

# AI-Powered Guest Experience Personalization System for Hospitality



# Project Objectives

## Enhanced Guest Experience

AI-driven personalized recommendations for dining, activities, and amenities

## Automated Feedback Analysis

Real-time sentiment monitoring to address guest concerns proactively

## Operational Efficiency

Streamlined staff notifications and data-driven decision-making for better service

# Coupon Recommendation: Modeling

## Data Collection

Gather historical guest data. Include demographics, preferences, and booking history.

## Feature Engineering

Extract key features. Include stay duration, spending habits, and service usage.

## Model Training

Train machine learning models. Use algorithms like collaborative filtering.

## Personalization

Tailor coupons to guest profiles. Increase engagement and satisfaction.

# Coupon Recommendation: Modeling

## Features

We analyzed guest spending history and meal preferences.

Seasonal trends were also analyzed for optimal results.

## Model

We used XGBoost to handle null values efficiently.

XGBoost is effective for structured data and prediction.

## Procedure

The system begins with data preprocessing.

This is followed by feature selection and model training.

# Coupon Predictor: Output



## Probabilities

The system predicts the likelihood of guest purchases.

## Top Predictions

It suggests top offers to maximize engagement.

## XGBoost

The model's robustness made it the best option.





# Review Analyzer: RAG System

## Purpose

It analyzes guest reviews, extracts sentiments dynamically.

## Retrieval

RAG is used to generate responses based on data.

## Storage

The data is embedded and stored in a vector database.

# RAG System: How It Works

1

## Embedding

Guest reviews are embedded into vector representations.

2

## Storage

Vectors are stored in a vector database for efficient retrieval.

3

## Query

Queries fetch relevant cases for dynamic sentiment analysis.



# Booking Page & Review Analysis

## UI for Customers

Allows seamless hotel bookings via a custom user interface.

## Real-Time Reviews

Continuously analyzes feedback, updating guest profiles.



# Implemented Features Overview

## 1 ML Model

Predicts guest's next dish purchase.

## 2 Integrated UI

Provides seamless hotel bookings for users.

## 3 Discount Suggestions

Offers ML-powered suggestions for dining.

## 4 RAG Integration

Integrates review analysis into the UI.



# Key Takeaways



AI enhances guest experiences.



Predictive models drive engagement.



Real-time analysis improves service.

# Thank-You