School of Computer Engineering & Technology Synopsis

Group No: B93

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Project Title: Evaluation of Luxury Hotel Brands: An Image-Based Analysis

Domain : AI, ML Deep Learning, Image processing and Computer Vision

INHOUSE PROJECT : YES

Abstract:

The project aims to analyze luxury hotel pictures shared by tourists on social media platforms to comprehend the hotel features that influence consumer evaluation of luxury hotel brands. As consumers rely on hotel photos to make booking decisions, the project will employ a deep learning approach to evaluate consumers' visual data on popular booking applications like TripAdvisor or MMT. The project will compare various deep CNN architectures and use the most efficient one to classify images in the dataset.

The results of the project will highlight the significance of non-textual elements like pictures in shaping consumers' hotel experiences. By analyzing approximately 9000 consumers' pictures, the project will identify specific attributes such as interior elements

of the hotel (restaurant, bedroom, and bathroom) that have the greatest impact on their experiences. Finally, the project will demonstrate how deep learning algorithms can be used to monitor social media, understand consumer perceptions of luxury hotels, and help hotel managers develop better brand management strategies.

Project Objectives for Team:

1. To identify the key visual attributes associated with luxury hotels, such as interior design, decor, and amenities, and examine how these elements vary across different hotel brands.

2. To evaluate the impact of these visual cues on consumer perceptions of luxury hotels, including factors such as brand image, perceived value, and overall satisfaction.

3. To develop a comprehensive framework for analyzing and interpreting visual data from social media platforms and other online sources, such as TripAdvisor or Instagram, to better understand consumer preferences and behavior.

4. To inform the development of effective brand management strategies for luxury hotel brands, including targeted marketing campaigns and tailored service offerings, based on insights gleaned from the visual analysis of consumer data.

Individual Project Objectives per member:

- Developing a model that can accurately classify hotel images into different categories, such as lobby, guest room, restaurant, pool, etc. – Vidushi Sharma

- Testing the performance of different image classification algorithms and selecting the most effective one for this task. -Venkatesh Shirbhate

- Collecting and preprocessing a large dataset of hotel images with labels to train the model. -Adnan Nazmuddin

- Evaluating the impact of different types of image features (e.g., color, texture, shape) on the classification performance -Sahil Vakkani

Hardware Requirements:

1. A computer or server with a powerful CPU and sufficient RAM to handle the deep learning algorithms required for image analysis.

2. A graphics processing unit (GPU) to accelerate the training of the deep CNN architectures.

3. Sufficient storage capacity to store the image dataset and any other relevant data.

Software Requirements:

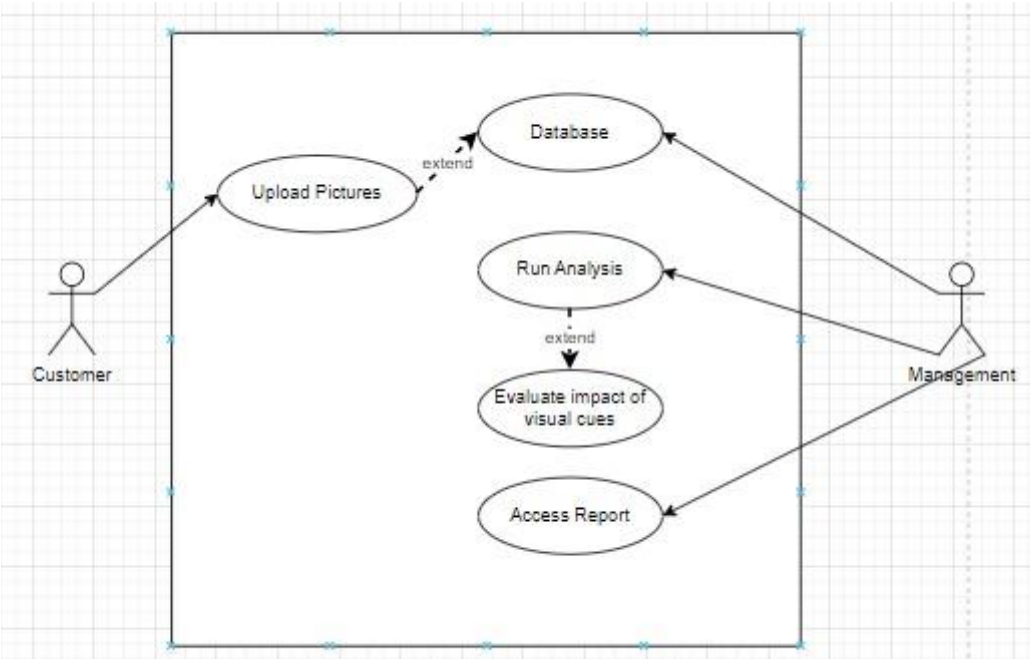
1. A programming language i.e Python for implementing the deep learning algorithms and data analysis.

2. A deep learning framework i.e PyTorch for training the CNN models.

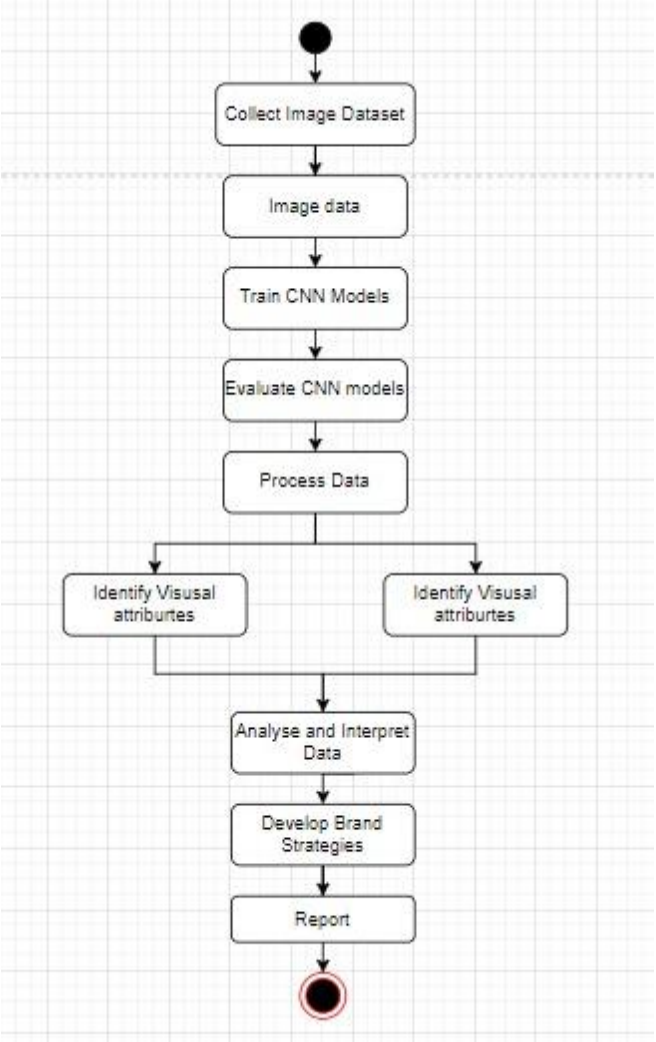
3. Image processing libraries i.e PIL for manipulating and processing the images.

4. Other relevant software tools for data visualization, statistical analysis, and reporting.

High Level Design:

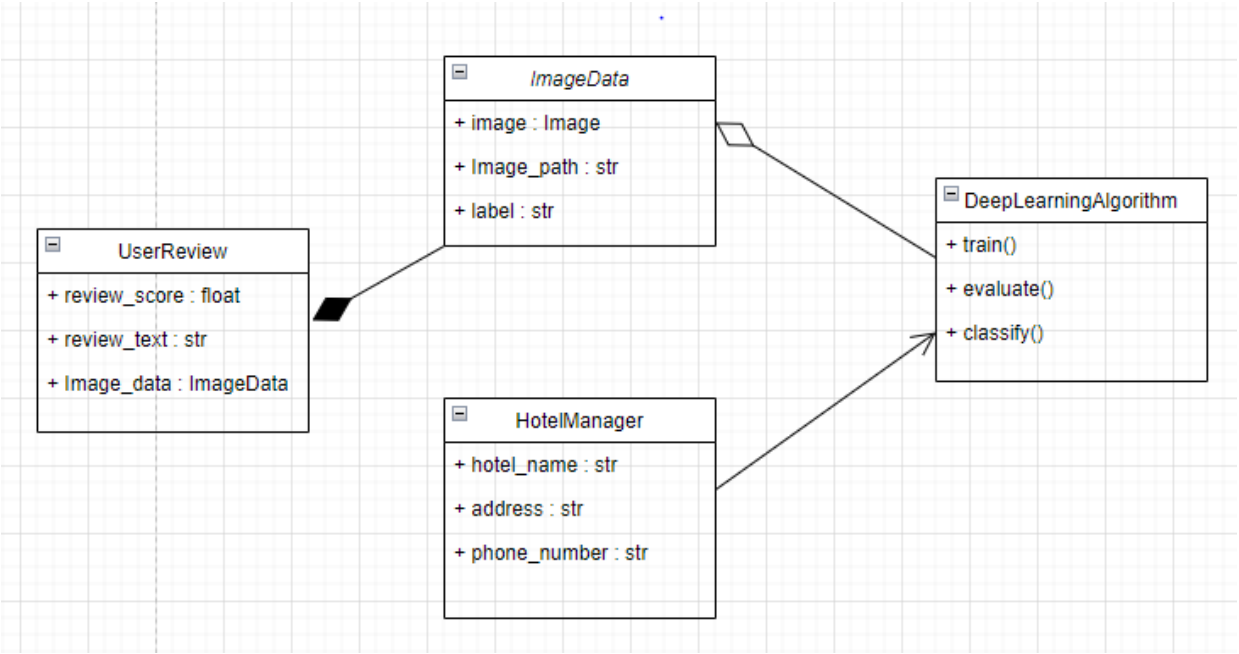


Usecase Diagram



Activity Diagram

Low Level Design:



Class Diagram

Guide Signature: **Dr. Nitin Pise**