PROJECT PROPOSAL

Task: Location-Based Analysis of Restaurants

1. Title: Geographical Insights: Analysing Characteristics and Restaurant Distribution

2. Introduction:

In today's scenario, understanding the geographical distribution of restaurants and their characteristics is critical for various stakeholders, diners, restaurant owners, and enterprisers. The main aim is to perform a geographical analysis of restaurants, focusing on their distribution, clustering patterns, average ratings, popular cuisines, and price ranges across different cities or localities. By leveraging data science algorithms, it provides valuable insights for enhancing restaurant selection, urban development, and customer satisfaction.

3. Problem Statement:

- Existing restaurant recommendation systems results in lack of geographical context, leading to suboptimal dining experiences for users.
- Urban Planners undergo challenges in understanding restaurant distribution patterns and their impact on city dynamics.
- Restaurant owners may struggle to identify strategic locations or understand market trends in their vicinity.

4. Proposed Solution:

- Develop a location-based analysis framework to explore the spatial distribution and characteristics of restaurants.
- Utilize machine learning algorithms for clustering restaurants based on their geographic coordinates.
- Analyse key metrics such as average ratings, popular cuisines, and price ranges to identify trends and patterns.

5. Methodology:

- Data Collection: Aggregate restaurant data from public sources, including online platforms and government databases.
- Data Pre-processing: Cleanse and pre-process the data to handle missing values, outliers, and inconsistencies.
- Geographical Analysis: Explore the distribution of restaurants using heat-maps, density plots, and geographical clustering techniques.
- Statistical Analysis: Calculate descriptive statistics, average ratings, mode cuisines, and common price ranges for different cities or localities.
- Visualization: Visualize the findings using interactive maps, bar charts, and scatter plots to communicate insights effectively.

6. Project Timeline:

- Week 1: Data collection and pre-processing.
- Week 2: Geographic analysis and clustering.
- Week 3: Statistical analysis and visualization.
- Week 4: Documentation, report writing, and presentation preparation.

7. Resources Required:

- Software: Python programming language, Jupyter Notebooks, pandas, scikitlearn, matplotlib, Folium.
- Hardware: Standard computing equipment with sufficient processing power and memory.

8. Expected Deliverables:

- Geographic analysis report detailing restaurant distribution, clustering patterns, and key insights.
- Interactive maps and visualizations showcasing restaurant characteristics by city or locality.
- Project documentation including code annotations, methodological explanations, and results interpretation.

9. Budget Allocation:

No additional budgetary requirements anticipated as the project will utilize open source software and existing hardware infrastructure.

10. Conclusion:

- The proposed location-based analysis project aims to uncover valuable insights into restaurant distribution and characteristics.
- Conducting a thorough restaurant location analysis is essential to ensure the best possible outcome for your business.
- A good location can significantly reduce operating costs by drawing in more customers, enhancing sales, and trimming down marketing expenses.