Final Project – Azure Bing Visual Search API

1. Introduction

The final project is an intermediate visual search API that communicates with Azure Bing Visual Search API.

The input is any image that you would like to search details for. The Azure Bing Visual Search API processes and analyzes the uploaded image and returns associated results based on what contents or objects are identified by the cognitive analysis engine.

The response would contain links varying from articles, news, websites having that image, e-commerce websites selling the item (if any is identified), other image thumbnail URLs, a Bing search URL for the identified entity, image dimensions, image encoding format, the date the image / article was published, and is the content family friendly or not.

Insight	Description
Visually similar images	A list of images that are visually similar to the input image.
Visually similar products	Products that are visually similar to the product shown.
Shopping sources	Places where you can buy the item shown in the input image.
Related searches	Related searches made by others or that are based on the contents of the image.
Webpages that include the image	Webpages that include the input image.
Recipes	Webpages that include recipes for making the dish shown in the input image.
Entities	Well-known people, places, and things.

Ref: https://docs.microsoft.com/en-us/azure/cognitive-services/bing-visual-search/overview

2. Testing the API

   a. API URLs
      i. Intermediate project API deployed on Digital Ocean droplet
         http://159.65.32.96:3000/api/v1/visualsearch

      ii. With the above URL, we would send a POST request, with below details

   b. Input parameters
      i. mkt
         The parameter mkt indicates the market in which the search would primarily be performed. This parameter has over 40 prescribed values.
      ii. safesearch:
         The safesearch parameter governs if the response content has any links that contains adult content.
         The safesearch parameter takes one out of the three values, ***moderate, strict, off.***

   c. Result analysis
      i. The result or response from the API contains multiple associated links to the analyzed image.
      ii. While designing a website, we can use the response links and display it according to the type of the link in appropriate sections. For example, Articles and News in one section, shopping related information in another, associated other images, other search results accordingly.
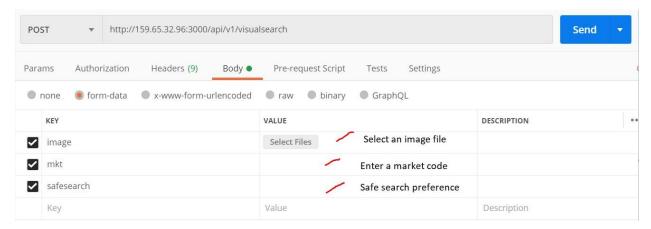
   d. Image upload:
      i. The intermediate API requires you to upload an image that has size < 1 MB
      ii. The image data is passed to the Azure Bing Visual Search API to get the results and the uploaded image is then deleted from the server directory.

3. Conclusion
   In this way, the developed intermediate API takes in an image file, passes the data to visual search API, fetches the processed response, and returns it to the client.

Testing steps: (If it gives error on first submit, please try again in 10 seconds, it will work. Azure may have stopped if remained idle for a long time)

1. URL and required form data parameters in postman

2. Add an image file, market code, safe search preferences

3. Response

Testing with Swagger-UI

1. Swagger-UI URL
   http://159.65.32.96:3000/api-docs/

2. Image, mkt and safesearch values selected

3. Response status code and response data
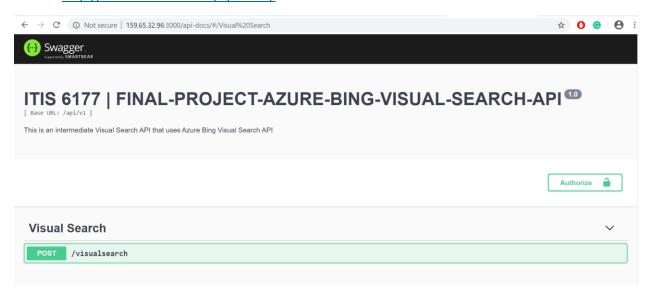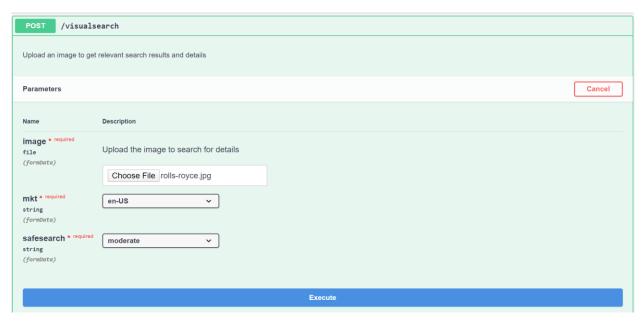
Request URL

`http://159.65.32.96:3000/api/v1/visualsearch`

Server response

Code	Details
200	**Response body**

{"_type":"ImageKnowledge","instrumentation":{"_type":"ResponseInstrumentation"},"tags":[{"displayName":"","actions":
[{"_type":"ImageModuleAction","actionType":"PagesIncluding","data":{"value":[{"webSearchUrl":"https://www.bing.com/images/search?
view=detailv2&FORM=OIIRPO&id=931CB900C435C03BD14FA18576572FAF7CD2D884&simid=607986443283925761","name":"2020 Rolls-Royce Phantom Extended Wheelbase EWB Stock
...","thumbnailUrl":"https://tse3.mm.bing.net/th?id=OIP.XuXJ_ipim-MdlNyqMRNv8QHaE7&pid=Api","datePublished":"2019-09-
18T12:32:00.0000000Z","isFamilyFriendly":true,"contentUrl":"https://www.bentleygoldcoast.com/galleria_images/7912/7912_p4_l.jpg","hostPageUrl":"https://www.bent
leygoldcoast.com/2020-rolls-royce-phantom-extended-wheelbase-ewb-c-7912.htm","contentSize":"641072
B","encodingFormat":"jpeg","hostPageDisplayUrl":"https://www.bentleygoldcoast.com/2020-rolls-royce-phantom-extended-wheelbase-ewb-c-
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MdlNyqMRNv8QHaE7","insightsMetadata":
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2020 Rolls-Royce Phantom Extended Wheelbase EWB For ...","thumbnailUrl":"https://tse3.mm.bing.net/th?id=OIP.XuXJ_ipim-
MdlNyqMRNv8QHaE7&pid=Api","datePublished":"2020-02-14T21:02:00.0000000Z","isFamilyFriendly":true,"contentUrl":"https://www.maserati-
chicago.com/imagetag/7912/4/l/New-2020-Rolls-Royce-Phantom-Extended-Wheelbase-EWB.jpg","hostPageUrl":"https://www.maserati-chicago.com/2020-rolls-royce-phantom-
extended-wheelbase-ewb-c-7912.htm","contentSize":"641072 B","encodingFormat":"jpeg","hostPageDisplayUrl":"https://www.maserati-chicago.com/2020-rolls-royce-
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MdlNyqMRNv8QHaE7","insightsMetadata":
{"pagesIncludingCount":1,"availableSizesCount":1},"imageId":"D8848D6B19C4CD606DD0A9FFCFD6FABE2DC4E565","accentColor":"40668B"}]}},{"image":
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139c6d562856b4ce2224d4d94b94f45014f0e0975a422e14ecddef5c22a8ae7414d56f3aaee8b2a28617a605e54ff9a55edb"},"actionType":"MoreSizes"},
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...","thumbnailUrl":"https://tse4.mm.bing.net/th?id=OIP.d1EX1pdWY97k1S5qgugnMAHaE7&pid=Api","datePublished":"2019-12-

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