Women Elevate Program: Lab 2 – Analyze Images using Computer Vision

- Note:
    - The Analyze Image feature can be explored using the Azure AI Foundry and the Vision Studio.
    - In this Lab, we will explore the features in Vision Studio.

Lab Overview:

Azure AI Vision includes numerous capabilities for understanding image content and context and extracting information from images. In this exercise, you will use Azure AI Vision in Vision Studio, to analyze images using the built-in try-it-out experiences.

Lab Steps

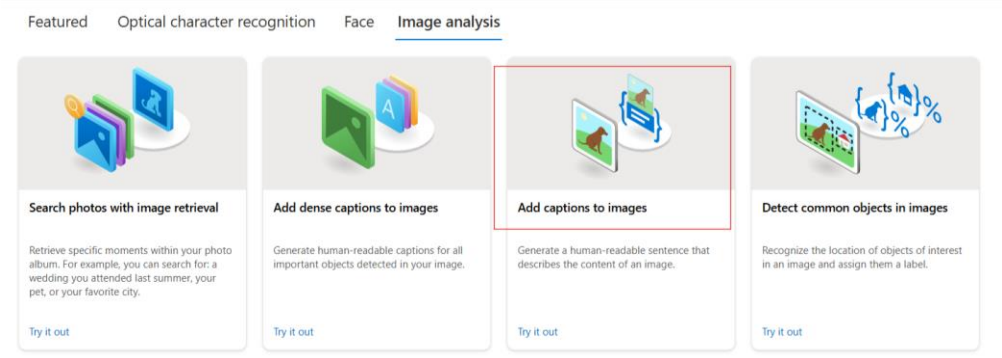
Step 1: Log in to the Vision Studio

1. Open a web browser and navigate to the Vision Studio: https://portal.vision.cognitive.azure.com/.
2. Enter your provided Azure username and password in the login fields.
3. Click Sign In to access the Vision Studio
4. **Verification:** Confirm that the Vision Studio loads successfully, displaying the main interface.

Step 2: Generate captions for an image

Let's use the image captioning functionality of Azure AI Vision to analyze images. Image captions are available through the **Caption** and **Dense Captions** features.

1. Navigate to the **Image Analysis** Tab and click on Add captions to images



2. Click on **Please select a resource** option, and choose the available subscription and resource from the dropdown
3. Select the checkbox to acknowledge that you want to use the selected resource.
4. Choose any of the sample images available (Note- you can even upload an image)
5. Observe the generated caption text, visible in the **Detected attributes** panel to the right of the image.
6. The **Caption** functionality provides a single, human-readable English sentence describing the image's content.
7. Go back to the Vision Studio main page, and Try out the **Add dense captions to images** feature by repeating the same steps.
8. The **Dense Captions** feature differs from the **Caption** capability in that it provides multiple human-readable captions for an image, one describing the image's content and others, each covering the essential objects detected in the picture. Each detected object includes a bounding box, which defines the pixel coordinates within the image associated with the object.
9. Hover over one of the captions in the **Detected** attributes list and observe what happens within the image.
10. Move your mouse cursor over the other captions in the list, and notice how the bounding box shifts in the image to highlight the portion of the image used to generate the caption.

Step 3: Tagging Images

The next feature you will try is the *Extract Tags* functionality. Extract tags is based on thousands of recognizable objects, including living beings, scenery, and actions.

1. Return to the Vision Studio, and select **Extract common tags from images** option under the **Image Analysis** tab.
2. Mak sure the resource is selected and the acknowledgement checkbox is checked. If not, select the resource (as done in Step 2)

3. Choose the language you want the tags to be returned in
4. Choose any of the sample images available
5. Review the list of tags extracted from the image and the confidence score for each in the detected attributes panel. Here the confidence score is the likelihood that the text for the detected attribute describes what is in the image.

Step 4: Object Detection

1. Return to the Vision Studio, and select **Detect common objects in images** option under the **Image Analysis** tab.
2. Mak sure the resource is selected and the acknowledgement checkbox is checked. If not, select the resource (as done in Step 2)
3. In the **Detected attributes** box, observe the list of detected objects and their confidence scores.
4. Hover your mouse cursor over the objects in the **Detected attributes** list to highlight the object's bounding box in the image.
5. Move the **Threshold value** slider until a value of 70 is displayed to the right of the slider. Observe what happens to the objects in the list. The threshold slider specifies that only objects identified with a confidence score or probability greater than the threshold should be displayed.