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**Im**age Recognition with IBM Cloud Visual Recognition

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**1.Project's Objective:**

The primary objective of this project is to leverage IBM Cloud Visual Recognition to develop a robust image recognition system. This system will be capable of identifying and categorizing objects, scenes, and visual elements within images, offering a wide range of applications, from automating content moderation to enhancing user experiences with image-based search and classification.

**2.Design Thinking Process:**

To ensure the success of our project, we applied a design thinking process that involved the following key steps:

**a.** Empathize: We started by understanding the needs and challenges of our target audience. This involved speaking with potential users and stakeholders to identify their pain points and expectations.

**b.** Define: With a clear understanding of the problem, we defined specific goals and success criteria for the image recognition system. This step helped us create a focused project scope.

**c.** Ideate: We brainstormed various solutions and approaches to achieve our objectives. This step encouraged creative thinking and helped us explore different possibilities for leveraging IBM Cloud Visual Recognition effectively.

**d.** Prototype: We developed a prototype of the user interface and the image recognition system to validate our design concepts and gather feedback from potential users.

**e.** Test: We conducted usability testing and gathered feedback from our test group to make iterative improvements to the prototype, ensuring that it met the users' needs effectively.

**f.** Implement: Finally, we transitioned from the prototype to the development phase, where we built the full-fledged image recognition system based on the design and feedback obtained during the design thinking process.

**3.Development Phases:**

The development of the image recognition system can be broken down into several phases:

**a.** Data Collection: We collected a diverse dataset of images that we want the system to recognize. This dataset was used for training and testing the IBM Cloud Visual Recognition model.

**b.** Model Training: We utilized the IBM Cloud Visual Recognition service to train a custom model using the collected dataset. This involved defining classes, uploading images, and fine-tuning the model for optimal performance.

**c.** User Interface Development: Simultaneously, the user interface was designed and developed. This interface allows users to interact with the image recognition system, providing images and receiving recognition results.

**d.** Integration with IBM Cloud Visual Recognition: We integrated the trained model from IBM Cloud Visual Recognition into our system. This integration ensured that the system could make real-time image recognition predictions.

**4.Describe the User Interface:**

The user interface is designed to be intuitive and user-friendly. It includes the following key elements:

* + Image Upload: Users can upload images they want to be recognized.
  + Recognition Results: The system displays recognition results, including identified objects, scenes, and associated confidence scores.
  + User Feedback: Users can provide feedback on recognition results to help improve the system's accuracy over time.
  + Settings: Users can customize recognition settings and preferences.

**5.Implementation Details:**

The system is implemented using a combination of technologies, including web development tools for the user interface, and the IBM Cloud Visual Recognition service for the image recognition model. We use RESTful API calls to interact with the IBM Cloud service, passing images and receiving recognition results.

**5.Integration of IBM Cloud Visual Recognition:**

To integrate IBM Cloud Visual Recognition, we used the IBM Watson SDKs and APIs. We created a custom model, trained it using our dataset, and deployed it in the IBM Cloud. The system communicates with the deployed model using API calls to make real-time recognition predictions.

By following this structured approach, we have successfully developed an image recognition system that leverages IBM Cloud Visual Recognition to provide accurate and efficient recognition of objects, scenes, and visual elements in images. Users can benefit from the system's capabilities through its user-friendly interface, which allows for a wide range of applications across various industries.

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