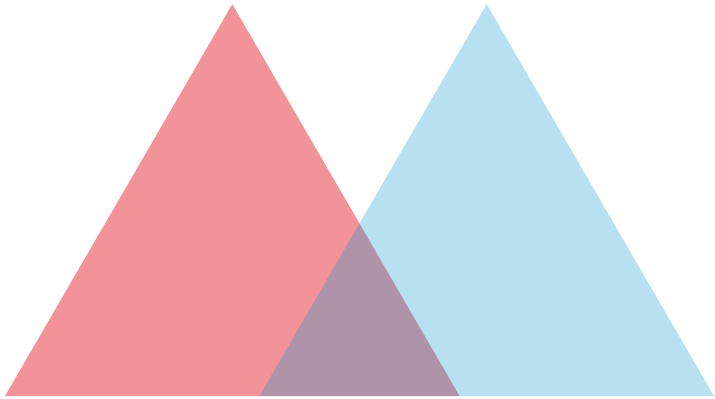
문구반점



Bbacx22

(고귀환,임준우,한승희)

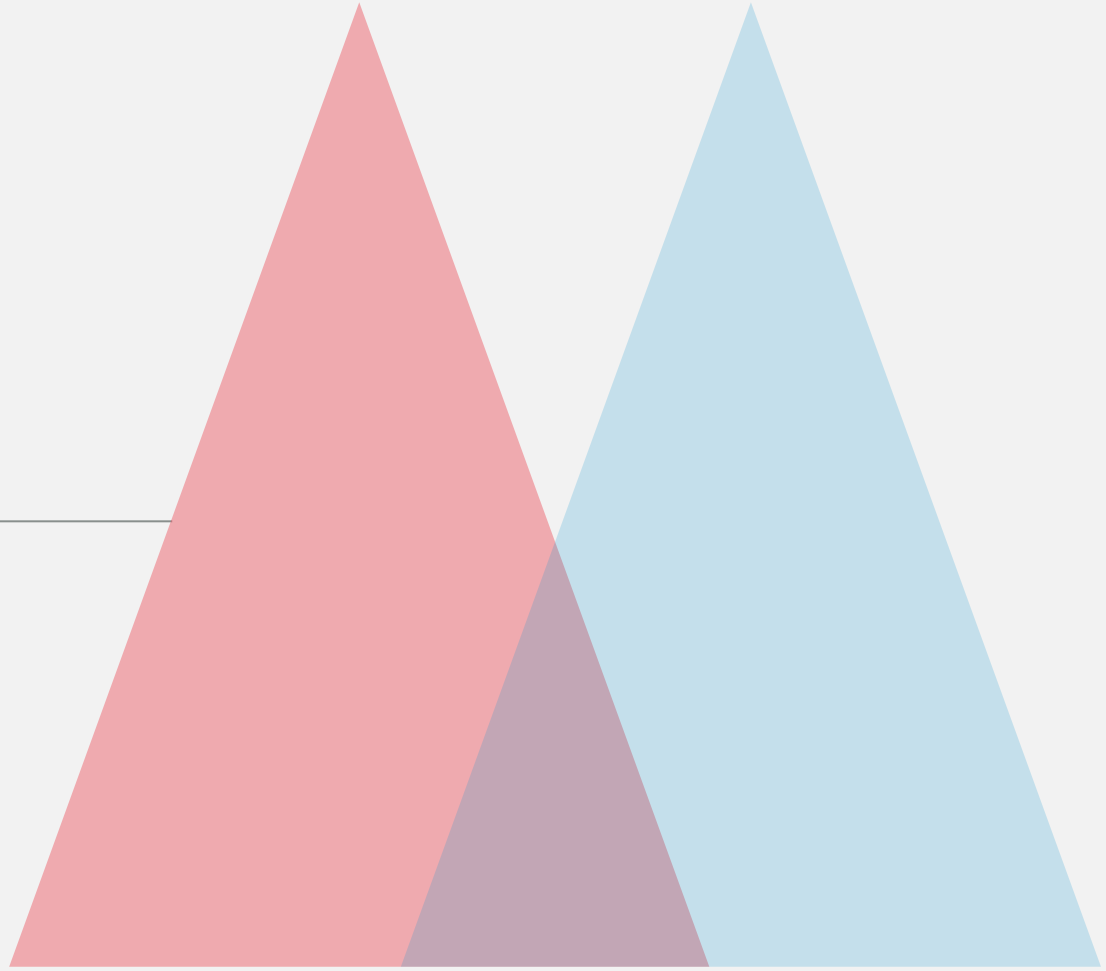
"Expo go" 를
다운로드해주세요

Ref : https://github.com/GwiHwan-Go/moon9banjeom/tree/main

Contents

001

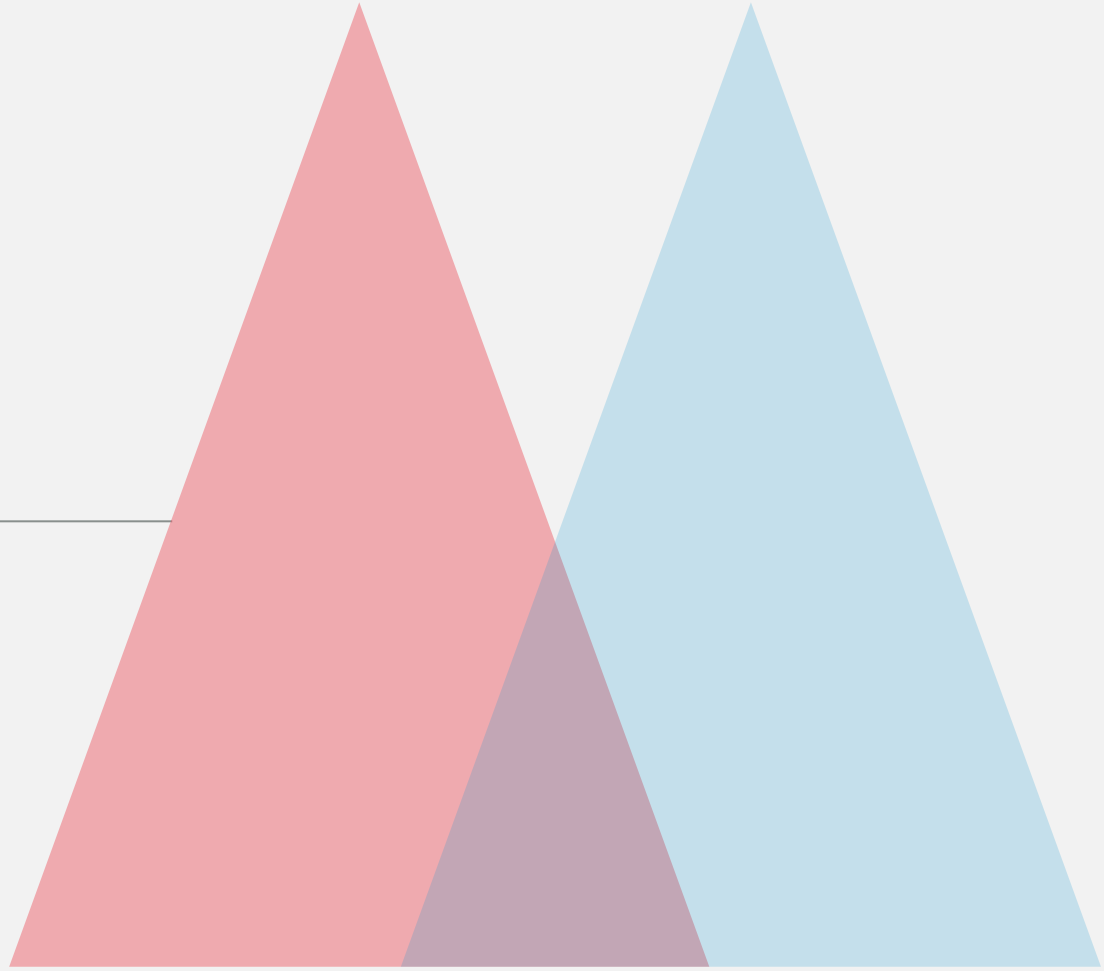
프로젝트 동기



1 프로젝트 동기

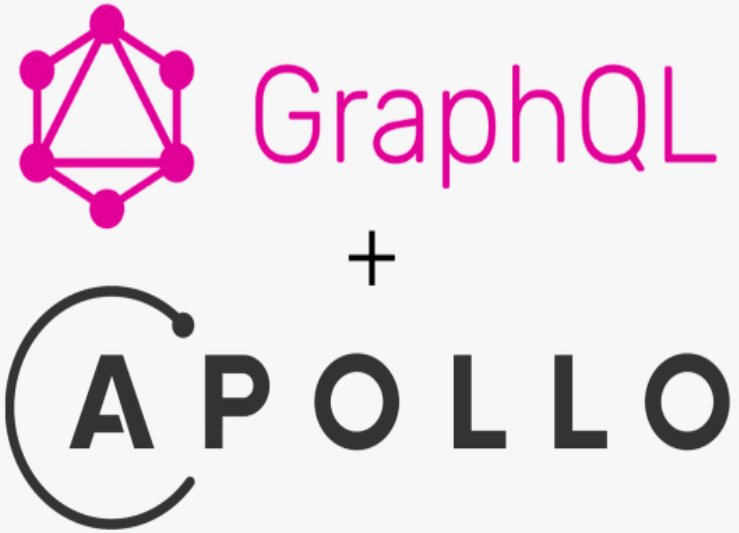
002-1

개발 과정



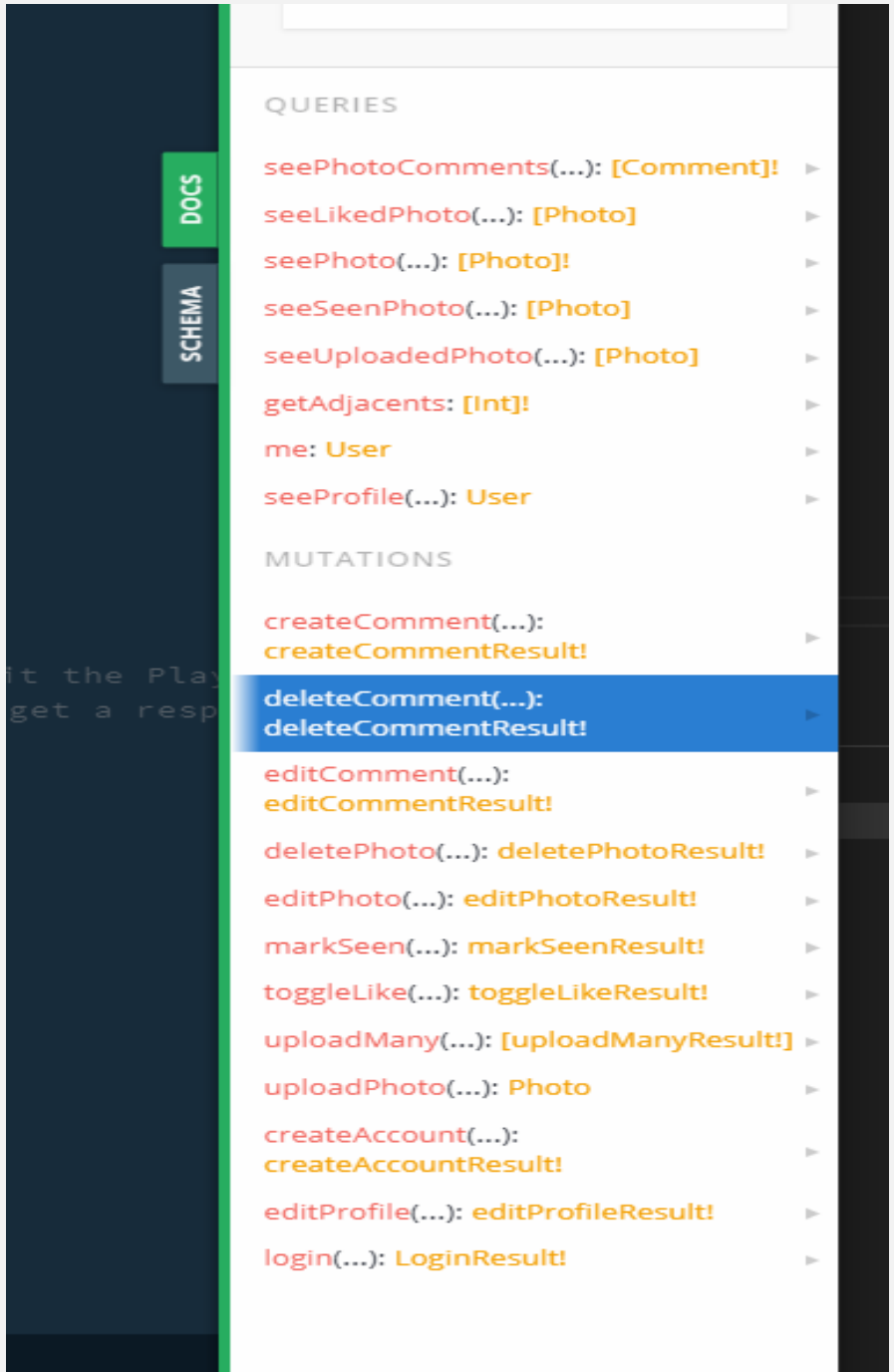
2

Backend
-Tools

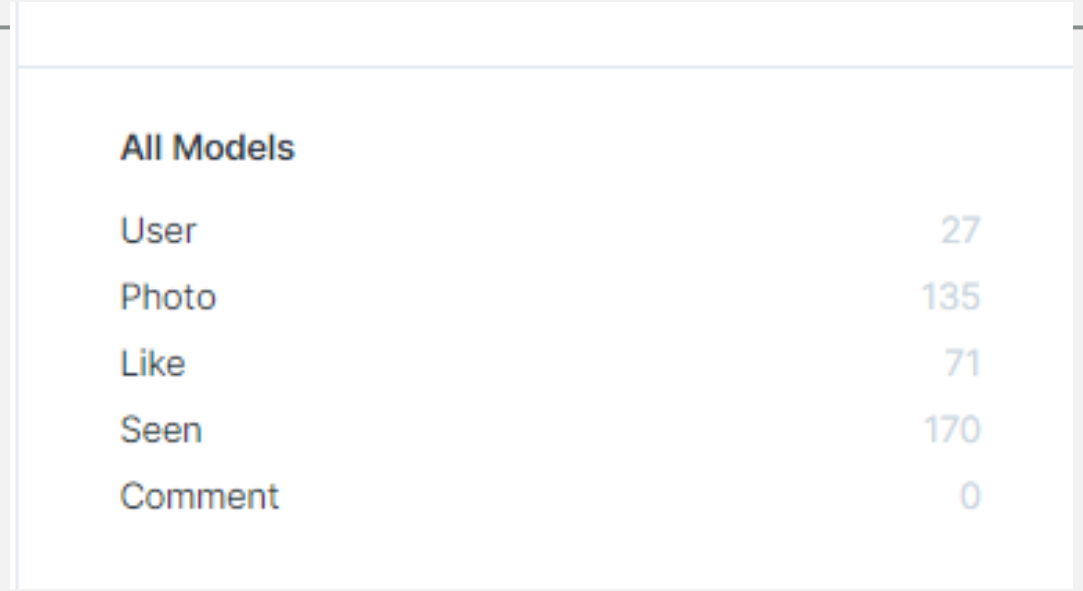


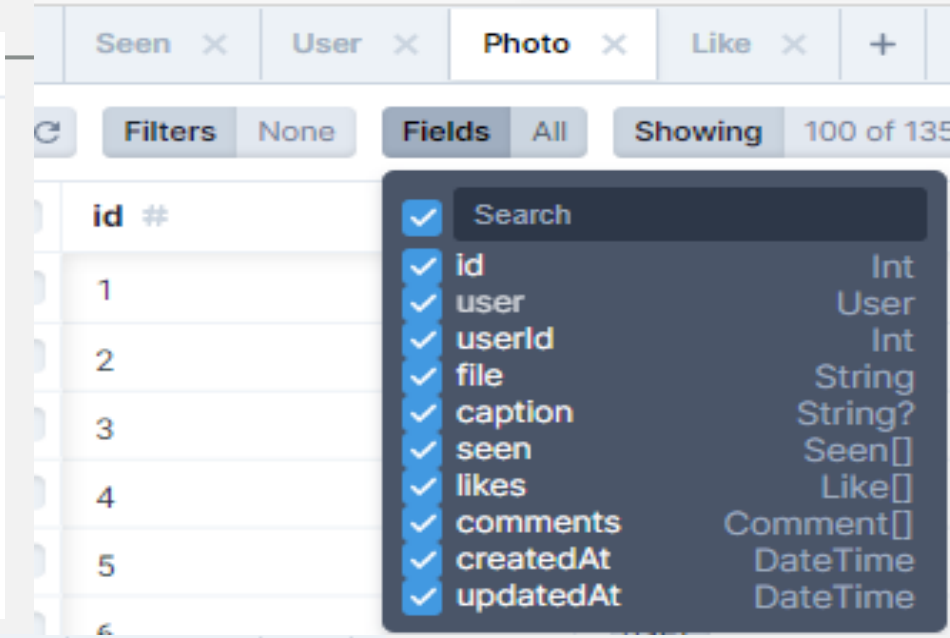
2

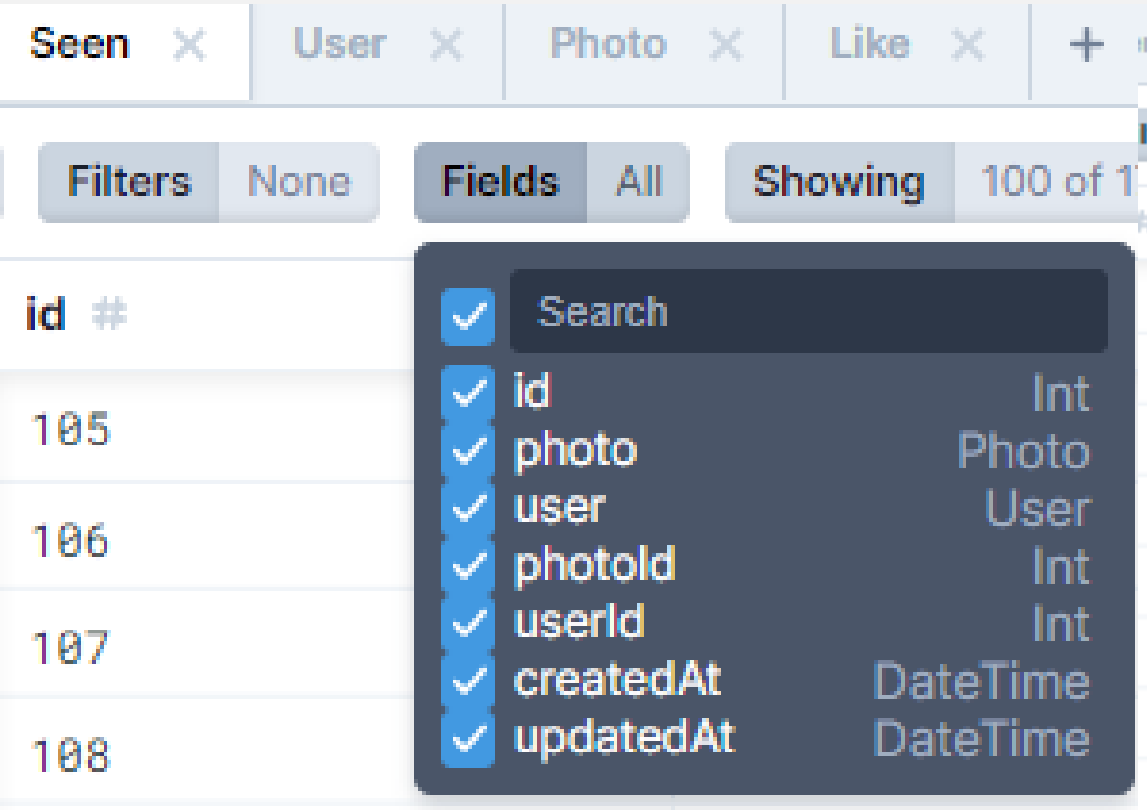
Backend
-Function_Detail

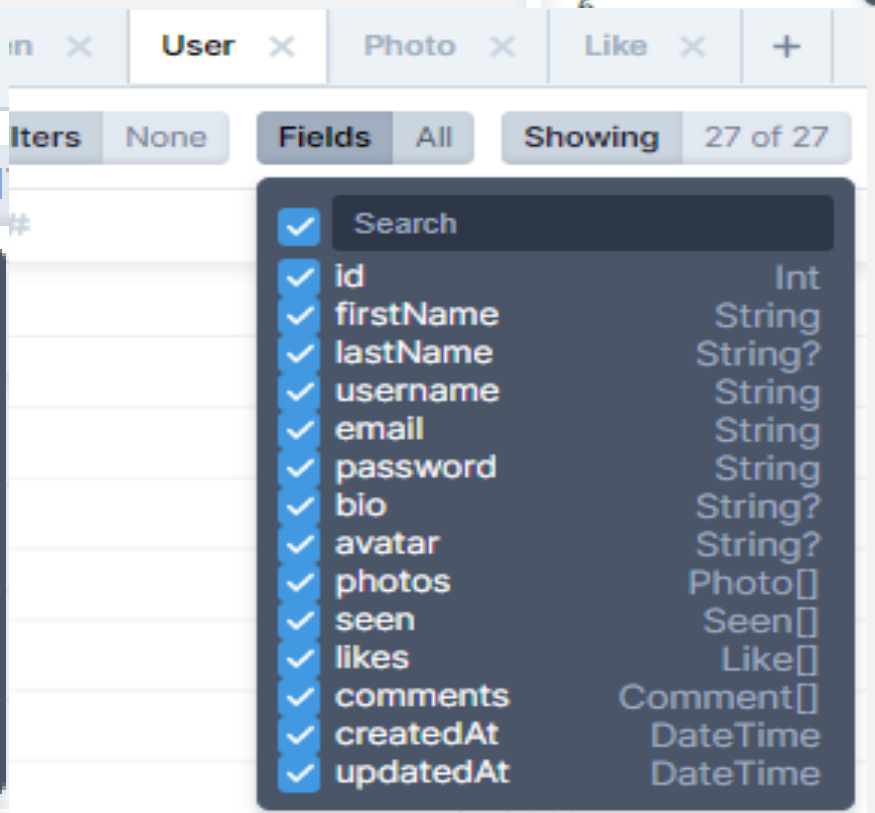


2 DB Models



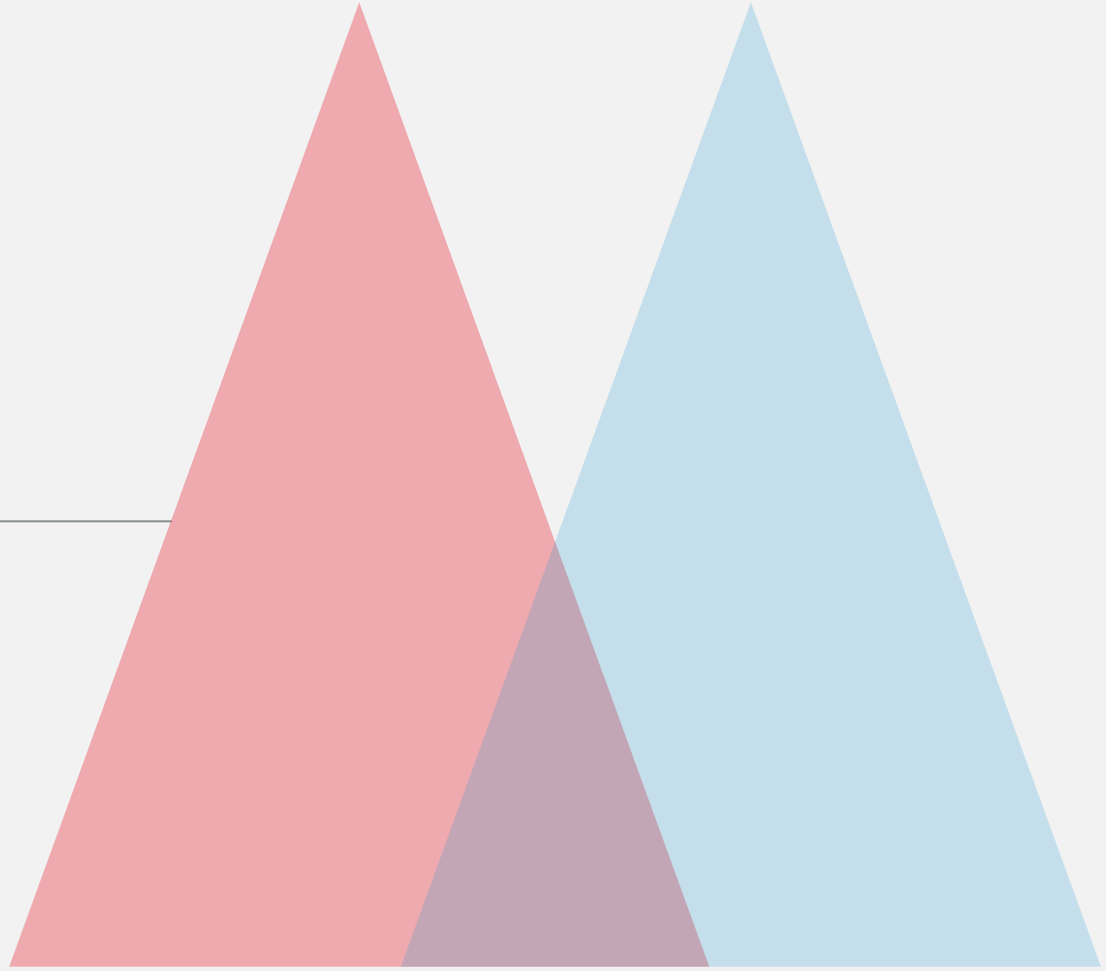






002-2

데이터 수집 및 처리



2 데이터 수집

```
def scroll_down(driver):
    SCROLL_PAUASE_TIME = 5

    while True:
      time.sleep(SCROLL_PAUASE_TIME)

      last_height = driver.execute_script("return document.body.scrollHeight")

      driver.execute_script("window.scrollTo(0, document.body.scrollHeight);")

      time.sleep(SCROLL_PAUASE_TIME)

      new_height = driver.execute_script("return document.body.scrollHeight")

      if new_height == last_height:

          driver.execute_script("window.scrollTo(0, document.body.scrollHeight);")

          time.sleep(SCROLL_PAUASE_TIME)

          new_height = driver.execute_script("return document.body.scrollHeight")

          if new_height == last_height:
              break

          else:
              last_height = new_height
              continue
```

2

데이터 수집

```
chrome_options = Options()
chrome_options.add_argument('--no-sandbox')
chrome_options.add_argument('--disable-dev-shm-usage')

driver = webdriver.Chrome(options=chrome_options)

print('open chrome')

search_words = ['감성문구', '예쁜 문구', '예쁜 글귀', '프사하기 좋은 글귀', '행복한 문구', '짧은 문구', '위트있는 문구', '예쁜 시', '명언 글귀', '멋진 글귀']

daum_data_lst = pickle.load(open('daum_data_lst.p', 'rb'))

print('load pickle file')
```

2

데이터 수집

```
for i in range(1, len(search_words)):
  print()
  print(f'{i}번째')
  pre_word = search_words[i-1]
  search_word = search_words[i]
  url = 'https://search.daum.net/search?w=img&m=&q='₩
  + search_word₩
  + '&nzq='₩
  + pre_word₩
  + 'DA=NSJ'
  driver.get(url)
  print('url get')

  scroll_down(driver)
  print('scroll_down')

  req = driver.page_source
  soup = BeautifulSoup(req, 'html.parser')

  thumbnails = soup.select('#imgList > div > a > img')

  print('select soup')

  lst_len = len(daum_data_lst)

  for idx, thumbnail in enumerate(thumbnails):
    # src가 이미지 url임!
    src = thumbnail['src']
    a = {}
    a['id_num'] = lst_len + idx
    a['from'] = 'daum'
    a['data'] = src
    a['type'] = 'img'
    daum_data_lst.append(a)

  print('data extract')
```

2

Noise 데이터 제거

```
noise = [14, 16, 17, 24, 26, 27, 28, 30, 31, 34, 35, 36, 38, 44, 46, 47, 48, 49, 50, 53, 55, 56, 57
         109, 111, 115, 117, 118, 119, 120, 125, 131, 132, 134, 138, 139, 143, 145, 146, 147, 150,
         193, 194, 196, 197, 200, 201, 203, 204, 208, 209, 210, 211, 212, 214, 215, 217, 219, 220,
         252, 254, 255, 256, 259, 264, 266, 267, 277, 280, 284, 293, 294, 302, 303, 305, 306, 310,
         366, 373, 380, 383, 386, 387, 388, 391, 392, 393, 404, 409, 410, 411, 415, 418, 419, 420,
         460, 461, 462, 463, 464, 466, 468, 470, 473, 475, 477, 480, 481, 482, 483, 484, 485, 487,
         514, 516, 517, 518, 519, 520, 522, 523, 525, 527, 529, 530, 531, 532, 534, 535, 536, 537,
         563, 564, 565, 566, 567, 568, 570, 571, 572, 573, 574, 577, 579, 580, 581, 582, 583, 584,
         619, 620, 621, 622, 623, 625, 628, 629, 630, 631, 632, 633, 634, 636, 637, 638, 639, 640,
         685, 687, 688, 689, 690, 691, 693, 694, 696, 697, 698, 700, 711, 763, 773, 797, 801, 812,
         1023, 1024, 1025, 1026, 1033, 1040, 1041, 1042, 1045, 1047, 1048, 1049, 1050, 1051, 1052,
         1095, 1096, 1102, 1106, 1110, 1115, 1120, 1126, 1128, 1133, 1134, 1136, 1137, 1139, 1142,
         1256, 1262, 1265, 1269, 1274, 1275, 1279, 1280, 1282, 1283, 1284, 1285, 1286, 1287, 1288,
         1305, 1306, 1307, 1308, 1311, 1313, 1314, 1315, 1316, 1317, 1318, 1319, 1320, 1321, 1322,
         1344, 1345, 1346, 1347, 1348, 1351, 1352, 1353, 1355, 1357, 1358, 1359, 1360, 1361, 1362,
         1384, 1385, 1386, 1387, 1388, 1389, 1390, 1391, 1392, 1394, 1396, 1397, 1398, 1399, 1400,
         1417, 1418, 1419, 1420, 1422, 1423, 1424, 1425, 1426, 1427, 1428, 1429, 1430, 1431, 1432,
         1450, 1451, 1454, 1455, 1456, 1457, 1458, 1459, 1460, 1461, 1462, 1463, 1464, 1465, 1467,
```

```
plus = [n for n in range(2101, 2401)]
print(plus[0], plus[-1])
start = 2849
print(len(noise))
noise += plus
noise.sort()
len(noise)
```

2

Noise 데이터 제거

```
for i in range(start, len(full_data_lst)):
    url = full_data_lst[i]['data']
    res = requests.get(url)
    request_get_img = Image.open(BytesIO(res.content))
    display.clear_output(wait=True)
    plt.imshow(request_get_img)
    plt.title(f'step: {i}')
    plt.show()
    time.sleep(2)
```

```
for i in range(len(full_data_lst)):
    full_data_lst[i]['url'] = full_data_lst[i]['data']
    del full_data_lst[i]['data']
    del full_data_lst[i]['from']
```

```
dic = {}
for i in noise:
    dic[i] = True
for i in range(len(full_data_lst)):
    if dic.get(i, False):
        full_data_lst[i] = None
full_data_lst[10:20]
```

2 이미지 크기 조정

```
# png파일로 변환해서 저장

for i in range(len(full_data_lst)):
    try:
        url = full_data_lst[i]['url']
        res = requests.get(url)
        request_get_img = Image.open(BytesIO(res.content))
        resize_img = request_get_img.resize(size=(750 // 4, 1334 // 4))
        display.clear_output(wait=True)
        plt.imshow(resize_img)
        plt.title(f'step: {i}')
        plt.show()
        resize_img.save('drive/MyDrive/img_data/img_{:0>4}'.format(i), 'png')
    except:
        continue
```

2

AutoEncoder (실패)

```
def get_hr_and_lr(image_path):
    img = tf.io.read_file(image_path)
    img = tf.image.decode_jpeg(img, channels=3)
    img = tf.image.convert_image_dtype(img, tf.float32)

    hr = tf.image.random_crop(img, [80, 80, 3])
    lr = tf.image.resize(hr, [20, 20])
    lr = tf.image.resize(lr, [80, 80])
    return hr, lr
```

- hr : 고화질 원본 데이터
- lr : 임의로 화질을 저하시킨 데이터

2

개발 과정

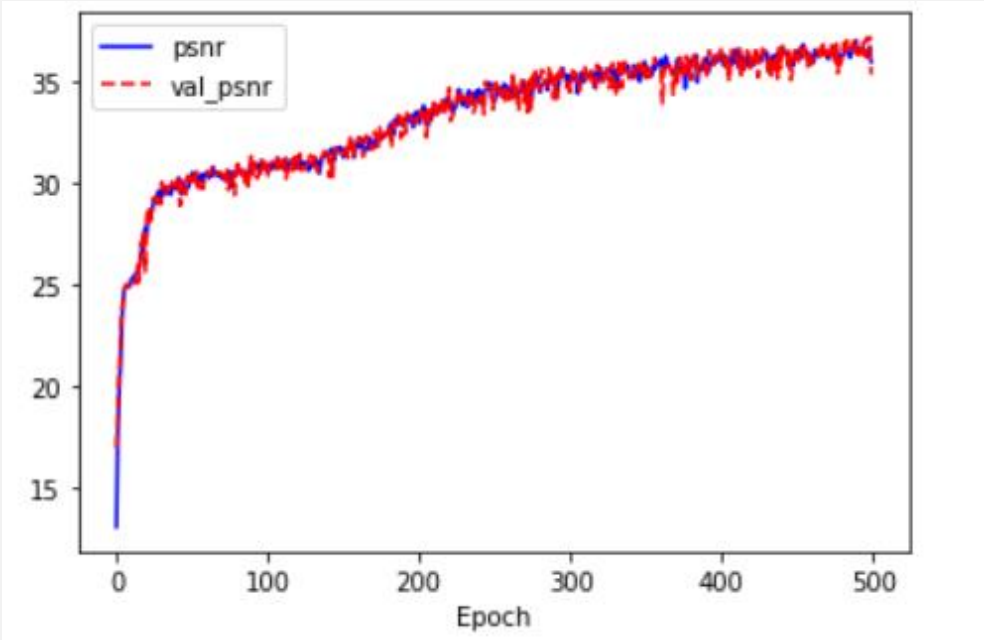
```
def REDNet(num_layers):
    conv_layers = []
    deconv_layers = []
    residual_layers = []

    inputs = tf.keras.layers.Input(shape=(None, None, 3))
    conv_layers.append(tf.keras.layers.Conv2D(3, kernel_size=3, padding='same', activation='relu'))

    for i in range(num_layers-1):
        conv_layers.append(tf.keras.layers.Conv2D(64, kernel_size=3, padding='same', activation='relu'))
        deconv_layers.append(tf.keras.layers.Conv2DTranspose(64, kernel_size=3, padding='same', activation='relu'))

    deconv_layers.append(tf.keras.layers.Conv2DTranspose(3, kernel_size=3, padding='same'))

    # 인코더 시작
    x = conv_layers[0](inputs)

    for i in range(num_layers-1):
        x = conv_layers[i+1](x)
        if i % 2 == 0:
            residual_layers.append(x)

    # 디코더 시작
    for i in range(num_layers-1):
        if i % 2 == 1:
            x = tf.keras.layers.Add()([x, residual_layers.pop()])
            x = tf.keras.layers.Activation('relu')(x)
        x = deconv_layers[i](x)

    x = deconv_layers[-1](x)

    model = tf.keras.Model(inputs=inputs, outputs=x)
```

오토인코더 모델중 REDNet 모델을 이용

2

개발 과정

```
plt.plot(history.history['psnr_metric'], 'b-', label='psnr')
plt.plot(history.history['val_psnr_metric'], 'r--', label='val_psnr')
plt.xlabel('Epoch')
plt.legend()
plt.show()
```



2

Psnr 점수 계산

```
img = tf.io.read_file(test_path[0])
img = tf.image.decode_jpeg(img, channels=3)
hr = tf.image.convert_image_dtype(img, tf.float32)

lr = tf.image.resize(hr, [hr.shape[0] // 2, hr.shape[1] // 2])
lr = tf.image.resize(lr, [hr.shape[0], hr.shape[1]])
predict_hr = model.predict(np.expand_dims(lr, axis=0))

print('sr_psnr:',tf.image.psnr(np.squeeze(predict_hr, axis=0), hr, max_val=1.0))
print('lr_psnr:',tf.image.psnr(lr, hr, max_val=1.0))
```

```
sr_psnr: tf.Tensor(24.14708, shape=(), dtype=float32)
lr_psnr: tf.Tensor(27.810328, shape=(), dtype=float32)
```

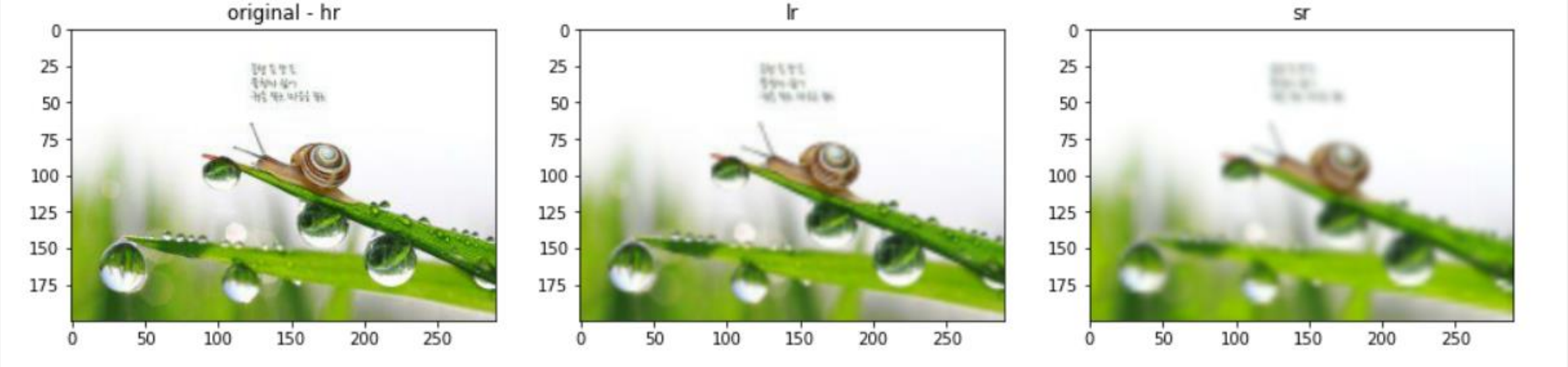
2

실제 사진 비교

```
plt.figure(figsize=(16, 4))

plt.subplot(1, 3, 1)
plt.imshow(hr)
plt.title('original - hr')

plt.subplot(1, 3, 2)
plt.imshow(lr)
plt.title('lr')

plt.subplot(1, 3, 3)
plt.imshow(np.squeeze(predict_hr, axis=0))
plt.title('sr')

plt.show()
```

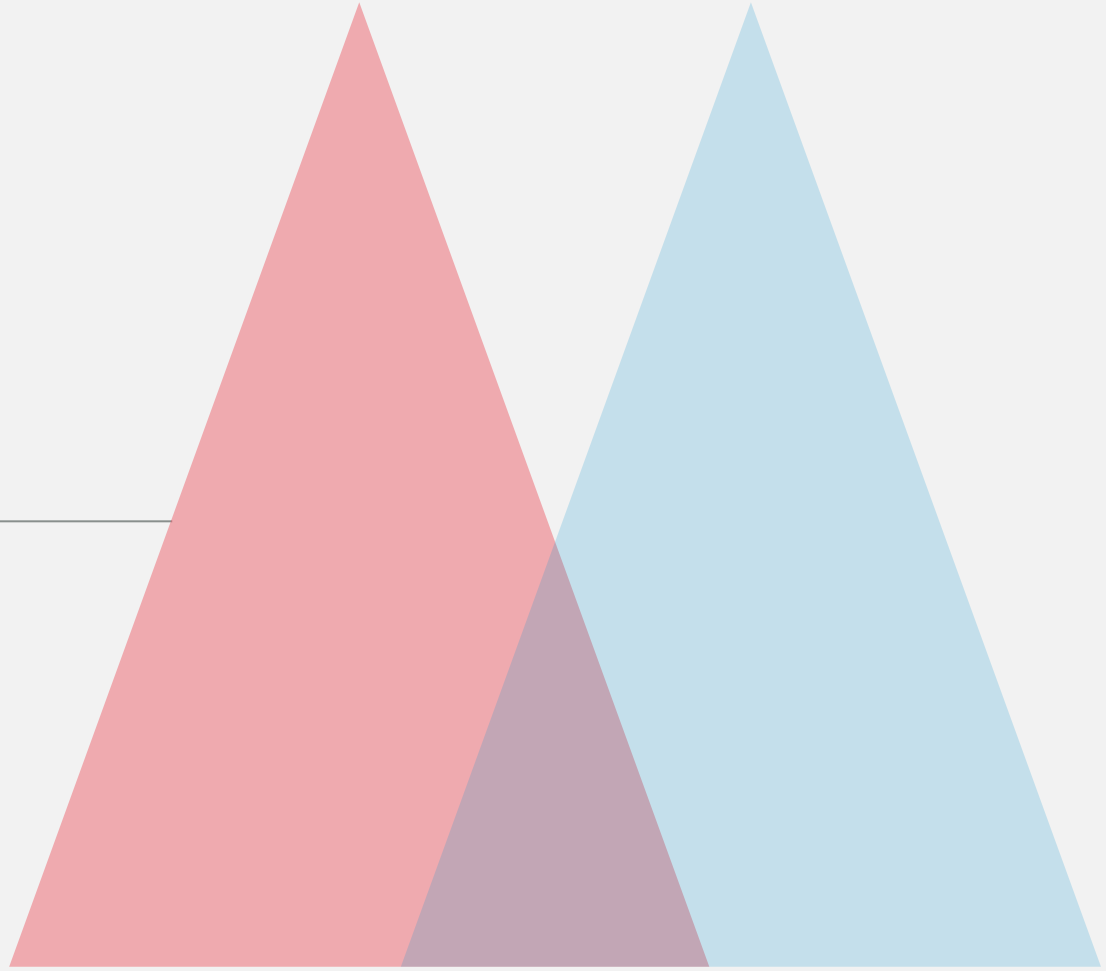
2

실제 사진 비교



002-3

머신러닝 : 협업 필터링



2

협업 필터링 이란?

- 사용자와 항목의 유사성을 동시에 고려해 추천
- 기존에 내 관심사가 아닌 항목이라도 추천 가능
- 학습과정에 나오지 않은 항목은 추천불가

2

머신러닝 알고리즘

```
for (let user_idx=0; user_idx<allUserId.length; user_idx++) {
    matrix[user_idx] = new Array(allPhotoId.length).fill(0);
    const likes = await client.like.findMany({
        where : {
            userId : allUserId[user_idx]
        },
        select : {
            photoId : true,
        }
    })
    const likeIdList = likes.map(obj=>obj.photoId);
    for (let idx=0; idx<likeIdList.length; idx++){
        matrix[user_idx][allPhotoId.indexOf(likeIdList[idx])] = 1;
    }
}
// make matrix
```

2 머신러닝 알고리즘

```
const me_idx = allUserId.indexOf(loggedInUser.id);
let result = [];
for (let user_idx=0; user_idx<allUserId.length; user_idx++){

    if (user_idx!==me_idx){
        //where algorithm used
        result[user_idx] = [allUserId[user_idx], cosinesim(matrix[me_idx], matrix[user_idx]) || 0];
    }
}
result = result.filter(Boolean)
result.sort(function(b, a) {
    return a[1] - b[1];
}); //result = adjacent users sorted by cosine similarity
console.log(result);
```

```
{ id: 1, username: 'manager' }
[
  [ 10, 0.6708203932499369 ],
  [ 32, 0.6708203932499369 ],
  [ 11, 0.5976143046671968 ],
  [ 2, 0.5656854249492379 ],
  [ 3, 0.5163977794943223 ],
  [ 9, 0.5163977794943223 ],
  [ 14, 0.4743416490252569 ],
  [ 13, 0.3651483716701107 ],
  [ 12, 0.31622776601683794 ],
  [ 16, 0.31622776601683794 ],
  [ 30, 0.22360679774997896 ],
  [ 31, 0.22360679774997896 ],
  [ 15, 0 ],
  [ 17, 0 ],
  [ 18, 0 ],
  [ 19, 0 ],
  [ 20, 0 ],
  [ 21, 0 ],
  [ 22, 0 ],
  [ 23, 0 ],
  [ 24, 0 ],
  [ 25, 0 ],
  [ 26, 0 ],
  [ 27, 0 ],
  [ 28, 0 ],
  [ 29, 0 ]
]
```

```
1   export function cosinesim(A,B){
2       var dotproduct=0;
3       var mA=0;
4       var mB=0;
5       for(let i = 0; i < A.length; i++){
6           dotproduct += (A[i] * B[i]);
7           mA += (A[i]*A[i]);
8           mB += (B[i]*B[i]);
9       }
10      mA = Math.sqrt(mA);
11      mB = Math.sqrt(mB);
12      var similarity = (dotproduct)/((mA)*(mB))
13      return similarity;
14  }
```

2 머신러닝 알고리즘

```
export default{
    Query: {
        seePhoto: protectedResolver(async(_, {list, offset},props) => {
            if (list.length<1){
                return null
            }
            const photolist = await client.photo.findMany({
                take: 1,
                skip: offset,
                where :  {
                    id : { in : list}
                }

            })
            return photolist
})
    }}
```

```
[
   14,   22,   23,   24,   25,   26,   27,   28,
   29,   30,   31,   32,   33,   34,   35,   36,
   37, 1342, 1343, 1344, 1345, 1346, 1347, 1348,
 1349, 1350, 1351, 1352, 1353, 1354, 1355, 1356,
 1357, 1358, 1359, 1360, 1361, 1362, 1363, 1364,
 1365, 1366, 1367, 1368, 1369, 1370, 1371, 1372,
 1373, 1374
]
```

2

머신러닝 알고리즘

```
const PHOTO_RECOMMEND = gql`
  query getAdjacents{
    getAdjacents
  }
`;
const PHOTO_QUERY = gql`
  query seePhoto( $list : [Int], $offset: Int!) {
    seePhoto(list: $list, offset: $offset) {
      id
      user{
        id
        username
      }
      file
      comments{
        id
      }
      commentNumber
      likesNumber
      isLiked
    }
  }
`;
```

```
const { data : recommendData, loading} = useQuery(PHOTO_RECOMMEND)
const photoList = recommendData?.getAdjacents
const { data : userData } = useMe();
const { data, loading : renderingPhoto, refetch, fetchMore} = useQuery(PHOTO_QUERY, {
  variables : {
    offset : 0,
    list : photoList,
  }
})
```

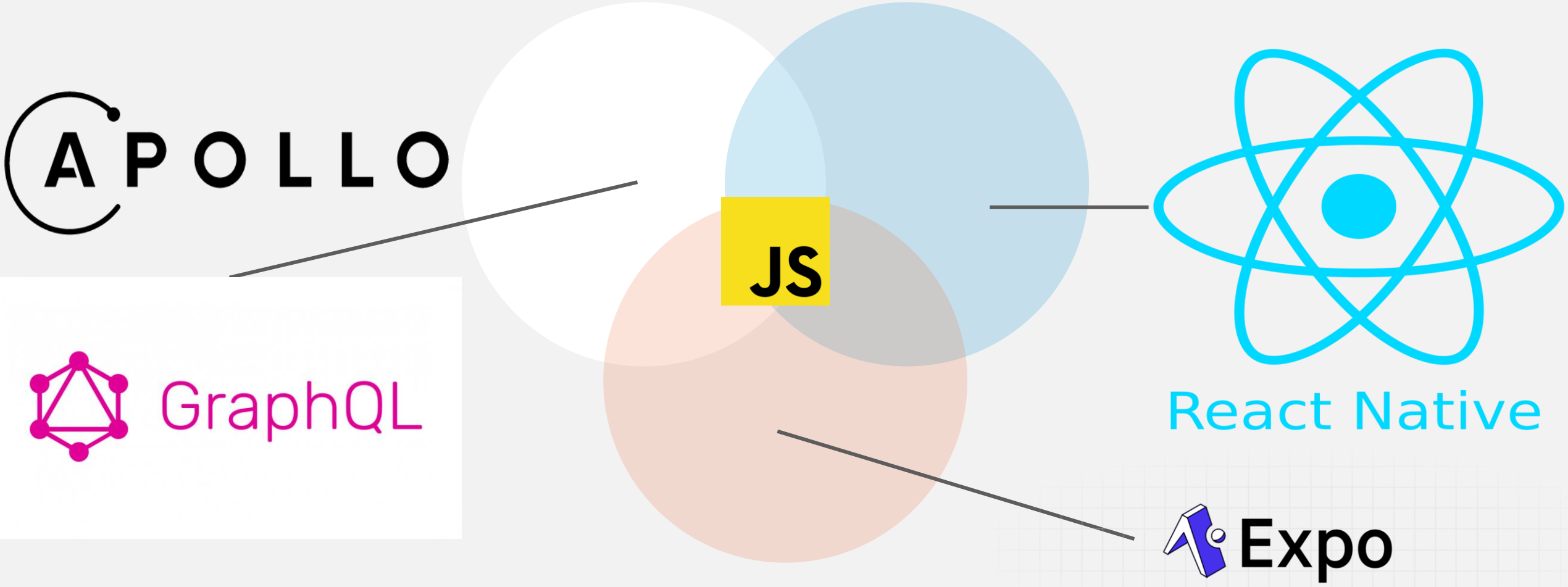
003

애플리케이션 소개

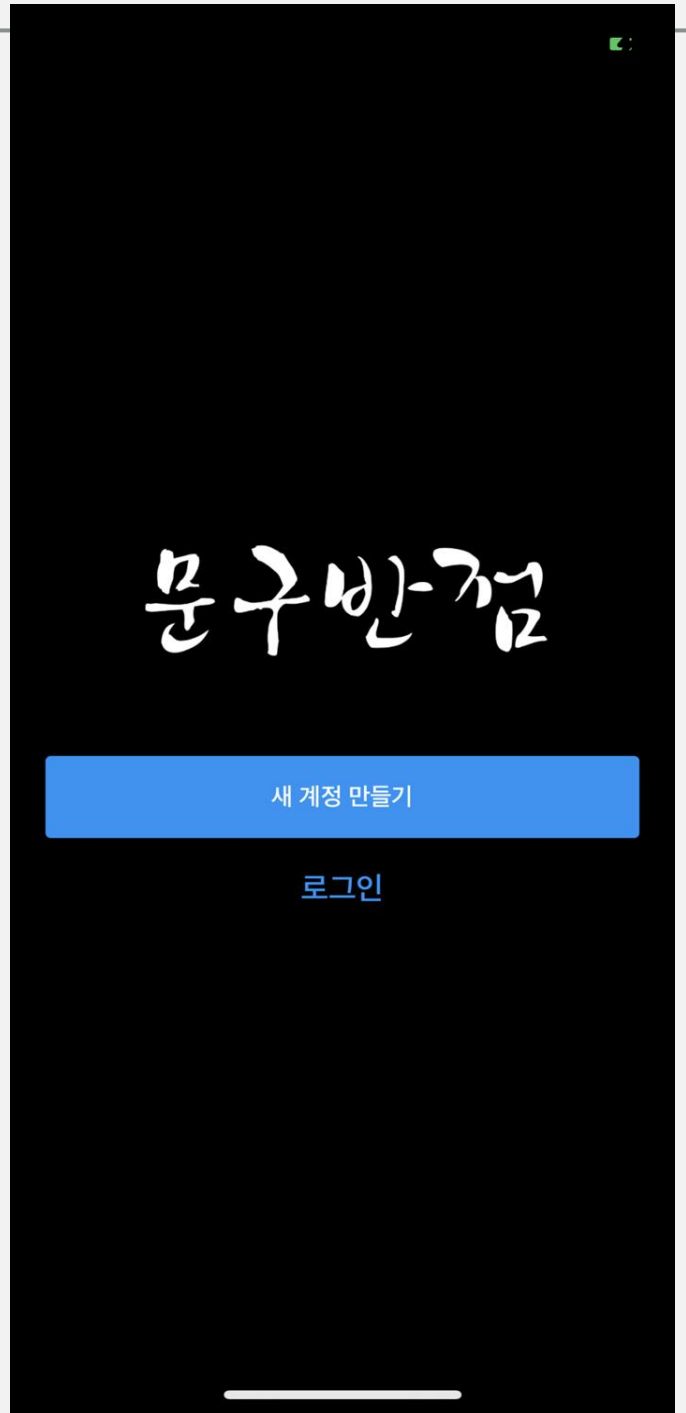
Expo

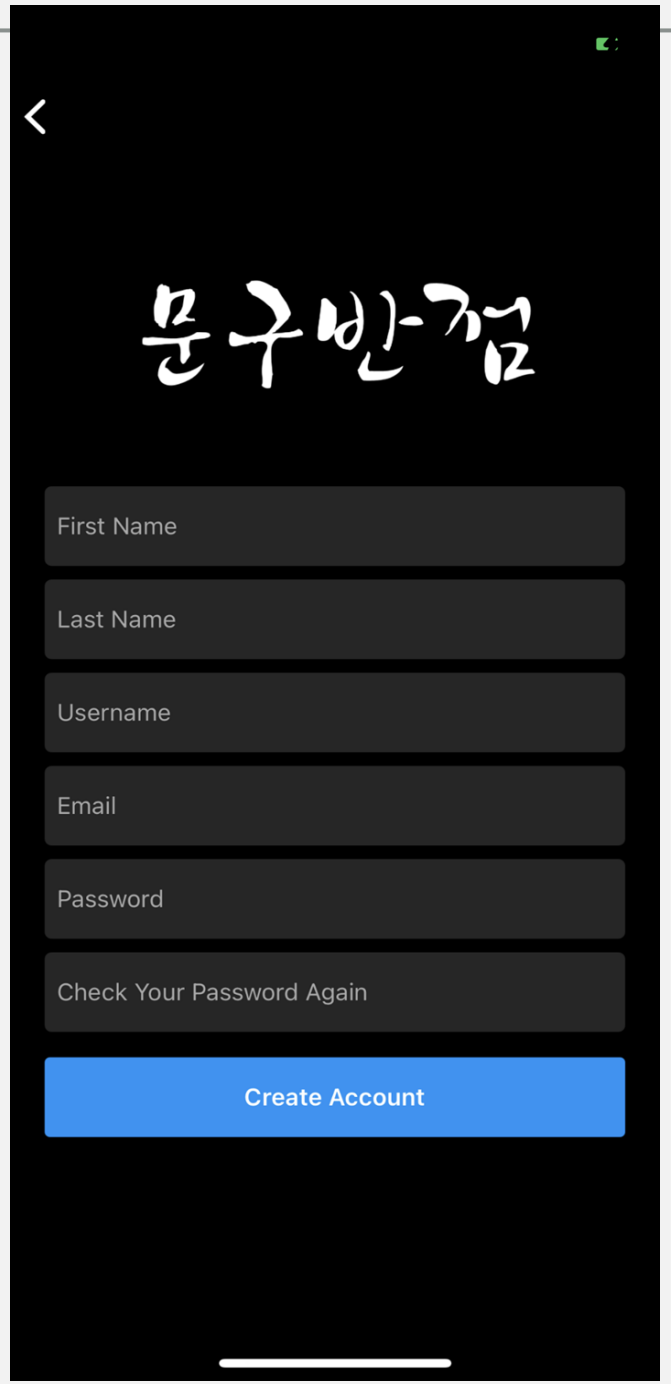
exp://mr-hja.gwihwan-go.frontend.exp.direct:80

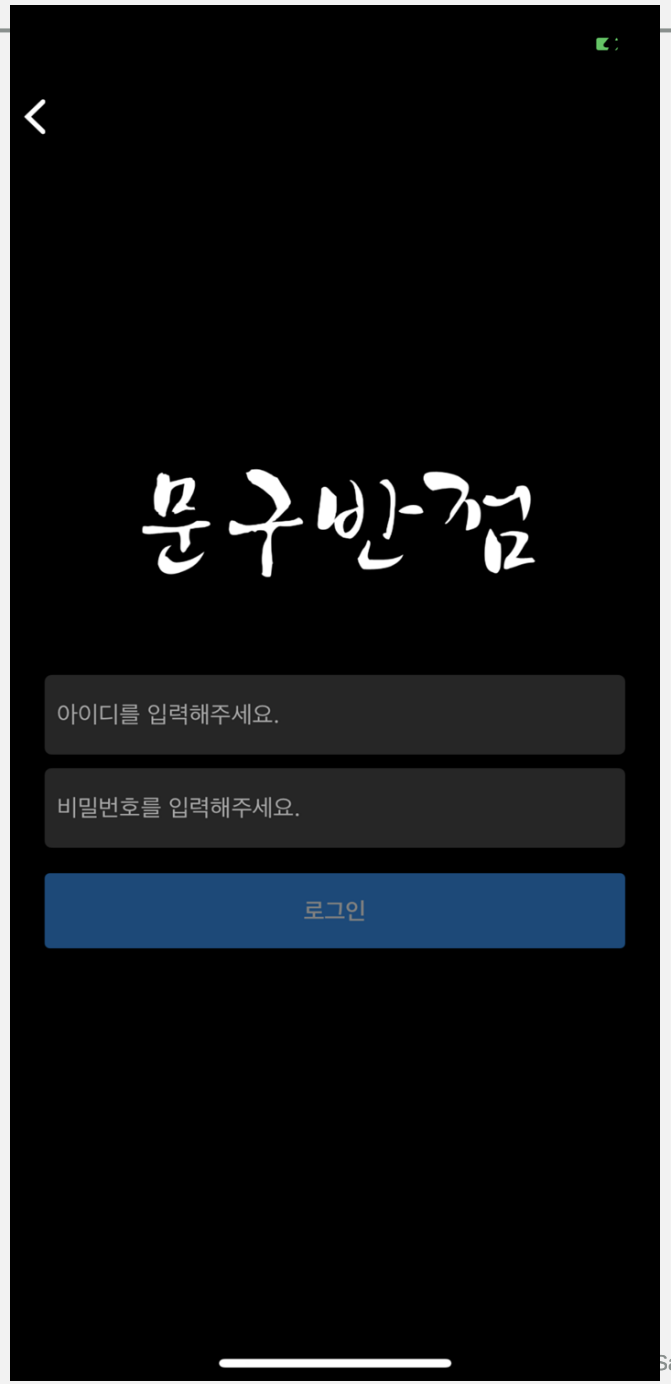
3 애플리케이션 사용된 도구



3







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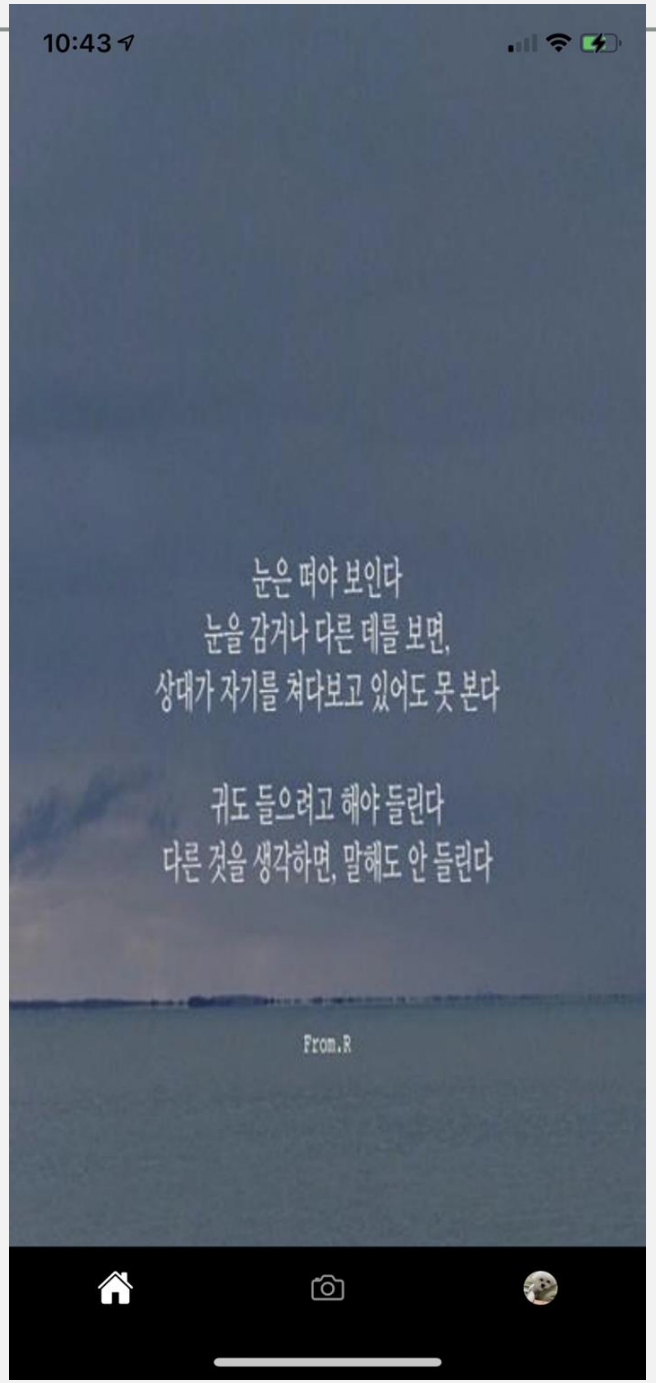

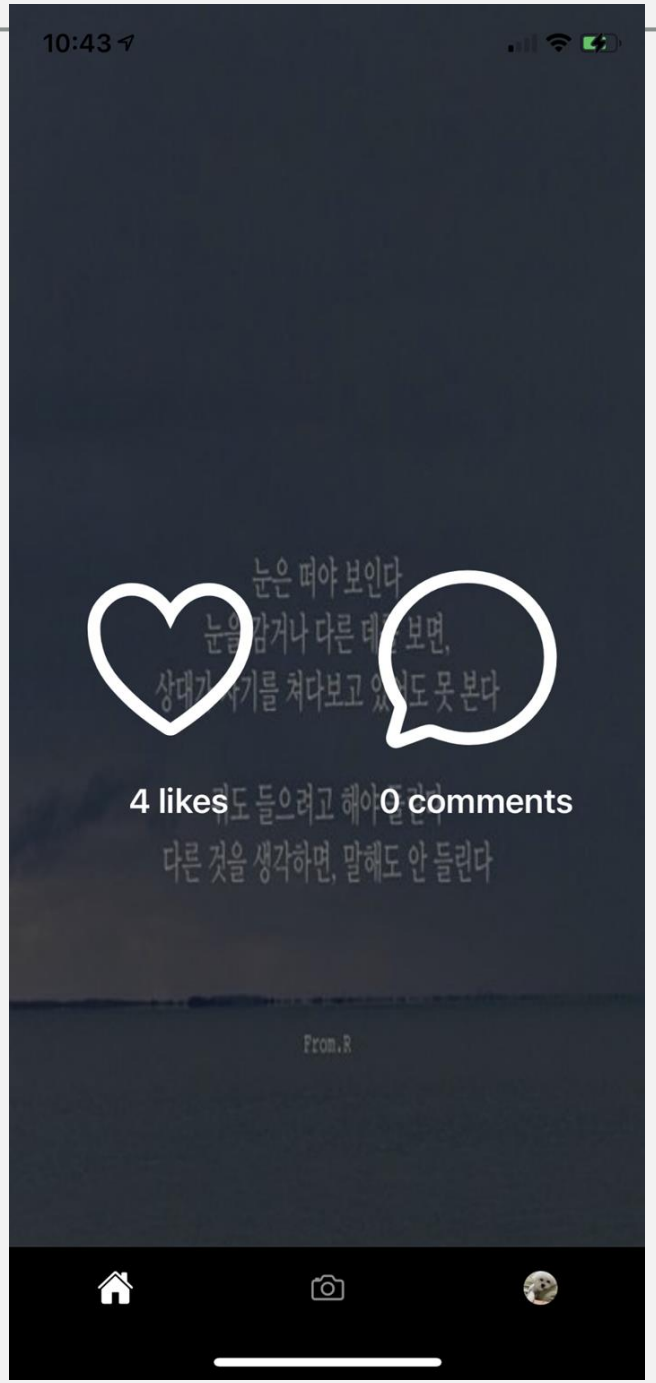

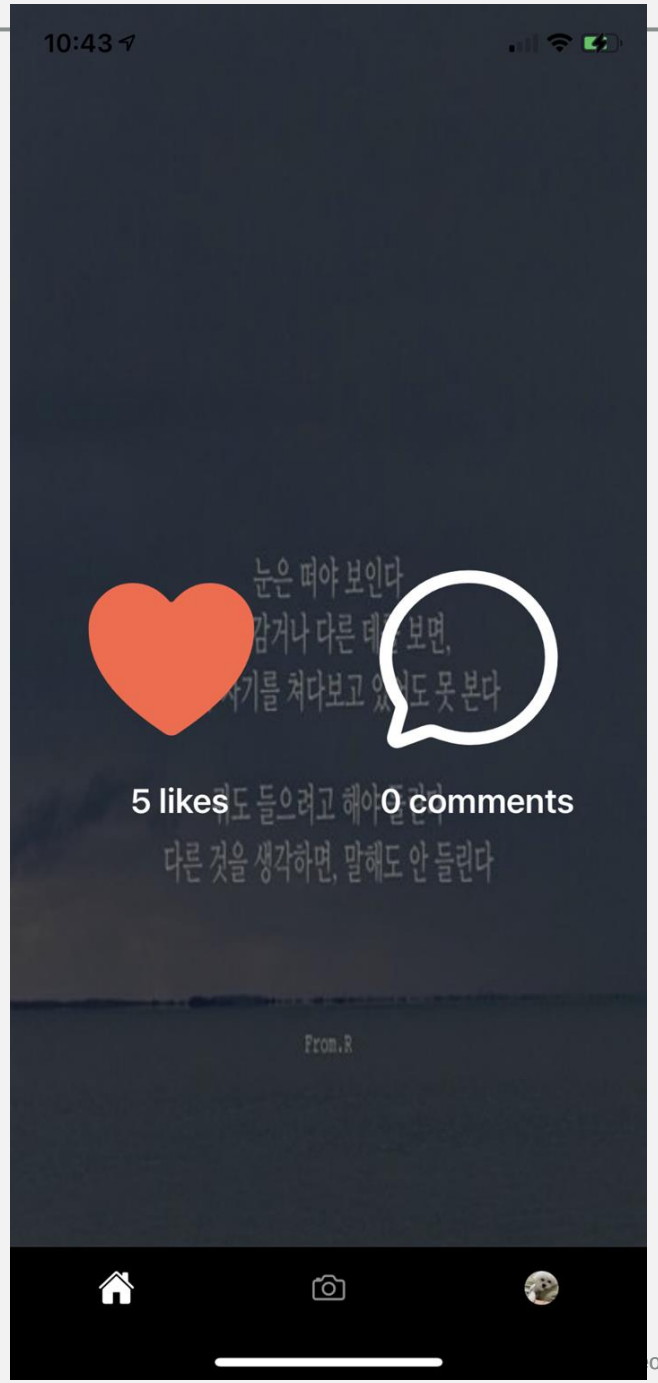

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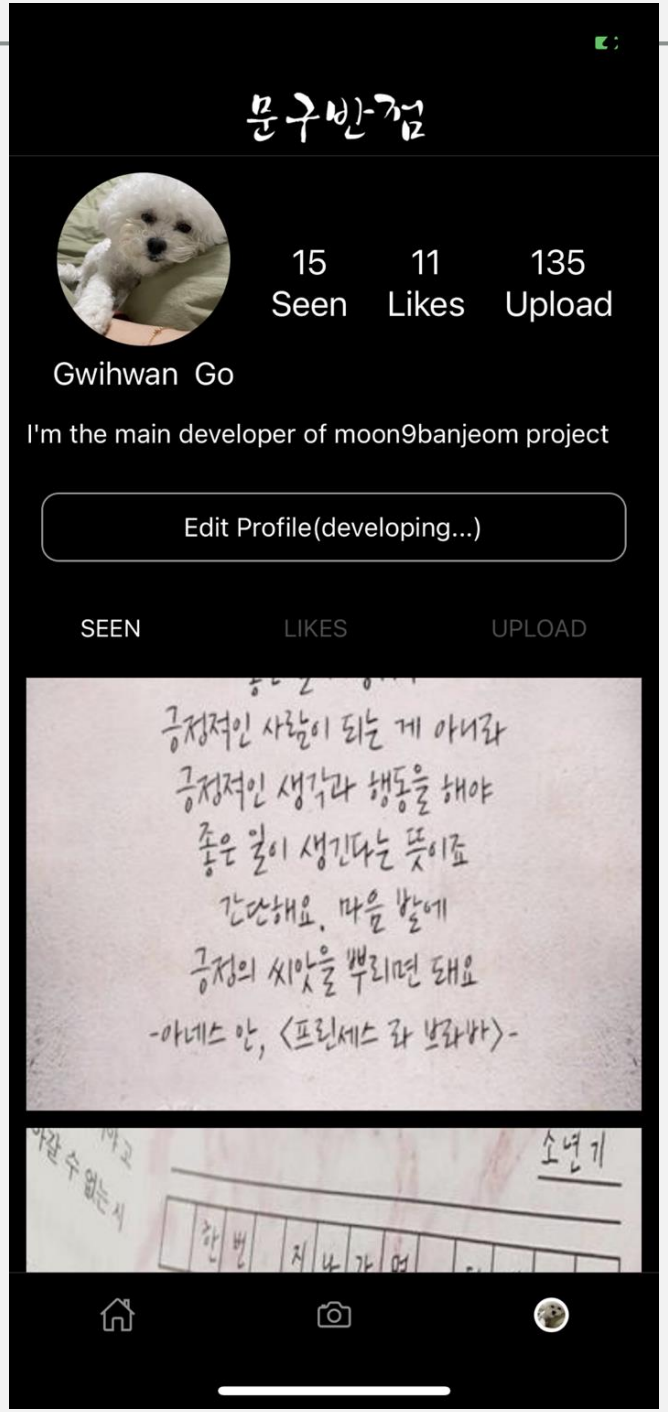
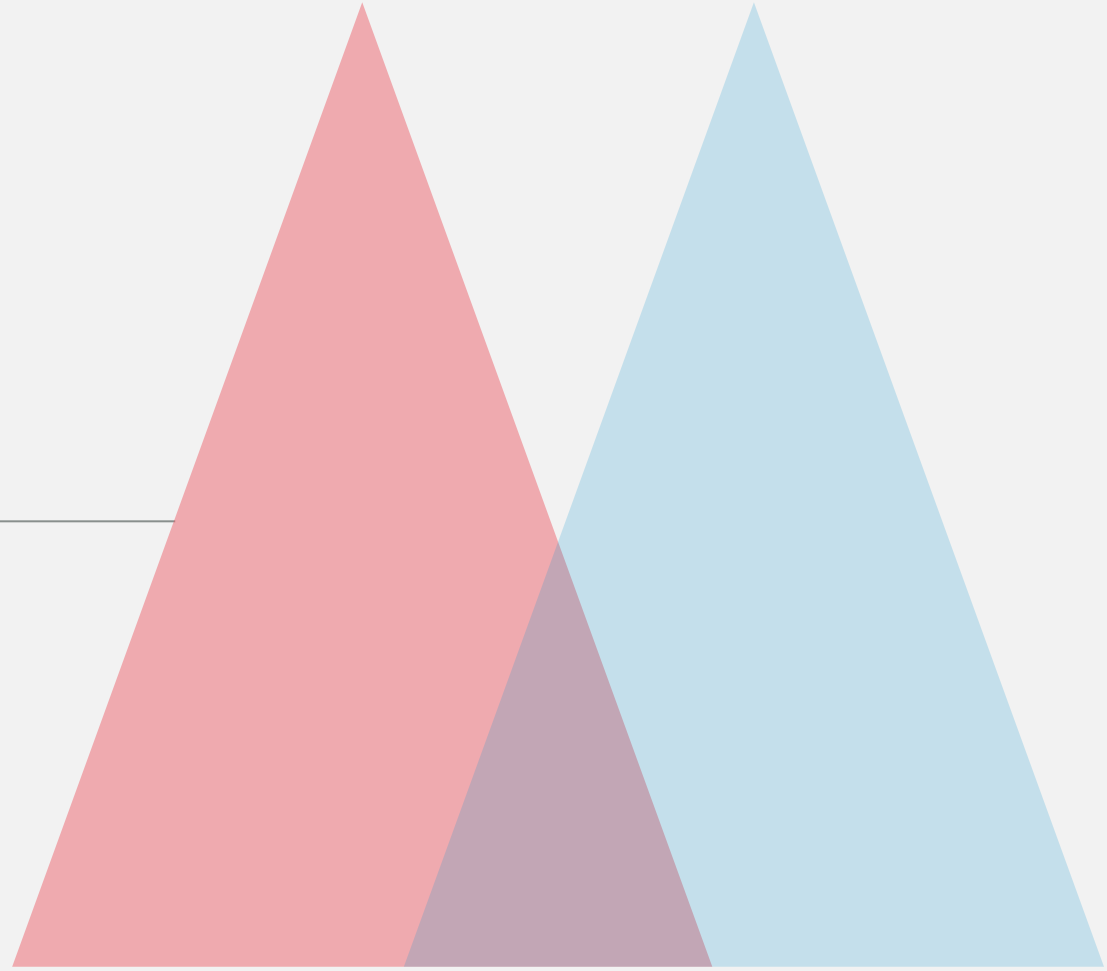


004

차후 계획



4

차후 계획

1. 저작권 문제 해결
2. 미완성된 기능 구현
    a. 프로필 수정
    b. 사진 업로드 기능
3. 유저의 자체적인 사진 업로드를 독려하고 유저 자체 share-approval 의 block-chain like 커뮤니티화가 목표
    a. 유저에게 회원 등급 부여
    b. 유저가 업로드한 사진은 다른 유저들의 승인을 받아야 하는데, 유저의 등급이 높으면 강한 승인 권한을 행사 가능함