SECTION – 3

Database Management System Lab

Session 1:

Ex 1: In this session you need to create database for an Employee management system of an ABC organization. The details about different tables are given below. According to that you can proceed further and create tables using MS-Access.

Answer :

EMPLOYEE MANAGEMENT SYSTEM

EMPLOYEE TABLE

```
CREATE TABLE EMPLOYEE  (FIRSTNAME  VARCHAR(20)  NOT NULL, MIDDLENAME
VARCHAR(20),  LASTNAME  VARCHAR(20) NOT NULL, EMPLOYEE_ID  NUMBER PRIMARY  KEY,
DATEOFBIRTH  DATE,ADDRESS  VARCHAR(50),  GENDER VARCHAR(2),  SALARY  NUMBER,
DATEOFJOINING  DATE,  DEPT_NUMBER NUMBER);
```

DEPARTMENT TABLE

```
CREATE TABLE DEPARTMENT  (DEPT_NAME  VARCHAR(20)  NOT NULL,  DEPT_NUMBER
NUMBER PRIMARY  KEY,  MANAGER_ID  NUMBER,  MA_DATE_OF_JOIN  DATE);
```

DEPARTMENT LOCATION TABLE

```
CREATE TABLE DEPT_LOC (DEPT_NUMBER N UMBER, DEPT_LOC VARCHAR(30),  DETP_LOC
NUMBER PRIMARY  KEY);
```

PROJECT TABLE

```
CREATE TABLE PROJECT  (PROJECT_NAME  VARCHAR(20),  PROJECT_NUMBER NUMBER
PRIMARY  KEY,  PROJECT_LOC VARCHAR(30)  NOT NULL, DEPT_NUMBER NUMBER);
```

WORKS_ON TABLE

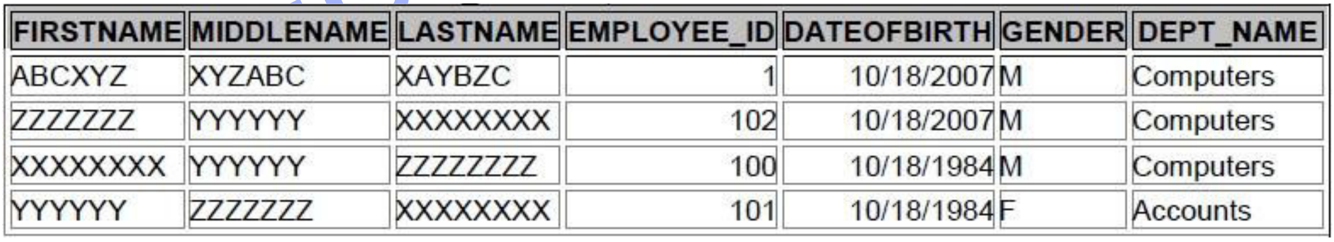
```
CREATE TABLE WORKS_ON  (EMPLOYEE_ID  NUMBER NOT NULL, PROJECT_NUMBER
NUMBER NOT NULL, HOURS NOT NULL, EMP_PROJ  NUMBER  PRIMARY  KEY);
```

DEPANDENT TABLE

```
CREATE TABLE DEPENDENT (EMPLOYEE_ID  NUMBER, DEPENDENT_NAME VARCHAR(20),
GENDER VARCHAR(2),  DATEOFBIRTH  DATE NOT NULL, REPLATIONSHIP  VARCHAR(20)  NOT
NULL);
```

1) DEPAATMENT WISE DETAILS

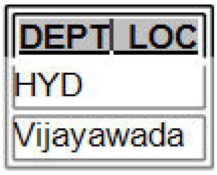
```
SELECT FIRSTNAME,  MIDDLENAME,  LASTNAME,  EMPLOYEE_ID,  DATEOFBIRTH,  GENDER,
DEPT_NAME  FROM EMPLOYEE,  DEPARTMENT  WHERE
EMPLOYEE.DEPTNUMBER=Department.DEPT_NUMBER ORDER BY
DEPARTMENT.DEPT_NUMBER;
```



FIRSTNAME	MIDDLENAME	LASTNAME	EMPLOYEE_ID	DATEOFBIRTH	GENDER	DEPT_NAME
ABCXYZ	XYZABC	XAYBZC	1	10/18/2007	M	Computers
ZZZZZZZ	YYYYYY	XXXXXXXX	102	10/18/2007	M	Computers
XXXXXXXX	YYYYYY	ZZZZZZZZ	100	10/18/1984	M	Computers
YYYYYY	ZZZZZZZ	XXXXXXXX	101	10/18/1984	F	Accounts

2) DEPARTMENTS LOCATED IN MORE THAN ONE LOCATION

```
SELECT DISTINCT(DEPT_LOC) FROM DEPARTMENT_LOCATION  D WHERE EXISTS  (SELECT
*FROM DEPARTMENT  D1 WHERE D.DEPT_NUMBER =D1.DEPT_NUMBER);
```



DEPT_LOC
HYD
Vijayawada

3) LIST PROJECTS

```
SELECT PROJECT_NUMBER, PROJECT_NAME  FROM PROJECT;
```

PROJECT_NUMBER	PROJECT_NAME
1	HMS
2	PMS
3	EMS
4	Accounts

4) DEPENDENT OF THE EMPLOYEE WHOSE ID IS ‘1’

```
SELECT *FROM DEPENDENT WHERE EMPLOYEE_ID=1
```

Employee_id	Dept_name	Gender	Date of birth	relationship
1	Computers	M	10/18/2007	manager

Session 2:

Ex 2: This session assume that you are developing a prototype database of the IGNOU library management system, for that you need to create the following tables:

(a) Book Records
(b) Book details
(c) Member details and
(d) Book issue details

Answer : **LIBRARY MANAGEMENT SYSTEM**

BOOK_RECORDS TABLE

```
CREATE TABLE BOOK_RECORDS (ACC_NUMBER NUMBER, ISBN_NUMBER NUMBER);
INSERT INTO BOOK_RECORDS VALUES(100,10);
INSERT INTO BOOK_RECORDS VALUES(101,11);
INSERT INTO BOOK_RECORDS VALUES(102,12);
INSERT INTO BOOK_RECORDS VALUES(103,13);
INSERT INTO BOOK_RECORDS VALUES(104,14);
INSERT INTO BOOK_RECORDS VALUES(105,15);
```

BOOKS

```
CREATE TABLE BOOKS (ISBN_NUMBER NUMBER PRIMARY KEY, AUTHOR VARCHAR(30),
PUBLISHER VARCHAR(30), PRICE NUMBER);
INSERT INTO BOOKS VALUES(10,'XYZABC','XXXXXXX',100);
INSERT INTO BOOKS VALUES(11,'XYZABC','XXXXXXX',110);
INSERT INTO BOOKS VALUES(12,'XYZABC','XXXXXXX',210);
```

MEMBERS TABLE

```
CREATE TABLE MEMBERS (MEMBER_ID NUBMER PRIMARY KEY,
MEMBER_NAME VARCHAR(30), MAX_BOOKS NUMBER, MAX_DAYS NUMBER);
INSERT INTO MEMBERS VALUES(10,'XZXZXZ',2,20);
INSERT INTO MEMBERS VALUES(11,'XYXYXY',2,20);
INSERT INTO MEMBERS VALUES(12,'YXYXYXY',2,20);
INSERT INTO MEMBERS VALUES(13,'YZYZYZ',2,20);
```

BOOKS_ISSUE

```
CREATE TABLE BOOKS_ISSUE (MEMBER_ID NUMBER, ACC_NUMBER NUMBER, ISSUE_ATE
DATE, RETURN_DATE DATE);
INSERT INTO BOOK_ISSUE VALUES(10,10,'12-03-2007','13-03-2007');
INSERT INTO BOOK_ISSUE VALUES(10,11,'12-03-2007','13-03-2007');
INSERT INTO BOOK_ISSUE VALUES(11,10,'12-03-2007','13-03-2007');
INSERT INTO BOOK_ISSUE VALUES(11,11,'12-03-2007','13-03-2007');
INSERT INTO BOOK_ISSUE VALUES(12,10,'12-03-2007','13-03-2007');
```

a) Get the list of all books

```
SELECT *FROM BOOKS;
```

ISBN_nubmer	author	publisher	price
10	XYZABC	XXXXXXX	100
11	XYZABC	XXXXXXX	110
12	XYZABC	XXXXXXX	10000
13	XYZABC	YYYYYY	1000

b) Get list of all members

```
SELECT *FROM MEMBERS;
```

Member_id	Member_name	Max_no_books	Max_no_days
10	XZXZXZ	2	20
11	XYXYXY	2	20
12	YXYXYXY	2	20
13	YZYZYZ	2	20

c) Get the accession number of the books which are available in the library

SELECT DISTINCT(ACC_NUMBER) FROM BOOK_RECORDS;

acc_number
100
101
102
103
104
105

d) List of books issued on 01-jan-2005

SELECT *FROM BOOK_ISSUE WHERE ISSUE_DATE=01/01/2005

Member_id	Acc_number	Issue_date	Return_date
10	11	12/3/2007	3/13/2007

e) Get list of all books having price greater than Rs. 500/-

SELECT *FROM BOOKS WHERE PRICE > 500

ISBN_nubmer	author	publisher	price
12	XYZABC	XXXXXXX	10000
13	XYZABC	YYYYYY	1000

f) Get the members who have not returned the book

SELECT DISTINCT(MEMBERS.MEMBER_NAME) FROM BOOK_ISSUE, MEMBERS WHERE (MEMBERS.MEMBER_ID) NOT IN (BOOK_ISSUE.MEMBER_ID)

MEMBER_NAME
XYXYXY
XZXZXZ
YXYXYXY
YZYZYZ

g) Book issue details

SELECT *FROM BOOK_ISSUE;

Member_id	Acc_number	Issue_date	Return_date
10	10	12/3/2007	3/13/2007
10	11	12/3/2007	3/13/2007
11	10	12/3/2007	3/13/2007
11	11	1/1/2005	3/13/2007
12	10	1/1/2005	3/13/2007

h) Find the no of copies available of a book of given number

SELECT COUNT (*) FROM BOOK RECORDS WHERE ISBN_NUMBER=10;

Expr1000
2

Session 4:

Ex 4: Create the following table and perform the necessary tasks defined below one by one. You must use the query tools/ SQL/ Reports/ Forms/ Graphs/Views/ using client/server wherever needed.

Answer : **CUSTOMER TABLE**

a) Print entire customer table

SELECT *FROM CUSTOMER;

Customer_id	Name	Area	Phone
1	XYXYXY	040	5252525
2	XYXYXY	040	2525250
3	YZYZYZY	040	222222
4	XZXZXZXZ	080	232323
5	XYZXYZ	080	242424

b) List the names of those customers who have 'e' as second letter in their names

```
SELECT NAME FROM CUSTOMER WHERE NAME LIKE '_i%'
```

Customer_id	Name
1	XEXYXY
2	XEXYXY

c) Find out the customer belonging to area 'abc'

```
SELECT *FROM CUSTOMER WHERE AREA LIKE 'ABC'
```

Customer_id	Name	Area	Phone
1	XEXYXY	ABC	5252525
5	XYZXYZ	ABC	242424

e) Delete record where area is NULL

```
DELETE FROM CUSTOMER WHERE AREA IS NULL
```

g) Create a table temp from customer having customer_id, name, and area

```
        CREATE TEMPORARY TABLE TEMPTABLE (CUSTOMER_ID NUMBER,NAME
VARCHAR(20),AREA VARCHAR(20));
```

h) Display area and number of records from customer table within each area

```
SELECT COUNT (*), AREA FROM CUSTOMER GROUP BY AREA
```

Expr1000	AREA
2	ABC
1	ACD
1	DEF
1	XYZ

i) Display all those records from customer table where name starts with 'a' or area is 'abc'

```
SELECT *FROM CUSTOMER WHERE NAME LIKE 'A%' OR AREA LIKE '%ABC%'
```

Customer_id	Name	Area	Phone
1	XEXYXY	ABC	5252525
5	ABCDEFG	ABC	242424

Ex 5: Answer the following queries using Library system as created earlier. You must create a view to know member name and name of the book issued to them, use any inbuilt function and operators like IN, ANY, ALL, EXISTS

Answer : **LIBRARY MANAGEMENT SYSTEM**

a) List the recors of members who have not been issues any book using EXISTS operator

```
SELECT MEMBER_ID, MEMBER_NAME FROM MEMBERS M WHERE NOT EXISTS
(SELECT *FROM BOOK_ISSUE B WHERE M.MEMBER_ID = B.MEMBER_ID);
```

MEMBER_ID	MEMBER_NAME
12	YXYXYXY
13	YZYZYZ

b) List the members who have got issued at least one book.

```
SELECT MEMBER_ID, MEMBER_NAME FROM MEMBERS M WHERE
M.MEMBER_ID IN (SELECT MEMBER_ID FROM BOOK_ISSUE);
```

MEMBER_ID	MEMBER_NAME
10	XZXZXZ
11	XYXYXY

Ex 6: Create a table of Employee (emp-number, name, dept, salary) and Department (dept number, dept name). Insert some records in the tables through appropriate forms having integrity checks. Add some records in employee table where department value is not present in department table.

Answer : **EMPOYEE MANAGEMENT SYSTEM**

EMPLOYEE TABLE

```
CREATE TABLE EMPLOYEE(EMP_NO NUMBER PRIMARY KEY, NAME VARCHAR(20) NOT NULL,
DEPT NUMBER, SALARY NUMBER NOT NULL);
INSERT INTO EMPLOYEE VALUES(100, 'XYZABC',1,50000);
INSERT INTO EMPLOYEE(EMP_NO, NAME, SALARY) VALUES(101, 'XYXYXY',50000);
INSERT INTO EMPLOYEE(EMP_NO, NAME, SALARY) VALUES(102, 'ZXZXZX',50000);
INSERT INTO EMPLOYEE VALUES(103, 'YZYZYZ',1,50000);
INSERT INTO EMPLOYEE VALUES(104, 'ZXYZXZ',1,50000);
INSERT INTO EMPLOYEE VALUES(105, 'ABCDEF',1,50000);
```

DEPARTMENT TABLE

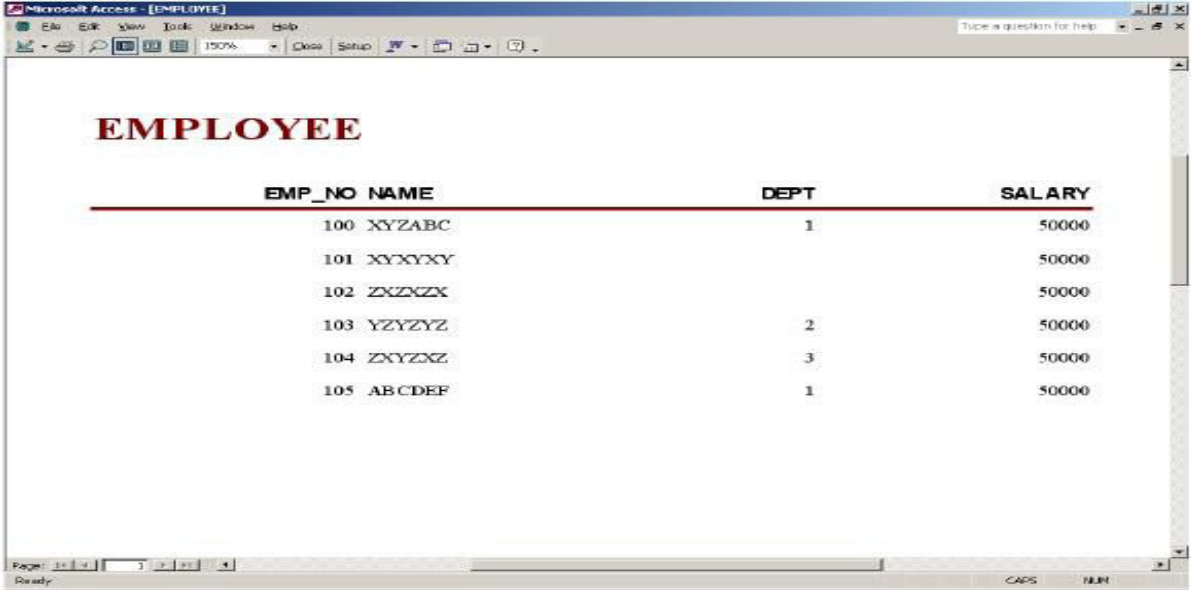
```
CREATE TABLE DEPARTMENT(DEPT_NO NUMBER PRIMARY KEY, DEPT_NAME VARCHAR(30)
NOT NULL);
INSERT INTO DEPARTMENT VALUES(1,'COMPUTERS');
INSERT INTO DEPARTMENT VALUES(2,'ACCOUNTS');
INSERT INTO DEPARTMENT VALUES(3,'SALES');
```

a) display employee where department is NULL

```
SELECT EMP_NO, NAME, SALARY FROM EMPLOYEE WHERE DEPT IS NULL
```

EMP_NO	NAME	SALARY
101	XYXYXY	50000
102	ZXZXZX	50000

b) Employee table report



EMPLOYEE

EMP_NO	NAME	DEPT	SALARY
100	XYZABC	1	50000
101	XYXYXY		50000
102	ZXZXZX		50000
103	YZYZYZ	2	50000
104	ZXYZXZ	3	50000
105	ABCDEF	1	50000

c) Employee records whose salary less than the salary of employee code is 'A100'

```
SELECT *FROM EMPLOYEE WHERE SALARY <(SELECT SALARY FROM
 EMPLOYEE WHERE EMP_NO = 100);
```

EMP_NO	NAME	DEPT	SALARY
101	XYXYXY		50000
102	ZXZXZX		50000
103	YZYZYZ	2	50000
104	ZXYZXZ	3	50000
105	ABCDEF	1	50000

d) Creating sales_data table

```
CREATE TABLE SALES_DATA(REGION_CODE NUMBER PRIMARY KEY, CITY VARCHAR(30),
SALESPERSON_CODE NUMBER, SALE_QTY NUMBER)
SELECT *FROM SALES_DATA
```

REGION_CODE	CITY	SALESPERSON_CODE	SALE_QTY
10	VIJAYAWADA	100	5
11	HYDERABAD	101	4
12	DELHI	102	10
13	VIZAG	103	5

e) Salesperson sales details

```
SELECT *FROM SALES_DATA WHERE SALE_QTY >= 5;
```

REGION_CODE	CITY	SALESPERSON_CODE	SALE_QTY
10	VIJAYAWADA	100	5
12	DELHI	102	10
13	VIZAG	103	5

Session 6 :

Ex 8: Create the following tables:

Order party : (Order number, Order date, customer code)
Order : Order number, Item code, Quantity
The key to the second table is order-number + item-code
Create a **form** for data entry to both the tables.

Answer : **ORDER MANAGEMENT**

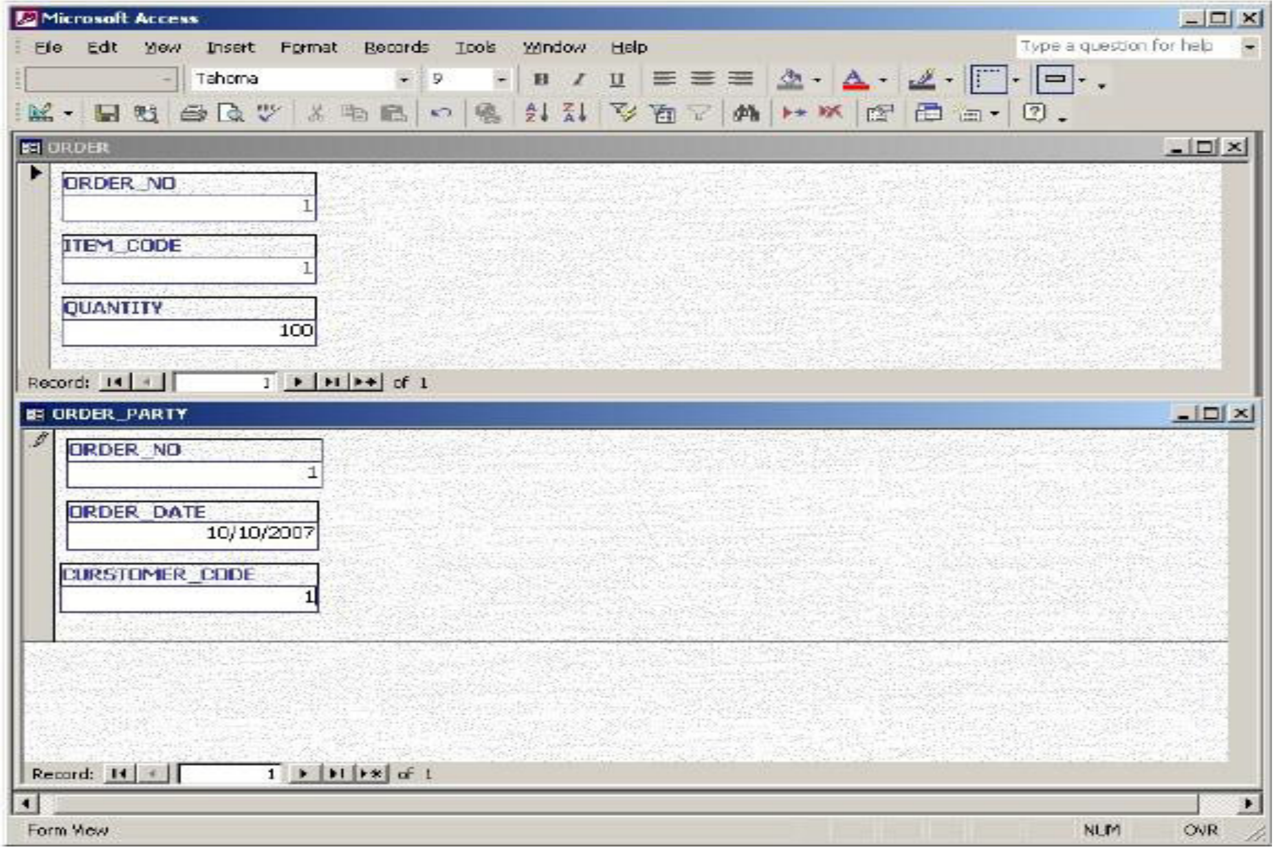
ORDER PARTY TABLE

```
CREATE TABLE ORDER_PARTY(ORDER_NO NUMBER PRIMARY KEY, ORDER_DATE DATE,
CURSTOMER_CODE NUMBER)
```

ORDER TABLE

```
CREATE TABLE ORDER(ORDER_NO NUMBER PRIMARY KEY, ITEM_CODE NUMBER,
QUANTITY NUMBER);
```

1)ORDER AND ORDER PARTY DATA ENTRY FORM



ORDER

ORDER_NO: 1
ITEM_CODE: 1
QUANTITY: 100
Record: 1 of 1

ORDER_PARTY

ORDER_NO: 1
ORDER_DATE: 10/10/2007
CURSTOMER_CODE: 1
Record: 1 of 1

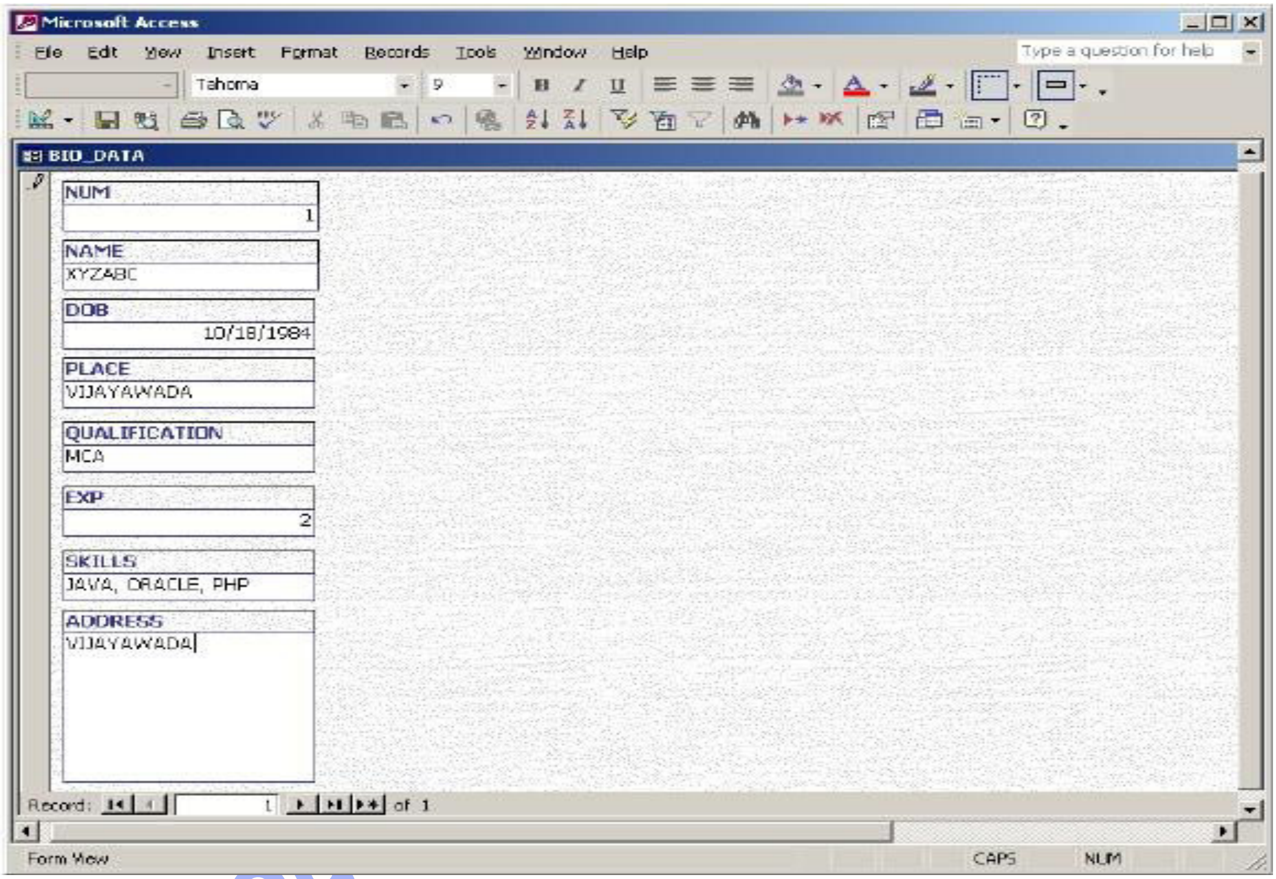
Ex 9: Create a form for storing Bio-data of students. Create the supporting tables to store the data.

Answer : **BIO DATA FORM**

BIO DATA TABLE

```
CREATE TABLE BIO_DATE(NUM NUMBER PRIMARY KEY, NAME VARCHAR(20), DOB DATE,
PLACE VARCHAR(20), QUALIFICATION  VARCHAR(10), SKILLS VARCHAR(10), EXP NUMBER,
ADDRESS VARCHAR(100));
```

BIO DATA ENTRY FORM



NUM	1
NAME	XYZABC
DOB	10/18/1984
PLACE	VIJAYAWADA
QUALIFICATION	MCA
EXP	2
SKILLS	JAVA, ORACLE, PHP
ADDRESS	VIJAYAWADA

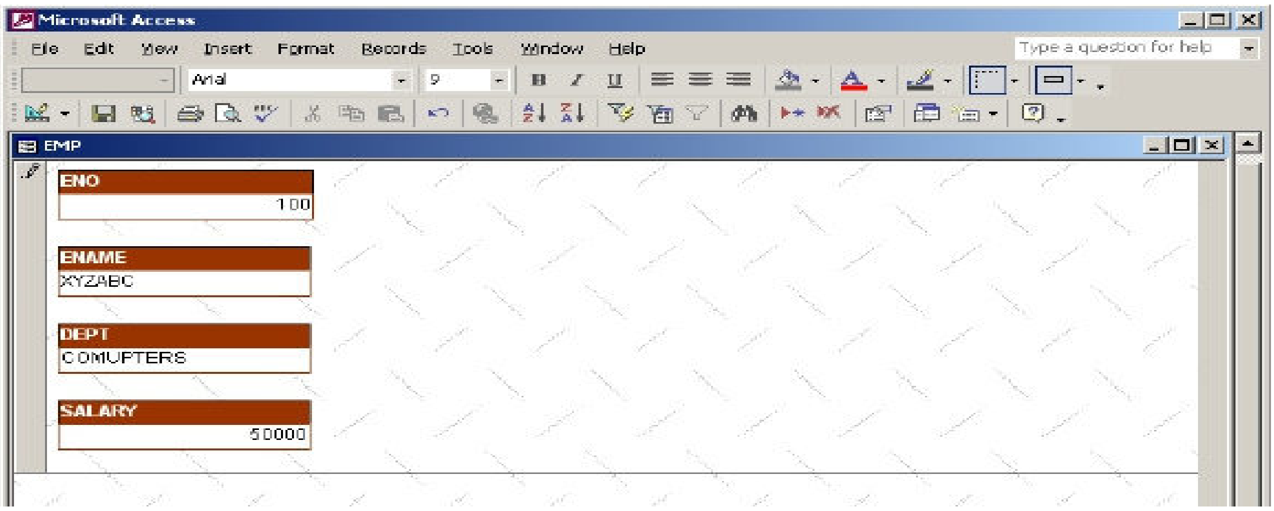
Ex 10: Design a suitable form for storing basic information and salary details of employees of an organization. Design and implement the necessary tables.

Answer : **EMPLOYEE SALARY DETAILS**

EMP TABLE

```
CREATE TABLE EMP(ENO NUMBER, ENAME VARCHAR(20), DEPT VARCHAR(20), SALARY NUMBER);
```

EMPLOYEE SALARY ENTRY FORM

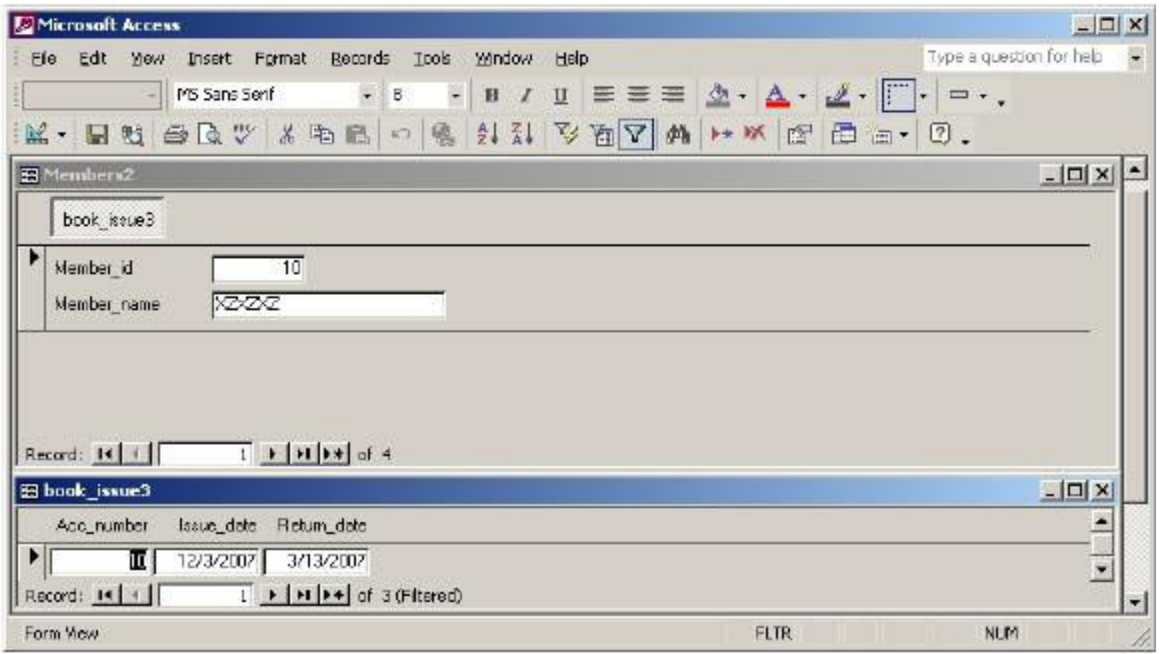


ENO	100
ENAME	XYZABC
DEPT	COMUPTERS
SALARY	50000

Session 8 :

Ex 11: Design a form that shows the status of books pending on a member on entering the member-id.

Answer : **Member book issue details using member id and member name**



Member_id 10

Member_name XZXZXZ

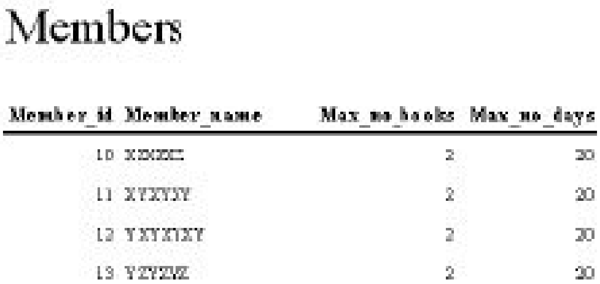
Record: 1 of 4

book_issue3

Acc_number	Issue_date	Return_date
	12/3/2007	3/13/2007

Record: 1 of 3 (Filtered)

MEMBERS REPORT



Members

Member_id	Member_name	Max_no_books	Max_no_days
10	XZXZXZ	2	20
11	XYXYXY	2	20
12	YXYXYXY	2	20
13	YZYZYZ	2	20

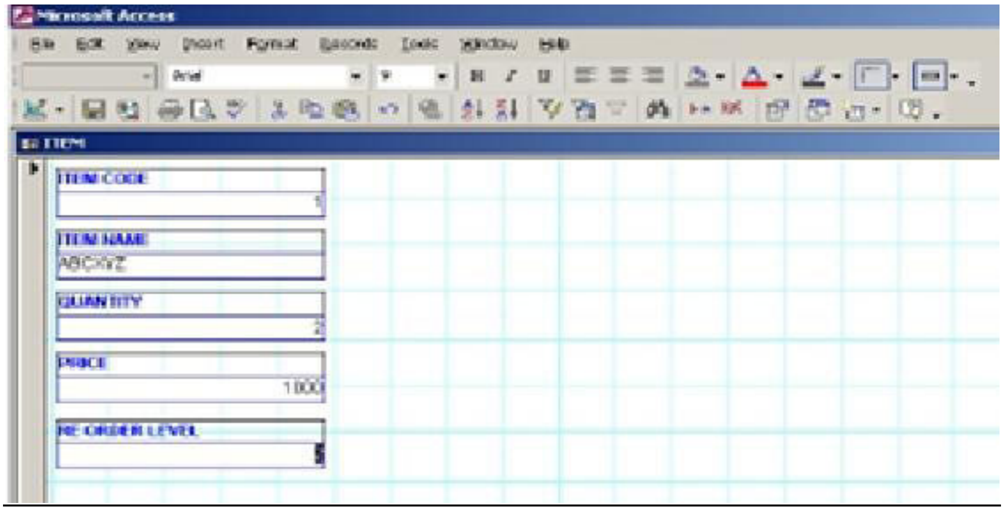
Ex 12: Design a **form** that modifies the records of an Item Table having the fields: Item Code, Item Name, Quantity, Price, Re-order Level.

Answer : **ITEM TABLE DETAILS**

ITEM TABLE

```
CREATE TABLE ITEM(ITEM_CODE NUMBER PRIMARY KEY, ITEM_NAME VARCHAR(50),
QUANTITY NUMBER, PRICE NUMBER, RE_ORDER_LEVEL NUMBER);
```

ITEM DETAILS ENTRY FORM



ITEM CODE 1

ITEM NAME ABCXYZ

QUANTITY 2

PRICE 1000

RE ORDER LEVEL 5

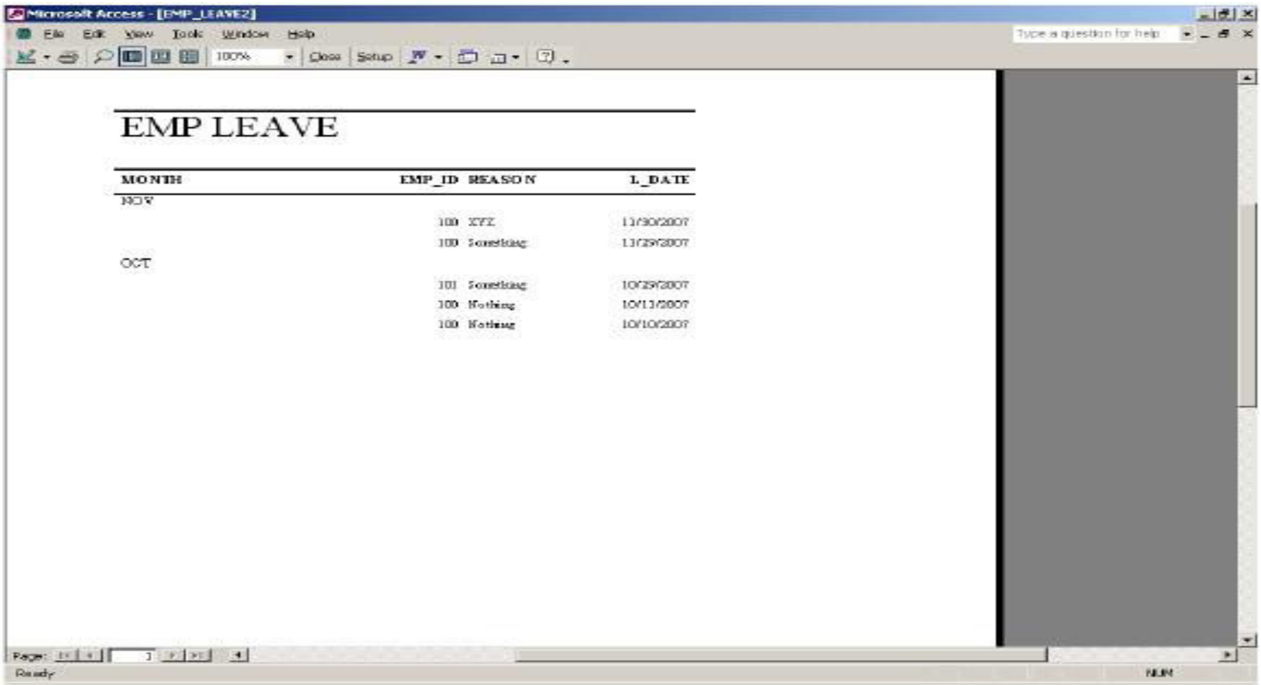
Ex 13: Design the **form** to display the leave information of each employee following. The validations must be made for the fields.

Answer : **Employee leave table**

EMP_LEAVE TABLE

```
CREATE TABLE EMP_LEAVE (EMP_ID NUMBER, REASON VARCHAR(50), L_DATE DATE,
MONTH VARCHAR(5));
```

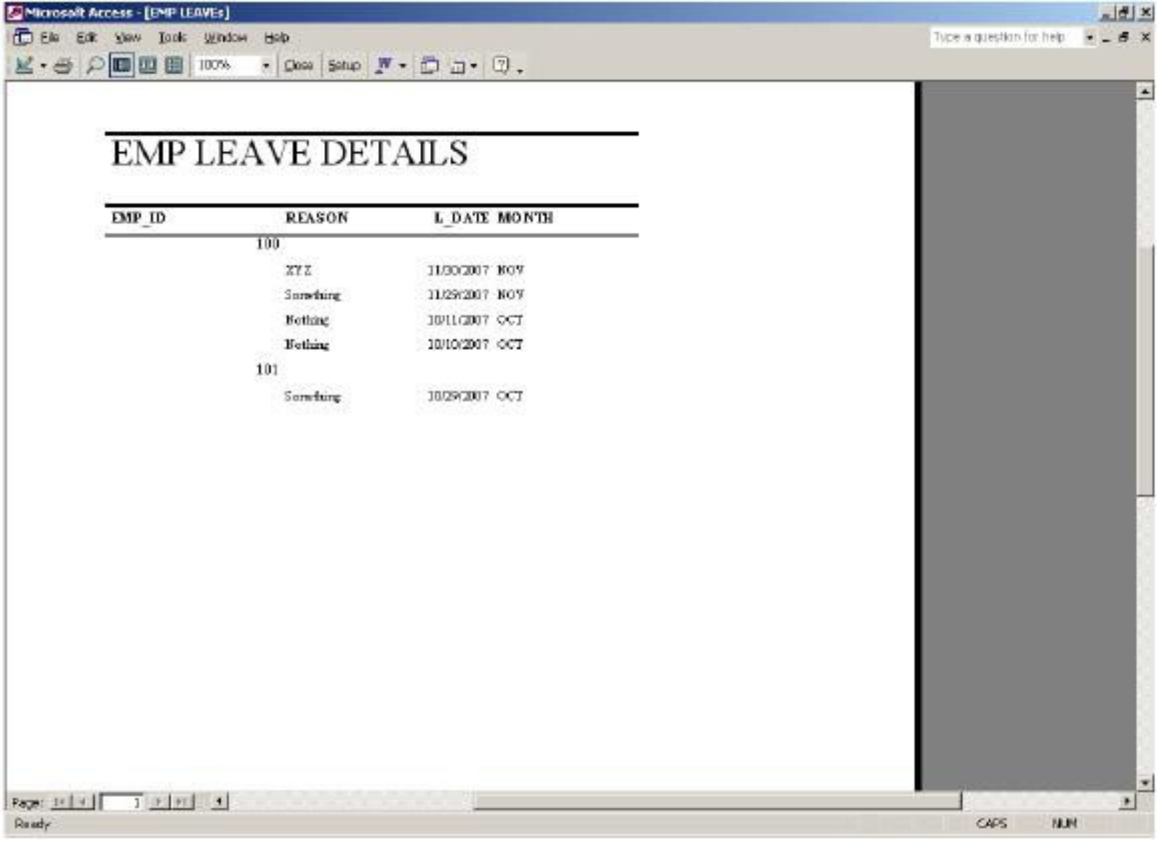
a) Leaves information group by Month


Microsoft Access - [EMP_LEAVE2]
File Edit View Tools Window Help
Type a question for help
100%
Close
Setup
Page: 1
Ready
NUM

EMP LEAVE

MONTH	EMP_ID	REASON	L_DATE
NOV			
	100	XYZ	11/30/2007
	100	Something	11/29/2007
OCT			
	101	Something	10/29/2007
	100	Nothing	10/11/2007
	100	Nothing	10/10/2007

b) Leaves information group by Employee id


Microsoft Access - [EMP LEAVEs]
File Edit View Tools Window Help
Type a question for help
100%
Close
Setup
Page: 1
Ready
CAPS
NUM

EMP LEAVE DETAILS

EMP_ID	REASON	L_DATE	MONTH
100			
	XYZ	11/30/2007	NOV
	Something	11/29/2007	NOV
	Nothing	10/11/2007	OCT
	Nothing	10/10/2007	OCT
101			
	Something	10/29/2007	OCT