**Image Recognition with IBM Cloud Visual Recognition**

**Phase-2**

**Innovation:**

Sentiment analysis, also known as opinion mining, is a natural language processing (NLP) technique used to determine the emotional tone or sentiment expressed in text data. It involves classifying text as positive, negative, neutral, or sometimes more fine-grained emotions like happy, sad, angry, etc. However, applying sentiment analysis directly to images is not as straightforward as applying it to text since images are primarily visual data.

To perform sentiment analysis on image recognition results, you typically need to combine visual analysis with subsequent textual analysis. Here's a step-by-step process for sentiment analysis of image recognition results:

**Image Recognition:**

Utilize image recognition techniques to identify and classify objects, scenes, or people within an image. The output of this process will be a list of recognized objects, and their corresponding confidence scores.

**Text Extraction:**

Extract relevant text data from the image, if available. This could include text within the image itself, text annotations, or any associated textual metadata.

**Contextual Information:**

Use the recognized objects and their context within the image to guide the sentiment analysis. For example, if an image contains a smiling person, a bouquet of flowers, and a birthday cake, the context suggests a positive sentiment.

**Sentiment Analysis of Text:**

Apply sentiment analysis to any extracted text from the image. For example, if the image contains a customer review, analyze the sentiment expressed in the review text. This step can be performed using standard NLP sentiment analysis techniques and tools.

**Combining Results:**

Combine the sentiment analysis results from both the visual analysis (context) and the textual analysis. For example, if the image recognition identified a sad face and the sentiment analysis of text within the image also expresses sadness, the overall sentiment is negative.

**Aggregate or Interpret:**

Depending on your application, you can aggregate the sentiment information to obtain an overall sentiment score for the image, or you can interpret the combined results to make decisions or provide insights.

**Conclusion:**

It's important to note that the accuracy of sentiment analysis for images may not be as high as that for text, and results can vary depending on the complexity of the image content and the quality of text extraction. The combination of visual and textual analysis can provide more nuanced sentiment insights, but it also adds complexity to the overall analysis pipeline.