Impulse Coffee shop Database management system

**TEAM INFORMATION:**

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| S. No | Name | Mav ID |
| 1 | Aishwarya Gopalakrishnan | 1002129192 |
| 2 | Harshitha  Mulemane Lingaraja | 1002140612 |
| 3 | Kritin Yanamala Reddy | 1002118468 |
| 4 | Sushma Chowdary Mallampati | 1002114455 |

# Phase 1: Choosing the Business Idea

* Each team member proposed a business idea along with a detailed proposal document outlining the associated objectives.
* Through an online discussion on Teams, the team collectively agreed to pursue the development of a Coffee Shop Database System.
* All team members contributed equally to the decision-making process, which extended over a period of 3-5 days.
* The decision to focus on the Coffee Shop Database System stemmed from recognizing the potential of the coffee industry and the need for efficient management solutions.
* Detailed documentation was crafted, elaborating on various business goals and objectives to guide the project effectively.
* These documents served as a blueprint for subsequent phases of development, ensuring alignment and clarity among team members.

# Phase 2: Deriving EER Diagram

* We gathered at the Central Library, investing 4-5 days in collaborative discussions to discuss Entities, Attributes, and Relationships (EER) for the Coffee Shop Database System.
* Following brainstorming sessions, the team worked on creating the EER diagram, spending approximately 4-5 days on drafting and revising it.
* The drafting process involved multiple iterations and revisions to refine the diagram, ensuring accuracy in capturing entity relationships.
* Team members collaborated closely, providing feedback and suggestions to enhance the clarity and accuracy of the EER diagram.
* Detailed documentation accompanied the EER diagram, providing explanations of entities, attributes, and relationships for reference.

# Phase 3: Constructing Relational Schema

* Incorporated feedback to refine Phase 2 document, ensuring alignment with project goals.
* Analyzed entities and relationships to create a draft relational schema, establishing primary, foreign, and candidate keys during a collaborative session at Nedderman Library (3-4 days).
* Completed the relational schema after iterative refinement over 4-5 days, ensuring accuracy and completeness for subsequent database development stages.
* Engaged in iterative discussions and revisions throughout the process to enhance schema clarity and effectiveness, fostering alignment with project objectives.

# Phase 4: Normalization and Data Creation

* Team members convened via Teams call to discuss and address feedback for Phase 3, ensuring alignment with project requirements and stakeholder expectations.
* Conducted normalization for each table within the relational schema, ensuring efficient database structure over 1-2 days.
* Everyone met at Commons and collaboratively generated data for all tables in Excel, incorporating primary keys, foreign keys, and attributes over a week.
* Collaborated on table creation, dropping tables, and data insertion, ensuring accurate database setup over 3 days.
* Equally shared tasks among team members, dedicating 2-3 days to ensure accurate data population and database setup.
* We convened at the University Center to brainstorm and formulate revised business goals, fostering collaborative discussions to refine our project objectives. This process spanned 2-3 days.

Revised business goals are as follows:

1. To understand the coffee preferences of customers who prefer any flavor, aiding in personalized marketing strategies, inventory management, and product recommendations.
2. The analysis of the top-selling coffee types and their distribution across different customer cities can help the business identify new geographic markets with high demand for its popular coffee products. This information can guide the company's expansion strategy, allowing it to open new retail locations or distribution channels in these high-potential areas.
3. To identify the top-selling coffee based on transaction count, aiding in marketing strategies, and understanding customer preferences.
4. To identify the most popular mode of payment among customers and understand individual customer preferences, facilitating efficient payment processing to enhance for promotions by targeting specific payment methods.
5. To identify customers who exclusively purchase dark roasted coffee, due to its premium pricing his analysis also allows for cost-cutting measures in the coffee shop if fewer customers are inclined towards this product.
6. Analyze customer purchasing behavior for each coffee type within specific timeframes to identify seasonal trends, quarterly performance, and the popularity of different coffee types over time. These insights empower businesses to make data-driven decisions, fostering overall business development and growth.
7. To obtain a comprehensive overview of total sales revenue for each coffee type, facilitating a thorough analysis of sales performance to inform decisions regarding pricing strategies.
8. To analyze the distribution of customers across different age groups and determine which age groups are the most frequent consumers of coffee. This information can be valuable for targeted marketing campaigns, product development, and understanding consumer behavior.
9. To identify preferred flavors among customers that do not correspond to any available coffee options. This information can guide product development decisions and help in expanding the coffee menu to better cater to customer preferences.

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* Utilizing the established business goals, we worked together for around 6-8 days to create ad hoc SQL queries tailored to meet the specific requirements of each goal, maintaining alignment with the overall project objectives.
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