VIGNAN'S NIRULA
INSTITUTE OF TECHNOLOGY & SCIENCE FOR WOMEN
(Approved by AICTE, New Delhi & Affiliated to JNTU Kakinada)
Vignan Avenue, Peda Palakaluru, Guntur - 522009

Department of Information Technology

Innovative Practice

Faculty Name : Mr. M. Venkat Rao,Mr.K.Srikanth
Course Name : Data Base Management Systems
Class : II B.Tech I Semester
Academic Year : 2021-2022
Title of the Topic : Database System Structure and Architecture
Activity Name : Mind Mapping

Objective of the Activity:

To enhance students' ability to organize and connect ideas visually, fostering deeper understanding of complex topics. Students will develop critical thinking skills by identifying relationships and hierarchies between concepts. The goal is to improve memory retention and problem-solving abilities.

Method to Implement

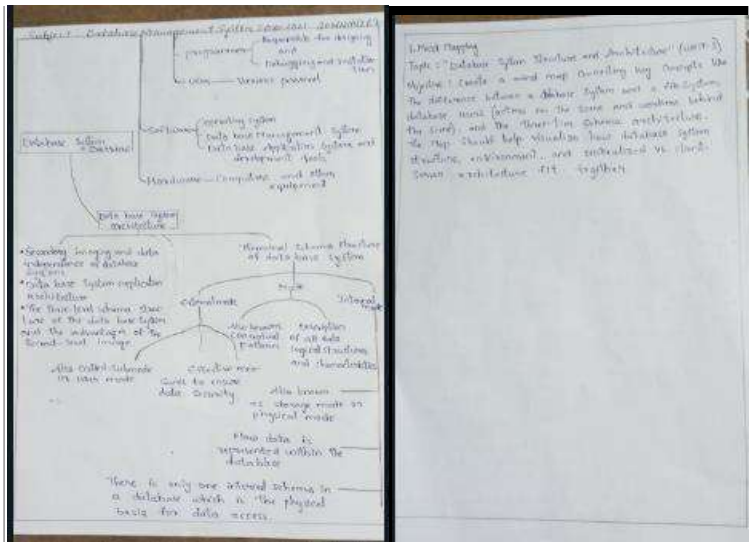
Introduction: Begin with a brief explanation of **Database System Structure and Architecture**. Emphasize the importance of databases in storing, managing, and retrieving data efficiently.

Mind Map Creation:

- **Provided Central Topic**: "Database System Structure and Architecture."
- **Asked Students to Branch Out with Subtopics Such As**:
  - **Three-Level Schema Architecture**
    - External Mode, Conceptual Mode, and Internal Mode
  - **Database System Environment**
    - Actors on the Scene: Database Administrators, Designers, Programmers, and Users
    - Workers Behind the Scene: Operating System, DBMS, Database Application Tools, and Hardware
  - **Database Architecture Models**
    - Centralized Architecture and Client-Server Architecture

- **Advantages of the Three-Level Schema**
  - Data Independence, Security Enhancement, and Streamlined Data Access

Screenshots of the Practice



Central Node: Database System Architecture

Branch 1: Three-Level Schema Architecture

- **Sub-branches**:
  - External Mode
    - Also called submode or user mode
    - Located at the outermost layer of the three-level model
    - Effective measures to ensure data security
  - Conceptual Mode
    - Also known as conceptual pattern or logical pattern
    - Description of all data logical structures and characteristics
  - Internal Mode
    - Also known as storage mode or physical mode
    - How data is represented within the database

Branch 2: Database System Environment

- **Sub-branches**:
  - Actors on the Scene
    - Database Administrators (DBAs): Responsible for maintenance and management

        - Database Designers: Develop database schemas
        - Programmers: Debugging and installation
        - Users: Various personnel
    - Workers Behind the Scene
        - Operating System
        - Database Management System (DBMS)
        - Database Application Systems and Development Tools
        - Hardware: Computers and other equipment

Branch 3: Database Architecture Models

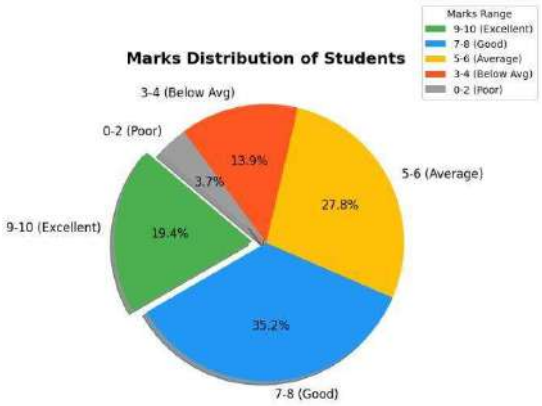
- **Sub-branches**:
    - Centralized Architecture
    - Client-Server Architecture

Branch 4: Advantages of the Three-Level Schema

- **Sub-branches**:
    - Data Independence
    - Security Enhancement
    - Streamlined Data Access

Assessment Analysis

Marks Range	**Number of Students**	**Percentage**
9-10 (Excellent)	21	19.44%
7-8 (Good)	38	35.19%
5-6 (Average)	30	27.78%
3-4 (Below Avg)	15	13.89%
0-2 (Poor)	4	3.70%
Total	108	100%



Conclusion

The **Database System Architecture** mind map helped students visualize key concepts such as the Three-Level Schema Architecture, Database System Environment, and Database Architecture Models.

Signature of the Faculty **Head of the Department**