

PROJECT PROPOSAL

Task: Cuisine Classification

1. Title: “Cuisine Classification Model” is developed for enhanced Restaurant Recommendations.

2. Introduction:

In today's scenerio, where dining choices are in demand, cuisine classification serves as a major aid in guiding users towards satisfying culinary experiences. This project provides to construct a machine learning model that categorizes restaurants based on their cuisines. By the application of data science methodologies, the project seeks to enrich restaurant recommendation systems and elevate user engagements within food-centric platforms.

3. Problem Statement:

- Users frequently encounter difficulties in locating restaurants that aligns with their specific cuisine preferences amidst a plethora of available options.
- This often proves arduous and time consuming, leading to compromised dining experiences and diminished customer contentment.

4. Proposed Solution:

- The project proposes the creation of a machine learning model tailored for cuisine classification.
- By scrutinizing restaurant attributes such as menu offerings, geographical locations, and ambiance, the model will effectively categorize restaurants into distinct cuisine genres.
- The predictive capabilities of the model will empower restaurant recommendation systems to furnish users with pertinent and personalized dining suggestions.

5. Methodology:

- Data Collection: Restaurant data will be aggregated from reputable sources, encompassing online review platforms and publicly

accessible datasets. Key dataset attributes will encompass restaurant identities, cuisines, and pertinent features.

- **Data Pre processing:** The dataset will undergo pre processing routines aimed at handling missing data and encoding categorical variables.
- **Model Development:** The project will explore diverse classification algorithms, including Random Forest and Logistic Regression, to craft the cuisine classification model.
- **Model Evaluation:** The efficacy of the model will be gauged through comprehensive evaluation metrics encompassing accuracy, precision, recall, and F1score. Additionally, an analysis of the model's performance across varied cuisines will be undertaken to discern potential biases or challenges.

6. Project Timeline:

- Week 1: Data aggregation and pre processing.
- Week 2: Model formulation and training.
- Week 3: Model assessment and analysis.
- Week 4: Documentation, project report preparation, and final presentation.

7. Resources Required:

- **Software:** Utilization of Python programming language, alongside essential libraries such as pandas, scikitlearn, and matplotlib, for data manipulation, model construction, and visualization purposes.
- **Hardware:** Standard computing equipment equipped with adequate processing capabilities and memory allocations to facilitate data analysis.

8. Expected Deliverables:

- A fully functional cuisine classification model, proficient in accurately categorizing restaurants based on their cuisines.
- Detailed project documentation comprising elucidative code annotations, methodological expositions, and results elucidations.
- A comprehensive project report encapsulating findings, encountered challenges, and recommendations for future advancements.

9. Budget Allocation:

No supplementary budgetary provisions are necessitated, as the project intends to leverage open source software tools and existing hardware infrastructure for implementation.

10. Conclusion:

- Classification is a powerful technique in machine learning that enables us to categorize data into distinct classes or categories.
- By applying classification algorithms and leveraging data-cleaning techniques, we can predict the cuisine of a dish based on its ingredients.
- Through the application of machine learning methodologies, the endeavour to augment user satisfaction levels and foster enriched dining experiences.
- The successful implementation of the cuisine classification model catalyses advancements within the restaurant recommendation systems, by fostering a more engaging and personalized user journey.