

Dr. B.R. Ambedkar Open University, Hyderabad

UG Computer Applications- Discipline Specific Core Credit (DSCC-4)-Semester-IV

Database Management System

BLOCK-I: Introduction To DBMS

Unit 1 :Fundamentals of DBMS: Definition, History, and applications of DBMS, File System disadvantages , architecture of DBMS, data independence, DBA, types of database users, Over view of DDL, DCL,DML

Unit-2: E-R Modelling: Entity types, entity set, properties of attributes and keys, types and properties of relationships, E- R diagrams, Advanced E-R Modelling, Database design using ER diagrams-Case Study on College Management System or any case study

Unit-3: Data Base Design using Relational Data Model: Relational model concepts, relational constraints, primary and foreign key, super key, candidate key, Mapping E-R diagrams to Relations

BLOCK-II: DBMS Architectures

Unit-4 : Normal Forms: Normalization, Functional Dependencies, 1st NF, 2nd NF, 3rd NF, BCNF,4th NF, Case study on Normal Forms

Unit-5: Unit-6: Data Base System Architectures and Data Models : Features, applications, and examples of Centralized Architecture, Client-Server Architecture, Server System Architecture, Distributed Architecture, Parallel Architecture, Network Data Model, Hierarchical Data Model, Object Oriented Data Base Model.

Unit-6: Storage Structures: Overview of physical storage, Magnetic Disk and Magnetic Tape storage, Optical storage, Flash storage, RAID, Tertiary Storage,

BLOCK-III: File Structures and Transaction Management

Unit-7:File Organization: Sequential, ISAM, clustering, hashing, B+ Tree, Heap.

Unit-8 :Storage Access: Data Dictionary, indexing methods-Primary, sparse, dens, secondary, bitmap indexing

Unit-9: Data Base Transactions:Concepts, State, and properties of transactions, concurrent execution, serialization and testing of serializability, recoverability, isolation and its implementation, definition of transaction in SQL

BLOCK-IV: Structured Query Language

Unit-10: Introduction to SQL: Create, Drop, Primary key, Foreign key constraints, Alter, Truncate, Comment, Rename and other DDL commands SQL DCL And TCL: Grant, Revoke,commit,rollback, savepoint, set transaction

Unit-11: SQL Data Manipulation Language:Selection, Projection, where clause, And, Or, Not, OrderBy,count,Average,sum, update, delete, insert into, SQLviews and other DML commands with examples of one case study

Unit-12: Advanced SQL : SQL Forms, Triggers, Reports

Referemces

1. Database System Concepts Sixth EditionAviSilberschatz, Henry F. Korth. S. Sudarshan
2. Modern Database Management, 5th Edition Fred R. McFadden, Jeffrey Slater, Mary B. Prescott
3. <https://www.db-book.com/db6/slide-dir/index.html>

Practical List

Create a database having two tables with the specified fields, to computerize a library system of a Delhi 1 University College.

LibraryBooks (Accession number, Title, Author, Department, PurchaseDate, Price)

IssuedBooks (Accession number, Borrower)

- a) Identify primary and foreign keys. Create the tables and insert at least 5 records in each table.
 - b) Delete the record of book titled "Database System Concepts".
 - c) Change the Department of the book titled "Discrete Maths" to "CS".
 - d) List all books that belong to "CS" department.
 - e) List all books that belong to "CS" department and are written by author "Navathe".
 - f) List all computer (Department="CS") that have been issued.
 - g) List all books which have a price less than 500 or purchased between "01/01/1999" and "01/01/2004".
- 2) Create a database having three tables to store the details of students of Computer Department in your college.

Personal information about Student (College roll number, Name of student, Date of birth, Address, Marks(rounded off to whole number) in percentage at 10 + 2, Phone number) Paper Details (Paper code, Name of the Paper)

Student's Academic and Attendance details (College roll number, Paper code, Attendance,