

**B.COM – IV**

**Course Code: CE 204 D**

**Subject: Core Elective Computer Application**

**Paper Title: Database Management Systems Using SQL**

**Objectives:**

The Purpose of this course is

- To expose students to basics of DBMS and its applications.
- To enable students to gain knowledge of working with MS-Access.

Prerequisites: None

**Contents:**

**Unit – I Introduction & Data Modeling and Relational Data Model:**

Data and Information – Limitations of Manual Data Processing- Advantages of Databases - Database and DBMS - Elements of DBMS – DDL, DML. Parts of DBMS – Centralized, Data Independence, System Integration, Relational Database, tables (relations), rows(tuple) , domains, columns(attributes), Keys: Super Key, Candidate keys, primary key, Entities with Relationship Types – 1:1, M:N, Strong and Weak entities, Relational Algebra with Relational Operators – Basic(Selection, Projection) and Set operators)

**Unit –II Normalization :**

Normalization: First, Second, Third, Difference between DBMS and RDBMS  
SQL-Features: Part, Objective, Component, SQL data definition and data types.  
Introduction of MS ACCESS: Create Table using field types and its properties

**Unit – III Queries:**

QBE –Select Queries – Grouping – Parameters – Data Formatting, Use of Wild card characters, queries based on multiple sources – Cross Tab Queries – Action Queries – Make Table Queries – Append – Delete and Update Queries using MS Access.

**Unit – IV Forms and Reports: (Using MS-Access)**

Design and Modify Forms & Reports using Design View & Wizard View, Creating & Modify labels, Macro: Introduction to Macro and its uses.

**Main Reference Book(s):**

- (i) Peter Rob, Elie Semaan Databases Design, Development, & Deployment using Microsoft Access, TATA MCGRAW – HILL EDITION
- (ii) Database Systems: Concepts. Design and Applications, Pearson Education, S.K.Singh.

**Suggested Additional Reading Book(s):**

- (i) Fred R. McFadden, Modern Database Management, Addison Wesley
- (ii) Database Management Systems, Ramakrishnan, Gehrke, Third edition , McGraw Hill.

**Accomplishments of the student after completing the Course:**

After completion of this course Student would be able to

- To integrate Business/Financial applications with DBMS applications
- To manage data pertaining to financial applications effectively.

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**PRACTICAL: DBMS EXERCISES**

- 1) Create the following tables in Access with given fields  
Cust\_No, Cust\_Name, Add1, Add2, City, Pincode
  1. Add 10 records
  2. create query for city – Ahmedabad
  3. sort on cust\_name
  4. Index on City
  5. Show the difference between Sort and Index Command.
  
- 2) Create the following tables in Access with following fields  
Part\_No, Part\_name, Op\_Qty, Rate, Incoming/outgoing date Incoming Qty, Outgoing Qty, balance
  1. enter 10 records
  2. Create query to find total incoming and outgoing quantity for every product
  
- 3) Create 3 tables as under
  1. Customer master table: cust
  2. Movies master table: movie
  3. Invoice transaction table: invoice

Table 1

<b>Column Name</b>	<b>Format</b>	<b>Remark</b>
Cust_id	Text (3)	Primary Key, Not null
Lname	Text (15)	
Fname	Text (15)	
Area	Text (15)	
Phone_no	number (9)	

Table 2

<b>Column Name</b>	<b>Format</b>	<b>Remark</b>
Movie no	Number (3)	Primary Key, Not null
Title	Text (25)	
Type	Text (10)	
Star	Text (25)	
Price	number (8,2)	

Table 3

<b>Column Name</b>	<b>Format</b>	<b>Remark</b>
Inv_no	Text (3)	Primary Key, Not null
Mv_no	number (3)	
Cust_id	Text (3)	

Issue\_date      Date  
Return\_date     Date

2) Insert the following data into their respective tables:

1. Data for cust table:

<b>Cust_id</b>	<b>Lname</b>	<b>Fname</b>	<b>Area</b>	<b>Phone_no</b>
a01	Tendulkar	Sachin	Mumbai	9898989898
a02	Singh	Manmohan	Delhi	9898979797
a03	Kalam	A P J	Delhi	9898969696
a04	Tata	Ratan	Ahmedabad	9898959595
a05	Ambani	Mukesh	Mumbai	9898949494

2 . Data for movie table:

<b>mv_no</b>	<b>title</b>	<b>type</b>	<b>star</b>	<b>Price/Day</b>
1	Singham	Action	Ajay Devgan	200
2	Bol Bachachan Bol	Comedy	Abhishek Bachchan	135
3	Kya Super Cool Hay Hum	Romance	Ritesh Deshmukh	240
4	Bagban	Family	Amitabh Bachchan	280
5	The fugitive	Thriller	Harrison ford	155
6	Dhundh	suspense	Navin Nishal	175
7	Dracula	horror	Gary oldman	270

3. Data for invoice table:

<b>inv_no</b>	<b>mv_no</b>	<b>cust_id</b>	<b>issue_date</b>	<b>return_date</b>
i01	4	a01	23-jun02	29-jun-02
i02	3	a02	12-July-02	25-July-02
i03	1	a03	15-Jun-02	29-Jun-02
i04	6	a04	10-sep-02	28-sep-02
i05	7	a06	05-aug-02	25-aug-02
i06	2	a05	08-jun-02	21-jun-02
i07	5	a05	07-jul-02	28-jul-02
i08	9	a01	11-aug-02	28-aug-02
i09	5	a03	06-jul-02	10-aug-02
i10	8	a06	03-sep-02	06-sep-02

### **Single Table Retrieval:**

1. Find out the names of all the customers.
2. Print the entire movie table.
3. Retrieve the list of first name and phone number of all the customers.
4. Print the list of all movie titles whose price is having more than Rs. 155/-
5. Print the information from invoice table of customers who have not been issued movies in the month of June.
6. Display the invoice table information for cust\_id 'a01' and 'a02'.
7. List the movie title in descending order of their titles along with its price.

8. Print the names and types of all the movies except horror movies.
9. List the names, area and cust\_id of customer without phone numbers.
10. List the names of customers without lname.
11. List the mv\_no and inv\_no of customers having issues date is more than 01-July 2002.

**Using Special Operators:**

12. Find the names of all customers having 'a' as the second letter in their fnames.
13. Find the last name of all customers whose name begins with 'S' or 'T'.
14. Find the last names of all movie titles having 'O' as second letter.
15. Find the first and last names of all customers that belong to 'sa' area.
16. Find out the customers who stay in an area "Mumbai"
17. List the mv\_no, title and type of movies whose starts begin with letter 'D'.
18. Find the movies of type 'action', 'Suspense' and 'comedy'.
19. Find the movies whose price is greater than 30 and less than or equal to 75.

**Having and Group By, Set Function and Concatenation:**

20. Find the number of movies in each type.
  21. Count separately the number of movies in the 'comedy' an 'thriller' type.
  22. List the various movie types available from the movie table in ascending order.
  23. Count the total number of movies. Total price of the movie
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4. Prepare related FORM using database of practical – 3.
  
  5. Prepare related REPORTS using database of practical – 3.

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