PROJECT PROPOSAL

Task: Restaurant Recommendation

1. **Title:** "Restaurant Recommendation System" is developed based on user requirements.

2. **Introduction:**

In today's scenerio, abundance of choices are overwhelming, restaurant recommendation systems play a vital role in assisting users in making informed decisions. The project's main goal is to leverage machine learning algorithms to develop a personalized recommendation system emerged to individual user requirements. By providing users with appropriate and personalized restaurant suggestions, the system aims to enhance user satisfaction and the restaurant selection process.

3. **Problem Statement:**

- People often face the challenge of sifting through numerous restaurant options to find one that matches their specific choice in regarding with cuisine, price range, location, and ambiance.
- This process can take more time and resources which leads to less optimal dining experiences that reduces customer satisfaction.
- The proposed recommendation system overcomes this problem by automating the process of restaurant selection, therefore saving users time and effort while ensuring a more personalized dining experience.

4. **Proposed Solution:**

- The system proposes the development of a content-based sieving approach for restaurant recommendations.
- Unlike collaborative sieving methods that rely on user interactions and preferences, content-based filtering analyses the attributes of items to make recommendations.
- By considering factors such as cuisine type, aggregate rating, and user defined preferences, the system will suggest restaurants that closely match the user's tastes and preferences.

5. **Methodology:**

- Data Collection: Restaurant data will be obtained from reliable sources such as online review platforms or publicly available datasets. The dataset will include information such as restaurant names, cuisines, aggregate ratings, and user reviews.
- Data Pre processing: Before building the recommendation system, the dataset will undergo pre processing steps such as handling missing values, encoding

categorical variables, and filtering restaurants based on predefined criteria such as aggregate rating.

- Content-Based Filtering: The recommendation system will employ the Jaccard similarity metric to measure the similarity between user preferences and restaurant features. Restaurants with higher similarity scores will be recommended to users.
- Evaluation: The performance of the recommendation system will be evaluated using metrics such as precision, recall, and accuracy. Additionally, user feedback and satisfaction surveys may be used to assess the system's effectiveness in providing relevant recommendations.

6. Project Timeline:

- Week 1: Data collection and pre processing.
- Week 2: Implementation of content-based filtering approach.
- Week 3: Evaluation and fine tuning of the recommendation system.
- Week 4: Documentation, preparation of project report, and final presentation.

7. Resources Required:

- Software: Python programming language, libraries including pandas, scikitlearn, matplotlib, and seaborn for data preprocessing, machine learning, and visualization.
- Hardware: Standard laptop/desktop with sufficient processing power and memory to handle data analysis tasks.

8. Expected Deliverables:

- A fully implemented restaurant recommendation system capable of providing personalized suggestions to users based on their preferences.
- Detailed project documentation including code comments, explanations of methodologies, and results analysis.
- A project report summarizing the findings, challenges faced, and recommendations for future work.

9. Budget Allocation:

No additional budget is required as the project will utilize opensource software tools and existing hardware resources. However, any unforeseen expenses will be managed within the allocated budget for the internship program.

10. Conclusion:

- The project proposal represents a reliable plan for the development of a restaurant recommendation system based on user choices.

- By leveraging machine learning algorithms and content-based sieving, the system primary goal is to enhance user satisfaction and provide a more personalized dining experience.
- The successful implementation of the recommendation system will provide the advancement of data science and technology in the domain of restaurant recommendation systems.