Malnad College of Engineering

(An autonomous institute under VTU)



Report on technical talk on Fundamentals of Database Management System

Title: Fundamentals of Database Management System **Date:** 20st May, 2024 **Speaker:** K. R. Prasanna Kumar

About the speaker: The speaker is an Assistant Professor in Computer Science and Engineering at Siddaganga Institute of Technology since 2006. He holds an M.Tech from Visvesvaraya Technological University, Belagavi.

Introduction:

On 21st May 2024, Mr Prasanna Kumar K R from Siddaganga Institute of Technology, delivered an insightful technical talk on Database Management Systems (DBMS). The talk primarily focused on Entity-Relationship (ER) diagrams and their role in database schema design, along with general DBMS concepts.





Key Themes:

• Entities and ER Diagrams: The speaker began by defining entities as real-world objects or concepts with an independent existence. Entities can be classified as strong entities, which can exist independently, and weak entities, which depend on a strong entity for their existence. ER diagrams were introduced as graphical representations of entities and their relationships. The importance of ER diagrams in the initial stages of database design was emphasized, as they help in visualizing the structure and relationships within the database.

• Mapping ER Diagrams to Relational Schema: The speaker detailed the process of converting ER diagrams into relational schemas, which involves:

- 1. Entities to Tables: Each entity is converted into a table.
- 2. Attributes to Columns: Each attribute becomes a column in the corresponding table.
- 3. Relationships to Foreign Keys: Relationships are represented using foreign keys to link tables.

Normalization was emphasized to eliminate redundancy and ensure data integrity by organizing columns and tables to minimize data duplication. The speaker used a real-world example related to bank accounts to clarify these concepts for instance, a "Bank" entity was converted into a "Bank" table with columns for "Bank_ID," "Branch_Name," "Address," and "Loan_Type," while a "Bank_Account" entity became a "Bank_Accounts" table with columns for "Account_ID," "Account_Type," and "Customer_ID." The "Customer_ID" in the "Bank_Accounts" table served as a foreign key, linking it to the "Customers" table. This example made the concepts easier to understand and relate to practical applications.

• General Concepts in DBMS: The speaker provided an overview of general DBMS concepts, including data integrity and constraints, which ensure the accuracy and consistency of the data stored in the database. The talk covered the critical roles of primary and foreign keys in relational databases. A primary key is a unique identifier for records within a table, ensuring that each record can be uniquely identified. Foreign keys establish and enforce relationships between tables, maintaining referential integrity. The speaker provided practical examples to illustrate how primary and foreign keys work together to link tables and ensure data consistency across the database.

Audience Interaction:

The interactive nature of the talk facilitated engaging discussions. The speaker Prassanna Kumar K R addressed questions from the audience, providing real-world examples and practical insights that contributed to a comprehensive understanding of the subject.

Conclusion:

The technical talk provided attendees with a thorough understanding of key DBMS concepts, with a particular focus on entity identification, ER diagrams, relational schema conversion, and the roles of primary and foreign keys. The insights gained from this talk are invaluable for anyone involved in database design and management, offering practical knowledge and a solid foundation in DBMS principles.

Gallery:

