Image Recognition System using IBM Cloud Visual Recognition

Overview

This project involves creating an image recognition system using IBM Cloud Visual Recognition. The goal is to develop a platform where users can upload images, and the system accurately classifies and describes the image contents. This will enable users to craft engaging visual stories with the help of AI-generated captions, enhancing their connection with the audience through captivating visuals and compelling narratives.

Code Implementation (Python)

```python
# Import necessary libraries and modules
import ibm_watson
from ibm_watson import VisualRecognitionV4
from ibm_watson.visual_recognition_v4 import FileWithMetadata, AnalyzeEnums
import json

# Set up your IBM Cloud Visual Recognition service credentials
api_key = 'YOUR_API_KEY'
url = 'YOUR_API_URL'

# Create a Visual Recognition client
visual_recognition = VisualRecognitionV4(
    version='2021-05-23',
    authenticator=ibm_watson.authenticators.IAMAuthenticator(api_key)
)
visual_recognition.set_service_url(url)

# Define a function to classify and describe an uploaded image
def classify_and_describe_image(image_path):
    with open(image_path, 'rb') as image_file:
        response = visual_recognition.analyze(
            collection_ids=['YOUR_COLLECTION_ID'],  # Optional: You can create custom collections
            features=[AnalyzeEnums.Features.OBJECTS, AnalyzeEnums.Features.DESCRIPTION],
            images_file=[FileWithMetadata(image_file)]
        ).get_result()

    return response

# Define a function to generate AI-generated captions
def generate_captions(image_data):
    captions = []
    for image in image_data['images']:
        if 'objects' in image:
            objects = image['objects']['collections']
            for obj in objects:
                captions.append(obj['name'])
        if 'description' in image:
            descriptions = image['description']['captions']
            for desc in descriptions:
                captions.append(desc['text'])

    return captions
```

```
# Define a function to interact with the user interface and handle image uploads
def main():
    while True:
        user_input = input("Upload an image (type ’exit’ to quit): ")
        if user_input.lower() == ’exit’:
            break

        # Call the classification and description function
        image_data = classify_and_describe_image(user_input)

        # Generate AI-generated captions
        captions = generate_captions(image_data)

        # Display captions to the user
        for caption in captions:
            print("AI-generated Caption:", caption)

if __name__ == "__main__":
    main()
```