IMAGE RECOGNITION WITH IBM CLOUD VISUAL RECOGNITION

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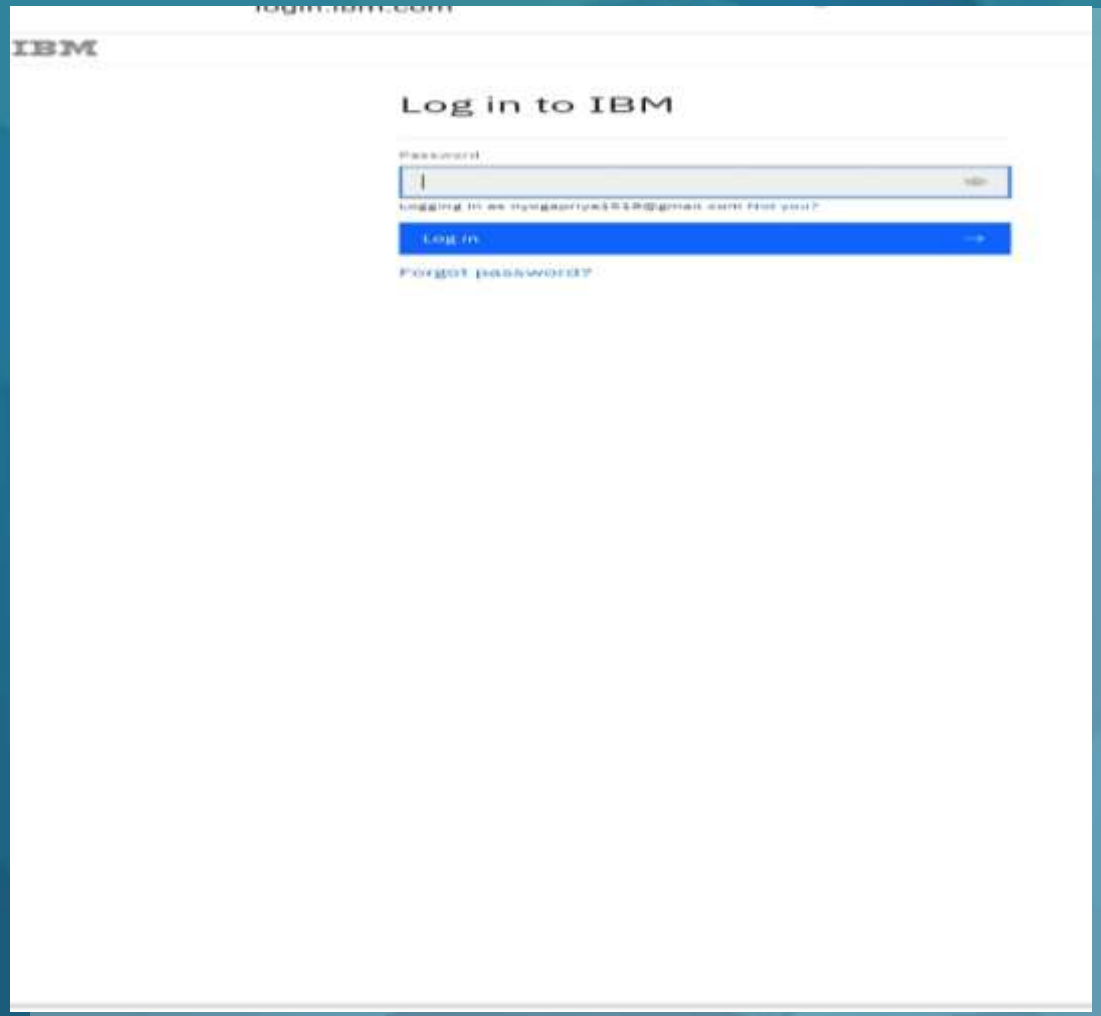
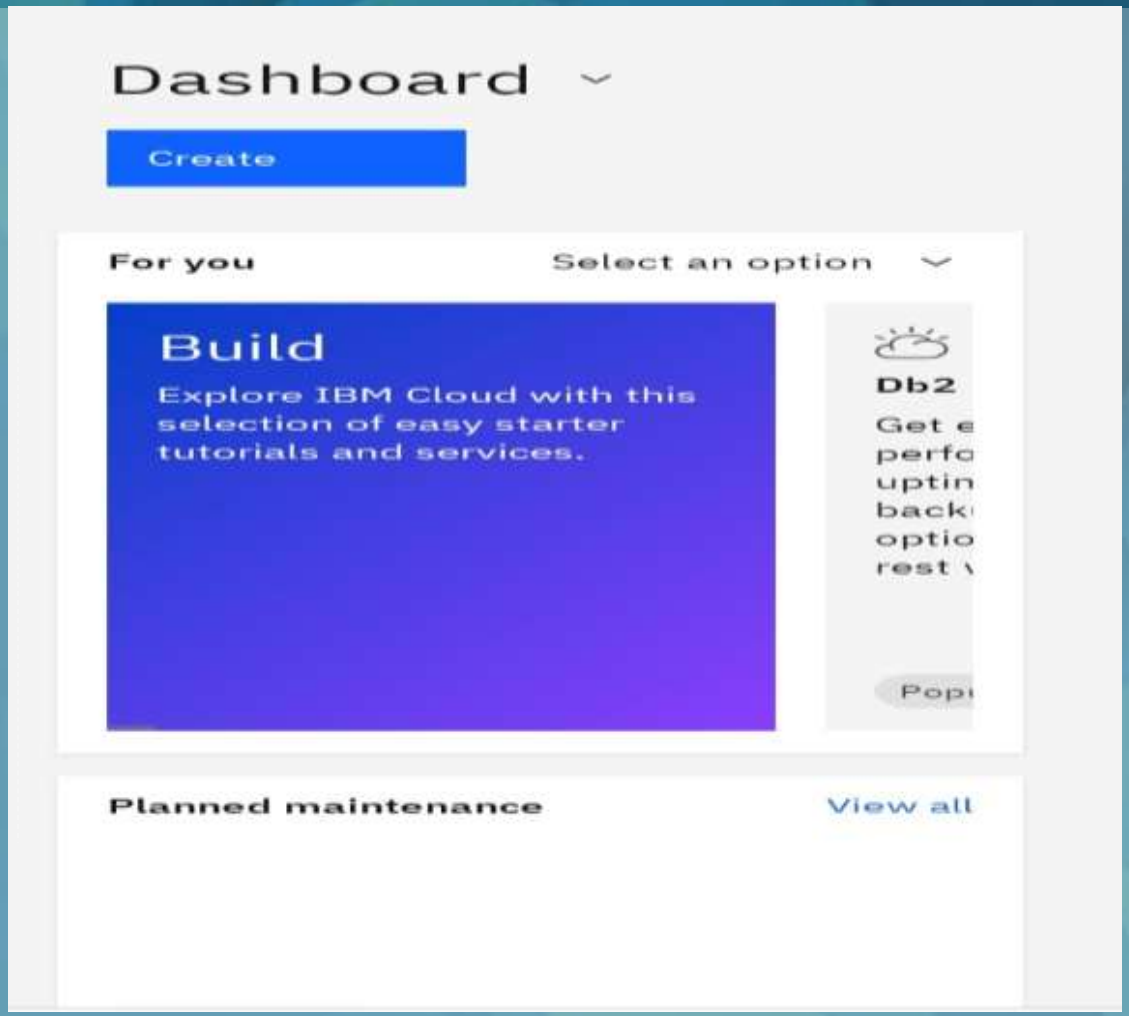
Project Description:

- The Image Recognition System is a deep learning-based project designed to classify and identify objects in images accurately. The system utilizes Convolutional Neural Networks (CNNs), a subset of deep learning, to recognize patterns and features in images. This project focuses on training the model to recognize a diverse set of objects, making it applicable for various real-world applications such as autonomous vehicles, healthcare, and security systems.

Project Processes:





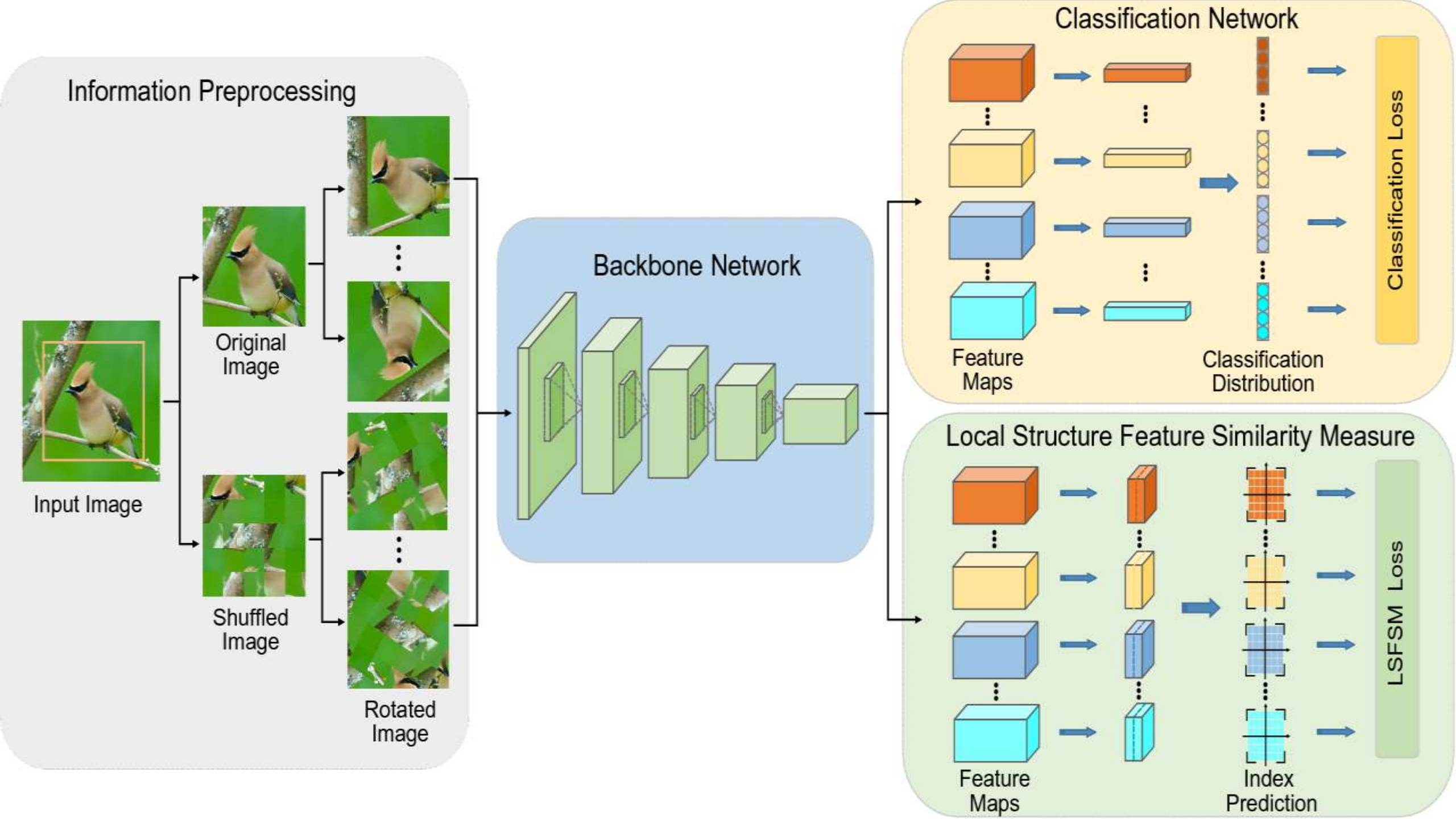
Project Components:

Model Architecture:

Implemented a CNN architecture comprising multiple convolutional layers, pooling layers, and fully connected layers.

Utilized activation functions like ReLU (Rectified Linear Unit) to introduce non-linearity and batch normalization for faster convergence.

Incorporated techniques such as dropout to prevent overfitting.


Information Preprocessing
Input Image
Original Image
Shuffled Image
Rotated Image
Backbone Network
Classification Network
Feature Maps
Classification Distribution
Classification Loss
Local Structure Feature Similarity Measure
Feature Maps
Index Prediction
LSFSM Loss

Design Thinking Approach:

1. Empathize:

Understand the needs and preferences of photography enthusiasts who want to create compelling visual stories.

Gather feedback on the challenges they face when categorizing and captioning their images.

2. Define:

Clearly define the problem statement: Developing an image recognition system using IBM Cloud

Visual Recognition to automatically classify and describe images for photography enthusiasts.

Set specific goals and objectives, such as achieving high accuracy in image classification and

generating engaging and relevant captions

Caption Generation and Evaluation:

Generate captions for images, incorporating the sentiment-based adjustments. Evaluate the quality of generated captions using both standard caption evaluation metrics

(e.g., BLEU, METEOR) and sentiment-related metrics (e.g., sentiment correctness, emotion relevance).

Fine-Tuning and Optimization:

Fine-tune the model based on evaluation results and user feedback to improve sentiment-aware captioning performance.

Experiment with different ways of incorporating sentiment to optimize the model's performance.gn Thinking Approach:

A Facial recognition

B Quality control

C People identification

Unsupervised Learning:

An image recognition model is fed a set of images without being told what the images contain.

As a result, the system determines, through analysis of the attributes or characteristics of the images, the important similarities or differences between the images.

THANK YOU