host: "localhost",
    user: "root",
    password: "root",
    database: "cn_userdatabase",
    multipleStatements: true,
  });
  con.connect((e) => {
    if (e) throw e;
    console.log("Connected to SQL");
  });
  const fs = require("fs");
  const { resourceLimits } = require("worker_threads");
  const { urlencoded } = require("express");
```

```
PS C:\Users\jiyon\Desktop\CapstoneBoth\nf\prototype\Mark1>
```

server.js - CapstoneBoth - Visual Studio Code
server.js
nf > prototype > Mark1 > server.js > ...
TERMINAL
PROBLEMS
OUTPUT
DEBUG CONSOLE
powershell
Google
또는 URL 입력



THANK YOU :)