

COMS6998 Cloud Computing & Big Data Team Project

Magic Barber

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Website URL: <http://magicbarber.s3-website-us-east-1.amazonaws.com>

GitHub Repo: <https://github.com/jenniferduan45/Magic-Barber>

About Magic Barber

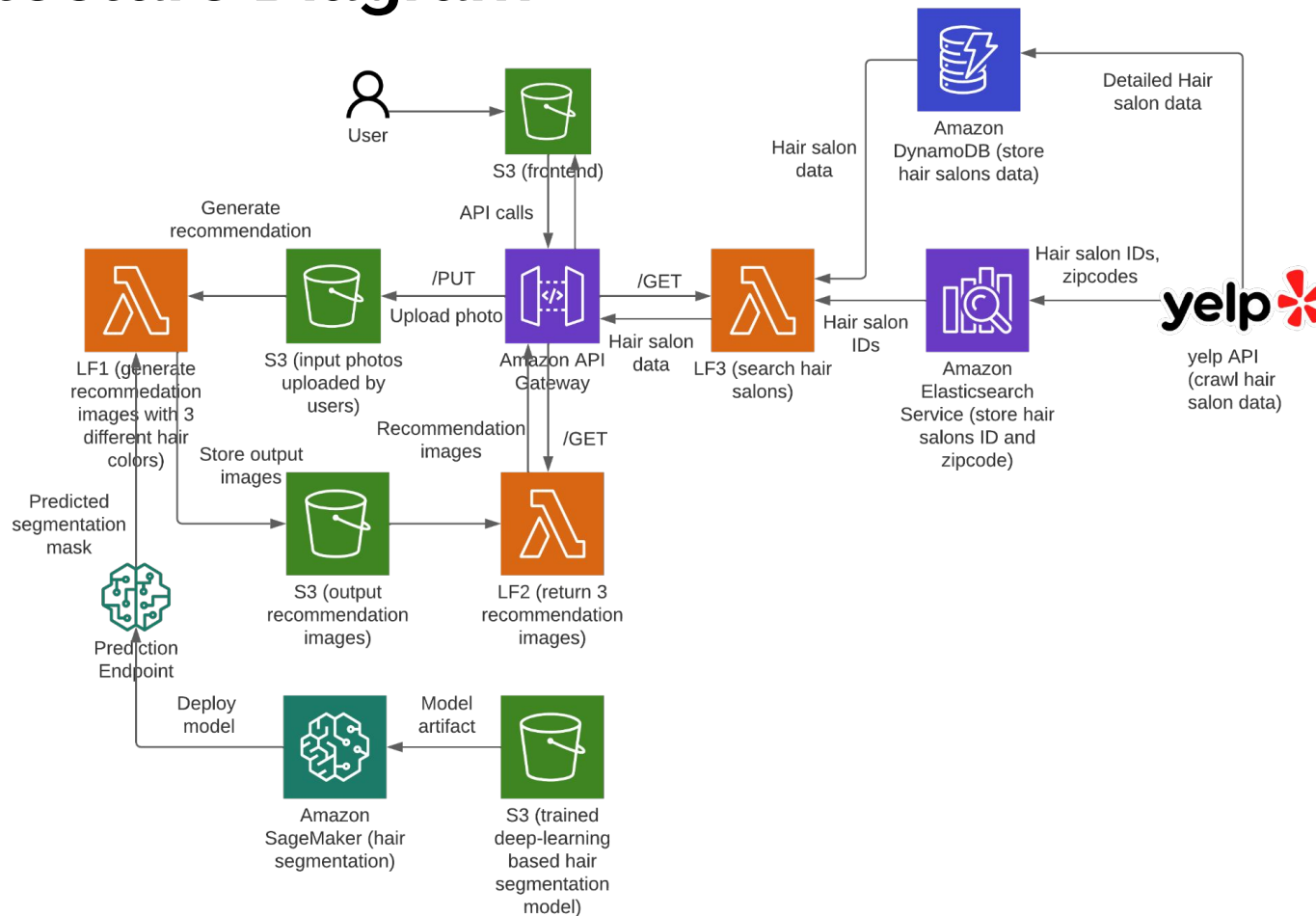
What color to dye?

Choosing a hair color to dye can be difficult because we cannot predict the effect of hair coloring in advance. Before we get our hair dyed in specific colors, we may want to know what these colors look like in our hair and if they are suitable. Therefore, we would like to help people who want a hair dye to decide which color to choose.

Where to dye?

It is also quite important for people to find the nearest barber's around them after they decide what color to dye. Therefore, people can navigate through tons of real barber's around them by simply entering their zip code in the search bar.

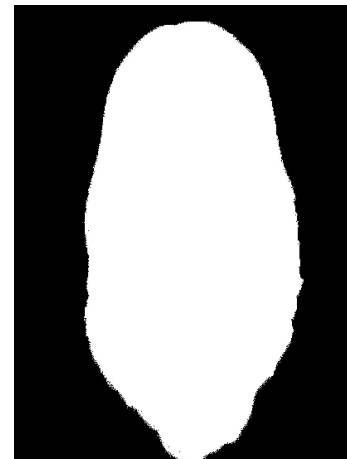
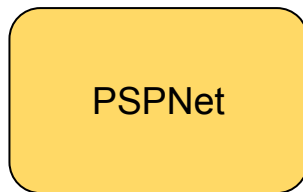
Architecture Diagram



Sagemaker



- ❑ Model: Pyramid Scene Parsing Network (PSPNet)
- ❑ DataSet: Figaro 1K (841 for training, 241 for testing)
- ❑ Model is trained locally and deployed to an endpoint





DynamoDB, Elastic Search, and Yelp API

- ❑ Getting Barber shop data by calling Yelp API, extract certain attributes for next step
- ❑ Upload data to Elasticsearch and make sure it is succeed

| Attributes | | |
|--|---|--------|
| <input checked="" type="checkbox"/> Attribute name | Value | Type |
| business_id - Partition key | ERNuvVDvpK56RqZotkYTPw New | String |
| Address | 245 E Broadway, New York, NY, 10002 | String |
| image_url | https://s3-media2.flyelpcdn.com/bphoto/Pgpr9TSZXL47d6s5U4aOOg/o.jpg | String |
| Latitude | 40.71418 | String |
| Longitude | -73.98601 | String |
| name | 245 East Hair Studio | String |
| Number_of_Reviews | 17 | Number |
| phone | N/A | String |
| rating | 4.5 | Number |
| Zip_Code | 10002 | String |

```
(base) wangruisi@Wangs-MacBook-Pro-2 ~ % curl -XGET -u 'master:6998Cloud!' 'https://search-yelp-data-vvi2zbhvf6zva47xatv152w5v4.us-east-1.es.amazonaws.com/yelp-data/_search?q=10003&pretty=true'
{
  "took" : 27,
  "timed_out" : false,
  "_shards" : {
    "total" : 5,
    "successful" : 5,
    "skipped" : 0,
    "failed" : 0
  },
  "hits" : {
    "total" : {
      "value" : 7,
      "relation" : "eq"
    },
    "max_score" : 1.7917595,
    "hits" : [
      {
        "_index" : "yelp-data",
        "_type" : "doc",
        "_id" : "adbd710-ad27-493a-b30d-0c8db670398e",
        "_score" : 1.7917595,
        "_source" : {
          "business_id" : "urdxV6P6ipjjEBnhAz6EDw",
          "Zip_Code" : "10003"
        }
      },
      {
        "_index" : "yelp-data",
        "_type" : "doc",
        "_id" : "f9bced72-044d-4dc7-891d-90942e2e9835",
        "_score" : 1.6486585,
        "_source" : {
          "business_id" : "u_2mxdHpJ65Sh1VxeWPZgA",
          "Zip_Code" : "10003"
        }
      }
    ]
  }
}
```

Lambda

❑ LF1 (generate-recommendations)

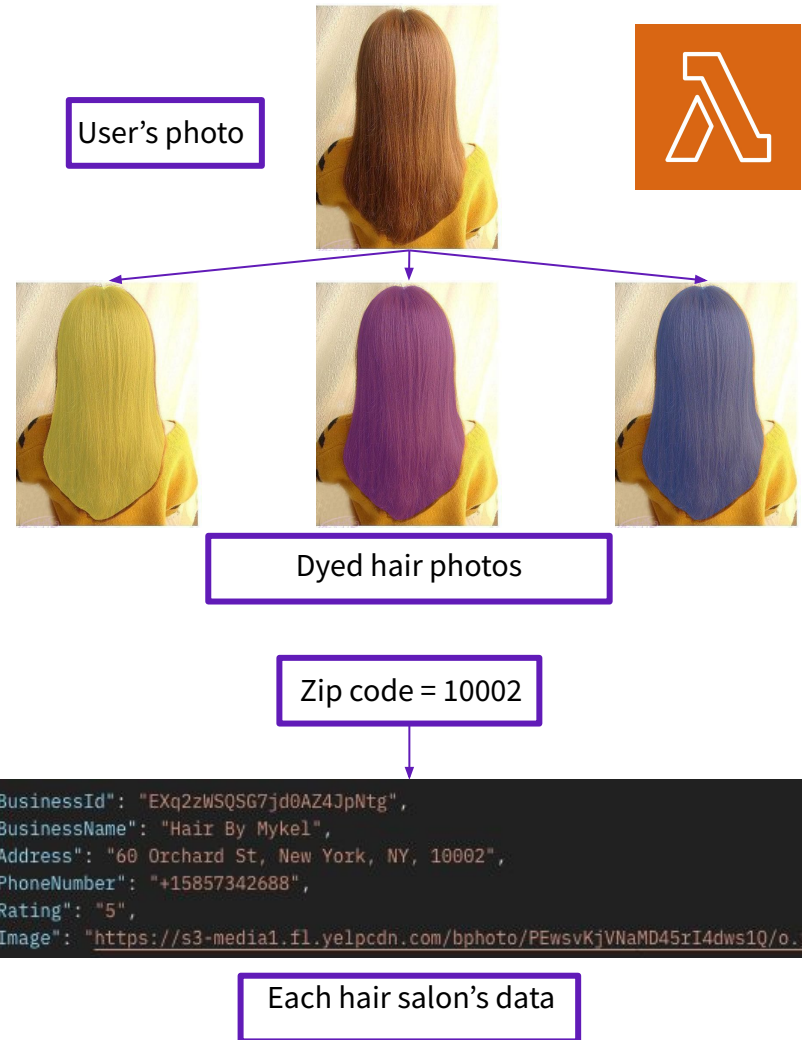
- ❑ For any new image in input S3, trigger LF1 to predict a hair segmentation mask, generate 3 dyed hair photos, and store them to output S3
- ❑ [SageMaker, input S3, output S3, API Gateway]

❑ LF2 (return-recommendations)

- ❑ Return 3 dyed hair photos generated by LF1
- ❑ [output S3, API Gateway]

❑ LF3 (search-hair-salons)

- ❑ Search hair salons by zip code
- ❑ [Elastic Search, DynamoDB, API Gateway]



API Design



- ❑ **PUT /upload**
 - ❑ PUT request with the image data in base64 encoding
 - ❑ Upload to S3 bucket with destination specified in URL path
- ❑ **GET /results**
 - ❑ GET request for accessing dyed hair photos in S3 bucket
 - ❑ Return list of photo URLs as response
- ❑ **GET /search**
 - ❑ GET request with query path parameter containing the zip code
 - ❑ Return data of nearby barber's in JSON format as response

- ▼ /results
 - GET
 - OPTIONS
- ▼ /search
 - GET
 - OPTIONS
- ▼ /upload
 - ▼ /{folder}
 - ▼ /{object}
 - OPTIONS
 - PUT

Frontend

Each page solves one user goal, and pages are connected with smooth transitions

❑ Home page: upload original hair photo

- ❑ index.html + index.js

- ❑ Connect with API via `apigClient.uploadFolderObjectPut`

❑ Recommendation page: get back dyed hair photos

- ❑ haircolors.html + haircolors.js

- ❑ Connect with API via `apigClient.resultsGet`

❑ Search page: search for real barber's near users based on zip code

- ❑ search.html + search.js

- ❑ Connect with API via `apigClient.searchGet`

```

  assets
  css
    # index.css
  js
    > sdk
    JS haircolors.js
    JS index.js
    JS search.js
  <> error.html
  <> haircolors.html
  <> index.html
  <> search.html

```

