**Final Project Documentation**

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**Introduction:**

This project implements an API endpoint, that calls the Microsoft Azure computer vision API for the user, so that user does not need to login with azure, get subscription and use the API. This API do the work for the user. When users try to call the API endpoint with file upload or URL, the API will call Azure API and forwards back the response to the user. API uses HTTP protocol with use of axios and developed in Expess.js. All the dependencies used are express, axios, multer, swagger-jsdoc, swagger-ui-express, swagger-ui, cors, dotenv

**Endpoint1:**

**Description:**

Analyze image API endpoint extracts image details and provides content of the image. It allows uploading an image and specifying image URL from the web to analyze the image. To utilize the maximum features of the API, query parameters with details needs to use, which are optional yet very useful parameters for this API endpoint.

**Endpoint:** api/v1/analyzeImage

**Method:** Post

**Headers:** ‘Content-Type’:’application/json’,

‘Ocp-Apim-Subscription-Key’: key

**Request Header:**

For image URL: ‘Content-Type’:’application/json’

For file upload: ‘Content-Type’:’application/octet-stream’ or

‘Content-Type’:’multipart/form-data’

**Query parameters:**

1. details: celebrities
2. details: landmarks

**Body-type:**

1. Json data
2. File upload (Image of type jpeg, jpg, bmp, png, gif)

**Body parameter:** url

**Status Codes:**

1. 200: Success
2. 400: Bad request or invalid input in query parameters or body
3. 500: Internal server error

**How to use:**

1. Landmarks:

URL: <http://159.223.154.139:3000/api/v1/analyzeImage?details=landmarks>

Request body:

{

    "url":"https://upload.wikimedia.org/wikipedia/commons/c/c8/Taj\_Mahal\_in\_March\_2004.jpg"

}

Image: A picture containing outdoor, grass, building, park

Description automatically generated

Postman Api call:

Graphical user interface, text, application

Description automatically generated

API Response:

{

    "success": **true**,

    "categories": {

        "name": "building\_",

        "score": 0.80078125,

        "detail": {

            "landmarks": [

                {

                    "name": "Taj Mahal",

                    "confidence": 1

                }

            ]

        }

    }

}

1. Celebrities:

URL: <http://159.223.154.139:3000/api/v1/analyzeImage?details=celebrities>

Request Body:

{

    "url":"https://www.newidea.com.au/media/69312/group-of-celebrities.jpg"

}

Image:

A group of people posing for a photo

Description automatically generated

Postman API Call:

Graphical user interface, text, application

Description automatically generated

API Response:

{

    "success": **true**,

    "categories": {

        "name": "people\_group",

        "score": 0.9296875,

        "detail": {

            "celebrities": [

                {

                    "name": "Jack Black",

                    "confidence": 0.9993033409118652,

                    "faceRectangle": {

                        "left": 822,

                        "top": 127,

                        "width": 62,

                        "height": 62

                    }

                },

                {

                    "name": "Kevin Hart",

                    "confidence": 0.9870463609695435,

                    "faceRectangle": {

                        "left": 654,

                        "top": 178,

                        "width": 61,

                        "height": 61

                    }

                },

                {

                    "name": "Dwayne Johnson",

                    "confidence": 0.9999815225601196,

                    "faceRectangle": {

                        "left": 468,

                        "top": 65,

                        "width": 60,

                        "height": 60

                    }

                },

                {

                    "name": "Jake Kasdan",

                    "confidence": 0.9986875653266907,

                    "faceRectangle": {

                        "left": 128,

                        "top": 164,

                        "width": 57,

                        "height": 57

                    }

                },

                {

                    "name": "Karen Gillan",

                    "confidence": 0.997129499912262,

                    "faceRectangle": {

                        "left": 592,

                        "top": 80,

                        "width": 54,

                        "height": 54

                    }

                },

                {

                    "name": "Nick Jonas",

                    "confidence": 0.9989489912986755,

                    "faceRectangle": {

                        "left": 268,

                        "top": 140,

                        "width": 53,

                        "height": 53

                    }

                }

            ]

        }

    }

}

**Endpoint2:**

**Description:**

Describe image API endpoint provides a description of an image in human readable language with complete sentences. It allows uploading an image and specifying image URL from the web to get the description of the image.

**Endpoint:** api/v1/describeImage

**Method:** Post

**Headers:** ‘Content-Type’:’application/json’,

‘Ocp-Apim-Subscription-Key’: key

**Request Header:**

For image URL: ‘Content-Type’:’application/json’

For file upload: ‘Content-Type’:’application/octet-stream’ or

‘Content-Type’:’multipart/form-data’

**Body-type:**

1. Json data
2. File upload (Image of type jpeg, jpg, bmp, png, gif)

**Body parameter:** url

**Status Codes:**

1. 200: Success
2. 400: Bad request or invalid input in query parameters or body
3. 500: Internal server error

**How to use:**

URL: http://159.223.154.139:3000/api/v1/describeImage

Request body:

{

    "url":"https://metro.co.uk/wp-content/uploads/2015/11/dog2.jpg?quality=90&strip=all"

}

Image:

A puppy sitting on the floor

Description automatically generated with medium confidence

Postman API call:

Graphical user interface, text, application, email

Description automatically generated

API Response:

{

    "success": **true**,

    "descriptions": {

        "tags": [

            "dog",

            "indoor",

            "animal",

            "white",

            "mammal",

            "tan"

        ],

        "captions": [

            {

                "text": "a puppy sitting on the floor",

                "confidence": 0.5006706118583679

            }

        ]

    }

}

**Endpoint3:**

**Description:**

Tag image API endpoint generates a list of words and/or tags related to provided image. It allows uploading an image and specifying image URL from the web to analyze the image. The query parameter language allows to change the language of the response for the specified image.

**Endpoint:** api/v1/tagImage

**Method:** Post

**Headers:** ‘Content-Type’:’application/json’,

‘Ocp-Apim-Subscription-Key’: key

**Request Header:**

For image URL: ‘Content-Type’:’application/json’

For file upload: ‘Content-Type’:’application/octet-stream’ or

‘Content-Type’:’multipart/form-data’

**Query parameters:**

1. language=en (default value)
2. language=es (display response in Spanish)
3. language=hi (display response in hindi)

**Body-type:**

1. Json data
2. File upload (Image of type jpeg, jpg, bmp, png, gif)

**Body parameter:** url

**Status Codes:**

1. 200: Success
2. 400: Bad request or invalid input in query parameters or body
3. 500: Internal server error

**How to use**

1. Language=en

URL: <http://159.223.154.139:3000/api/v1/tagImage?language=en>

Request body:

{

    "url":"https://c.tenor.com/v8mwOB64gB0AAAAC/taylor-swift.gif"

}

Image:

A person with the mouth open

Description automatically generated with medium confidence

Postman API call:

A screenshot of a computer

Description automatically generated

API Response:

{

    "success": **true**,

    "tags": [

        {

            "name": "human face",

            "confidence": 0.994765043258667

        },

        {

            "name": "person",

            "confidence": 0.9936627149581909

        },

        {

            "name": "clothing",

            "confidence": 0.9665981531143188

        },

        {

            "name": "smile",

            "confidence": 0.9225829839706421

        },

        {

            "name": "woman",

            "confidence": 0.9091215133666992

        },

        {

            "name": "lady",

            "confidence": 0.8437873125076294

        },

        {

            "name": "indoor",

            "confidence": 0.7944323420524597

        }

    ]

}

1. Language=hi

URL: http://159.223.154.139:3000/api/v1/tagImage?language=hi

Request body:

{

    "url":"https://www.fredmiranda.com/forum/ufiles/51/966851.jpg"

}

Image:

A red bird on a branch

Description automatically generated

Postman API call:

Graphical user interface, text, application, email

Description automatically generated

API Response:

{

    "success": **true**,

    "tags": [

        {

            "name": "पक्षी",

            "confidence": 0.9991760849952698

        },

        {

            "name": "प्राणी",

            "confidence": 0.9987035989761353

        },

        {

            "name": "पेड़",

            "confidence": 0.9849432706832886

        },

        {

            "name": "बाहर",

            "confidence": 0.9817177653312683

        },

        {

            "name": "लाल",

            "confidence": 0.9631857872009277

        },

        {

            "name": "उत्तरी कार्डिनल (एक प्रकार का पक्षी)",

            "confidence": 0.9378284811973572

        },

        {

            "name": "मौलिक",

            "confidence": 0.9174913763999939

        },

        {

            "name": "चोंच",

            "confidence": 0.8912600874900818

        },

        {

            "name": "शाखा",

            "confidence": 0.8376626372337341

        },

        {

            "name": "पकड़ कर बैठने वाली चिड़िया",

            "confidence": 0.645004391670227

        },

        {

            "name": "वन्यजीव",

            "confidence": 0.48880407214164734

        }

    ]

}

**URL to access API Endpoints:**

http://159.223.154.139:3000/