FINAL SMARTINTERZ PROJECT

LITERATURE SURVEY

PROJECT NAME – RESTAURANT RECOMMENDATION SYSTEM

TEAM ID – 591739

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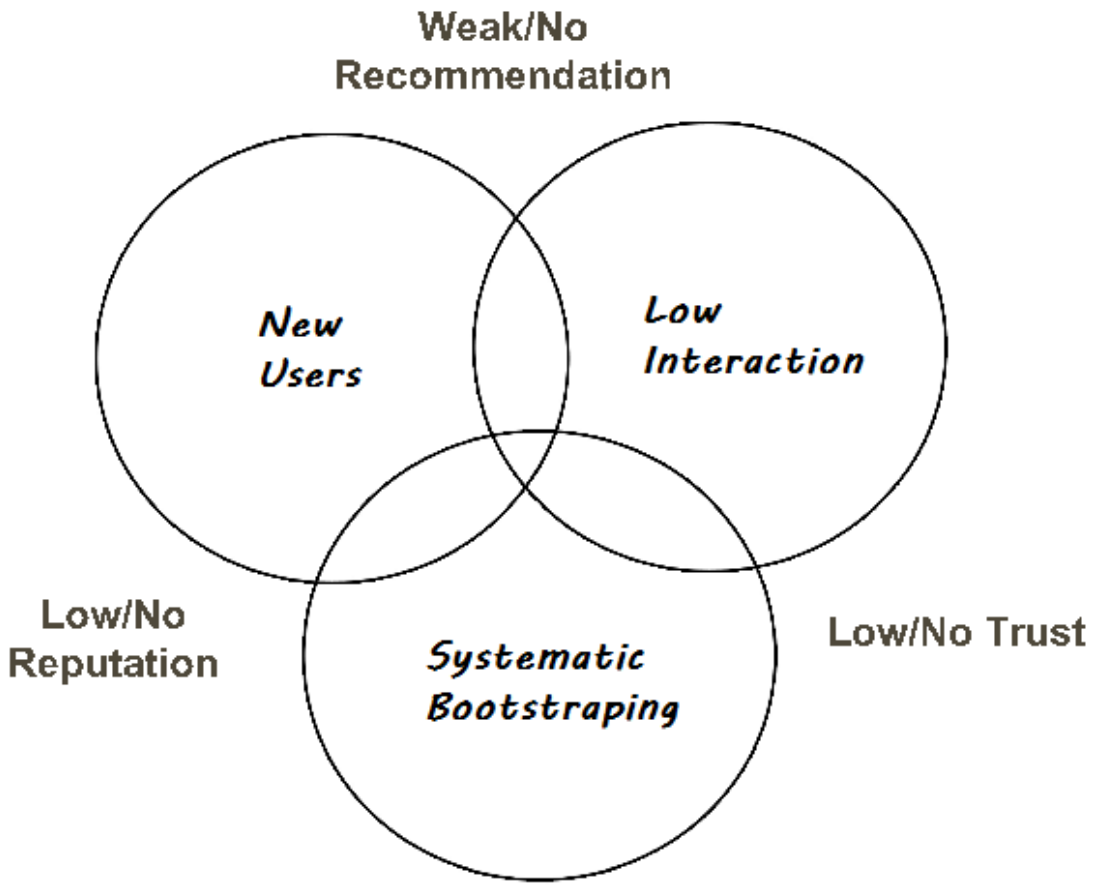
- ## Literature Survey

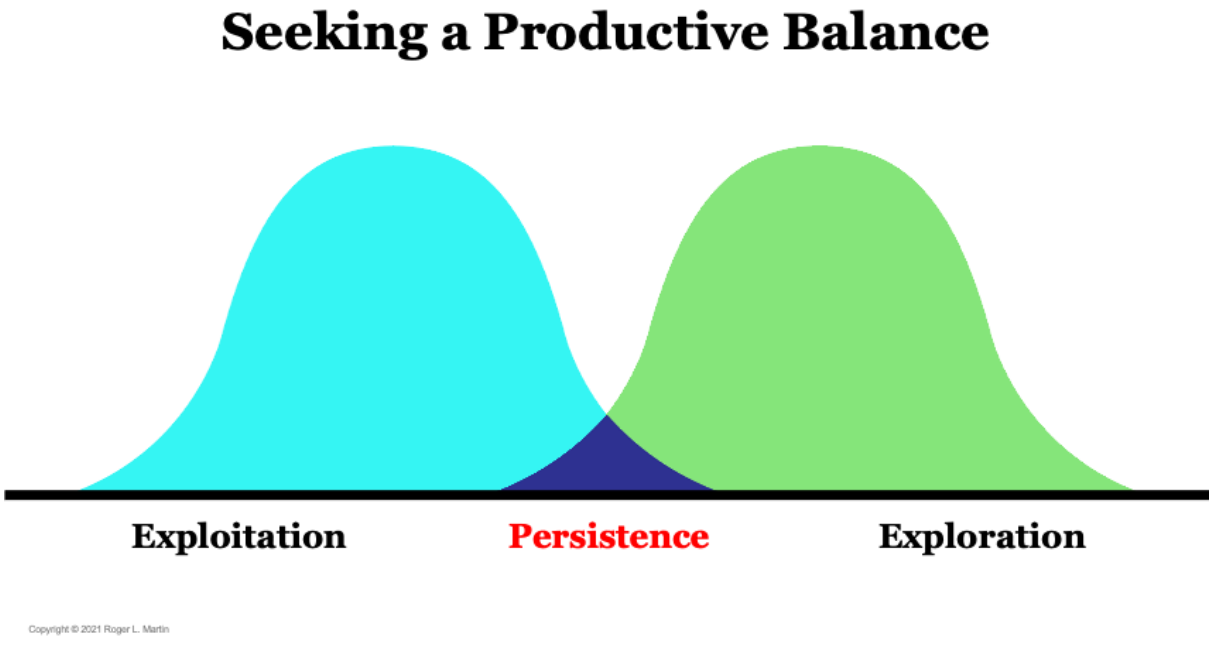
1. **Information Overload:** The abundance of restaurant choices available today can overwhelm consumers. Users often face the problem of information overload when trying to find the right place to dine, leading to choose paralysis.
2. **User Preferences Variability:** People have diverse preferences when it comes to dining out. What one person considers an excellent dining experience might not be the same for another. This variability in user preferences is a significant challenge for recommendation systems.
3. **Inaccurate Recommendations:** Existing recommendation systems may not always provide accurate or relevant restaurant suggestions. They may lack the ability to consider various factors that matter to users, such as cuisine, location, budget, and user reviews.
4. **Cold Start Problem:** For new users or restaurants with limited historical data, recommendation systems often struggle to provide meaningful suggestions. This is known as the "cold start" problem.



5. **Scalability:** As the number of restaurants and users in a recommendation system grows, scalability becomes an issue. Systems need to efficiently handle and process large datasets.
6. **Data Quality and Completeness:** Restaurant data, such as ratings and reviews, can be inaccurate or incomplete. Handling noisy and unreliable data is a challenge.
7. **Sparsity:** Recommendation systems may encounter sparsity issues when dealing with user-item interactions. Users tend to rate or review only a small fraction of available restaurants.
8. **Privacy and Security:** Collecting and using user data for recommendations raises privacy and security concerns. Protecting user data while delivering personalized recommendations is a challenge.
9. **Adaptability:** The restaurant industry is constantly evolving, with new establishments opening and existing ones changing. Recommendation systems need to adapt to changing data and user preferences.
10. **Domain-Specific Challenges:** The restaurant domain has unique challenges, such as seasonal menu changes, special events, and cultural

or dietary considerations. Recommendation systems need to account for these specific factors.

11. **Evaluation Metrics:** Measuring the performance of recommendation systems and selecting appropriate evaluation metrics can be challenging. Common metrics include accuracy, diversity, novelty, and user satisfaction.
12. **Competing Platforms:** There are various existing platforms and services (e.g., Yelp, TripAdvisor, Google Maps) that offer restaurant recommendations. The system will need to compete with or integrate with these platforms.
13. **Exploration vs. Exploitation:** Striking the right balance between recommending well-known, highly-rated restaurants (exploitation) and encouraging users to try new places (exploration) is a challenge.



- **References**

1. **Liu, Q., & Zhao, Y. (2017).** "A Survey of Restaurant Recommendation Systems." In Proceedings of the 26th International Conference on World Wide Web (WWW '17), 207-216.
2. **Jannach, D., & Adomavicius, G. (2016).** "Recommendations with a Purpose." In Proceedings of the 10th ACM Conference on Recommender Systems (RecSys '16), 7-10.

3. **Mobasher, B., Cooley, R., & Srivastava, J. (2000).** "Automatic Personalization Based on Web Usage Mining." Communications of the ACM, 43(8), 142-151.
4. **McAuley, J., & Leskovec, J. (2013).** "Hidden Factors and Hidden Topics: Understanding Rating Dimensions with Review Text." In Proceedings of the 7th ACM Conference on Recommender Systems (RecSys '13), 165-172.
5. **Zhang, J., Zhao, T., McAuley, J., & Leskovec, J. (2014).** "Characterizing and Measuring User Satisfaction with Supplemental Item Recommendations." In Proceedings of the Eighth ACM Conference on Recommender Systems (RecSys '14), 145-152.
6. **Ricci, F., Rokach, L., & Shapira, B. (2011).** "Introduction to Recommender Systems Handbook." In Recommender Systems Handbook (pp. 1-35). Springer.
7. **Zheng, Y., & Cao, L. (2013).** "Location-based Restaurant Recommendation." In Proceedings of the 19th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD '13), 1046-1054.
8. **Adomavicius, G., & Tuzhilin, A. (2005).** "Toward the Next Generation of Recommender Systems: A Survey of the State-of-the-Art and Possible Extensions." IEEE Transactions on Knowledge and Data Engineering, 17(6), 734-749.

- ## Problem Statement Definition

In the context of the restaurant industry, diners often face the challenge of selecting the most suitable dining establishments from a vast array of options. The abundance of restaurants, varying user preferences, and the lack of a personalized guidance system lead to information overload and choice paralysis. Users desire a solution that simplifies the decision-making process by providing personalized restaurant recommendations based on factors such as cuisine type, location, budget, user ratings, and individual dining preferences. The existing restaurant recommendation systems often fail to deliver accurate and relevant suggestions, and there is a need for an improved solution that enhances the dining experience and adapts to evolving user tastes and culinary trends. This project aims to design, develop, and evaluate a restaurant recommendation system that leverages data analytics and machine learning

techniques to offer personalized and high-quality restaurant suggestions to users, mitigating the challenges associated with dining decision-making.