

GUJARAT TECHNOLOGICAL UNIVERSITY

COMPUTER ENGINEERING (07) DATABASE MANAGEMENT SYSTEMS SUBJECT CODE: 3130703

B.E. 3rd Semester

Practical 1.To study DDL-create and DML-insert commands.

(i) Create tables according to the following definition.

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CREATE TABLE DEPOSIT (ACTNO VARCHAR2(5) ,CNAME VARCHAR2(18) , BNAME  
VARCHAR2(18) , AMOUNT NUMBER(8,2) ,ADATE DATE);
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CREATE TABLE BRANCH(BNAME VARCHAR2(18),CITY VARCHAR2(18));
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CREATE TABLE CUSTOMERS(CNAME VARCHAR2(19) ,CITY VARCHAR2(18));
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```
CREATE TABLE BORROW(LOANNO VARCHAR2(5), CNAME VARCHAR2(18), BNAME  
VARCHAR2(18), AMOUNT NUMBER (8,2));
```

(ii) Insert the data as shown below.

DEPOSIT

ACTNO	CNAME	BNAME	AMOUNT	ADATE
100	ANIL	VRCE	1000.00	1-MAR-95
101	SUNIL	AJNI	5000.00	4-JAN-96
102	MEHUL	KAROLBAGH	3500.00	17-NOV-95
104	MADHURI	CHANDI	1200.00	17-DEC-95
105	PRMOD	M.G.ROAD	3000.00	27-MAR-96
106	SANDIP	ANDHERI	2000.00	31-MAR-96
107	SHIVANI	VIRAR	1000.00	5-SEP-95
108	KRANTI	NEHRU PLACE	5000.00	2-JUL-95
109	MINU	POWAI	7000.00	10-AUG-95

BRANCH

VRCE	NAGPUR
AJNI	NAGPUR
KAROLBAGH	DELHI
CHANDI	DELHI
DHARAMPETH	NAGPUR
M.G.ROAD	BANGLORE
ANDHERI	BOMBAY
VIRAR	BOMBAY
NEHRU PLACE	DELHI
POWAI	BOMBAY

CUSTOMERS

ANIL	CALCUTTA
SUNIL	DELHI
MEHUL	BARODA
MANDAR	PATNA
MADHURI	NAGPUR
PRAMOD	NAGPUR
SANDIP	SURAT
SHIVANI	BOMBAY
KRANTI	BOMBAY
NAREN	BOMBAY

BORROW

LOANNO	CNAME	BNAME	AMOUNT
201	ANIL	VRCE	1000.00
206	MEHUL	AJNI	5000.00
311	SUNIL	DHARAMPETH	3000.00
321	MADHURI	ANDHERI	2000.00
375	PRMOD	VIRAR	8000.00
481	KRANTI	NEHRU PLACE	3000.00

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From the above given tables perform the following queries:

- (1) Describe deposit, branch.
- (2) Describe borrow, customers.
- (3) List all data from table DEPOSIT.
- (4) List all data from table BORROW.
- (5) List all data from table CUSTOMERS.
- (6) List all data from table BRANCH.
- (7) Give account no and amount of depositors.
- (8) Give name of depositors having amount greater than 4000.
- (9) Give name of customers who opened account after date '1-12-96

Practical 2 Create the below given table and insert the data

accordingly. Create Table Job (job_id, job_title, min_sal, max_sal)

COLUMN NAME	DATA TYPE
job_id	Varchar2(15)
job_title	Varchar2(30)
min_sal	Number(7,2)
max_sal	Number(7,2)

Create table Employee (emp_no, emp_name, emp_sal, emp_comm, dept_no)

COLUMN NAME	DATA TYPE
emp_no	Number(3)
emp_name	Varchar2(30)
emp_sal	Number(8,2)
emp_comm	Number(6,1)
dept_no	Number(3)

Create table deposit(a_no,cname,bname,amount,a_date).

COLUMN NAME	DATA TYPE
a_no	Varchar2(5)
cname	Varchar2(15)
bname	Varchar2(10)

amount	Number(7,2)
a_date	Date

Create table borrow(loanno,cname,bname,amount).

COLUMN NAME	DATA TYPE
loanno	Varchar2(5)
cname	Varchar2(15)
bname	Varchar2(10)
amount	Varchar2(7,2)

Insert following values in the table **Employee**.

emp_n	emp_name	emp_sal	emp_comm	dept_no
101	Smith	800		20
102	Snehal	1600	300	25
103	Adama	1100	0	20
104	Aman	3000		15
105	Anita	5000	50,000	10
106	Sneha	2450	24,500	10
107	Anamika	2975		30

Insert following values in the table **job**.

job_id	job_name		min_sal
IT_PROG	Programmer		4000
MK_MGR	Marketing manager	9000	15000
FI_MGR	Finance manager	8200	12000
FI_ACC	Account		4200
LEC	Lecturer		6000
COMP_OP	Computer Operator	1500	3000

Insert following values in the table **deposit**.

A_no	cname	Bname	Amount	Date
101	Anil	andheri	7000	01-jan-06
102	Sunil	virar	5000	15-jul-06
103	Jay	villeparle	6500	12-mar-06
104	Vijay	andheri	8000	17-sep-06
105	Keyur	Dadar	7500	19-nov-06
106	Mayur	Borivali	5500	21-dec-06

Perform following queries

- (1) Retrieve all data from **employee, jobs and deposit**.
- (2) Give details of account no. and deposited rupees of customers having account opened between dates **01-01-06 and 25-07-06**.
- (3) Display all jobs with minimum salary is greater than 4000.
- (4) Display name and salary of employee whose department no is 20. Give alias name to name of employee.
- (5) Display employee no,name and department details of those employee whose department lies **in(10,20)**

To study various options of LIKE predicate

- (6) Display all employee whose name start with 'A' and third character is 'a'.
- (7) Display name, number and salary of those employees whose name is 5 characters long and first three characters are 'Ani'.
- (8) Display the non-null values of employees and also employee name second character should be 'n' and string should be 5 character long.
- (9) Display the null values of employee and also employee name's third character should be 'a'.
- (10) What will be output if you are giving LIKE predicate as '%_%' ESCAPE '\'

Practical 3. Do as directed :

(1) create table Emp with the following fields and constraints.

Empno as primary key, deptno as foreign key, empname, role, role id, hire date, manager no.

(2) create table dept having fields – deptno, dept name, dept loc, jobid.

(3) Insert records in both the tables as follows :

Emp_no	Dept_no	Name	Role	Role_id	Hire date	Manager no.
101	20	Ward	Salesman	7697	22-2-1995	102
102	20	Jones	Manager	7839	15-6-1990	
103	20	Martin	Salesman	7697	23-4-1993	102
104	15	Blake	Manager	7839	1-5-1992	
105	10	Clark	Manager	7839	2-10-1995	
106	10	Scott	Analyst	7565	9-12-1991	105
107	30	King	President	7000	17-1-1994	

Dept_no	Dept Name	Job_id	Location
10	Account	IT_PROG	New York
20	Research	MK_MGR	Delhi
30	Sales	FI_MGR	Chicago
40	Operations	FI_ACC	Boston
30	Sales	FI_MGR	LA
20	Research	Comp_Operator	Miami
30	Sales	FI_MGR	Chicago

Practical 4. To Perform various data manipulation commands, aggregate functions and sorting concept on all created tables.

- (1) List total deposit from deposit.
- (2) List total loan from karolbagh branch
- (3) Give maximum loan from branch vrce.
- (4) Count total number of customers
- (5) Count total number of customer's cities.
- (6) Create table supplier from employee with all the columns.
- (7) Create table sup1 from employee with first two columns.
- (8) Create table sup2 from employee with no data
- (9) Insert the data into sup2 from employee whose second character should be 'n' and string should be 5 characters long in employee name field.
- (10) Delete all the rows from sup1.
- (11) Delete the detail of supplier whose sup_no is 103.
- (12) Rename the table sup2.
- (13) Destroy table sup1 with all the data.
- (14) Update the value dept_no to 10 where second character of emp. name is 'm'.
- (15) Update the value of employee name whose employee number is 103.

Practical 5. To study Single-row functions.

- (1) Write a query to display the current date. Label the column Date
- (2) For each employee, display the employee number, job, salary, and salary increased by 15% and expressed as a whole number. Label the column New Salary
- (3) Modify your query no 4.(2) to add a column that subtracts the old salary from the new salary. Label the column Increase
- (4) Write a query that displays the employee's names with the first letter capitalized and all other letters lowercase, and the length of the names, for all employees whose name starts with J, A, or M. Give each column an appropriate label. Sort the results by the employees' last names.
- (5) Write a query that produces the following for each employee:
<employee last name> earns <salary> monthly
- (6) Display the name, hire date, number of months employed and day of the week on which the employee has started. Order the results by the day of the week starting with Monday.
- (7) Display the hiredate of emp in a format that appears as Seventh of June 1994 12:00:00 AM.
- (8) Write a query to calculate the annual compensation of all employees (sal+comm.).

Practical 6. Manipulating Data

- (1) Give 10% interest to all depositors.
- (2) Give 10% interest to all depositors having branch vree
- (3) Give 10% interest to all depositors living in nagpur and having branch city bombay.
- (4) Write a query which changes the department number of all employees with empno 7788's job to employee 7844's current department number.
- (5) Transfer 10 Rs from account of anil to sunil if both are having same branch.
- (6) Give 100 Rs more to all depositors if they are maximum depositors in their respective branch.
- (7) Delete depositors of branches having number of customers between 1 to 3.
- (8) Delete deposit of vijay.
- (9) Delete borrower of branches having average loan less than 1000.

Practical 7. To apply the concept of Aggregating Data using Group functions.

- (1) List total deposit of customer having account date after 1-jan-96.
- (2) List total deposit of customers living in city Nagpur.
- (3) List maximum deposit of customers living in bombay.
- (4) Display the highest, lowest, sum, and average salary of all employees. Label the columns Maximum, Minimum, Sum, and Average, respectively. Round your results to the nearest whole number.
- (5) Write a query that displays the difference between the highest and lowest salaries. Label the column DIFFERENCE.
- (6) Create a query that will display the total number of employees and, of that total, the number of employees hired in 1995, 1996, 1997, and 1998
- (7) Find the average salaries for each department without displaying the respective department numbers.

- (8) Write a query to display the total salary being paid to each job title, within each department.
- (9) Find the average salaries > 2000 for each department without displaying the respective department numbers.
- (10) Display the job and total salary for each job with a total salary amount exceeding 3000, in which excludes president and sorts the list by the total salary.
- (11) List the branches having sum of deposit more than 5000 and located in city bombay.

Practical 8. Displaying data from Multiple Tables (join)

- (11) Give details of customers ANIL.
- (12) Give name of customer who are borrowers and depositors and having living city nagpur
- (13) Give city as their city name of customers having same living branch.
- (14) Write a query to display the last name, department number, and department name for all employees.
- (15) Create a unique listing of all jobs that are in department 30. Include the location of the department in the output
- (16) Write a query to display the employee name, department number, and department name for all employees who work in NEW YORK.
- (17) Display the employee last name and employee number along with their manager's last name and manager number. Label the columns Employee, Emp#, Manager, and Mgr#, respectively.
- (18) Create a query to display the name and hire date of any employee hired after employee SCOTT.

Practical 9. To solve queries using the concept of sub query.

- (1) Write a query to display the last name and hire date of any employee in the same department as SCOTT. Exclude SCOTT
- (2) Give name of customers who are depositors having same branch city of mr. sunil.
- (3) Give deposit details and loan details of customer in same city where pramod is living.
- (4) Create a query to display the employee numbers and last names of all employees who earn more than the average salary. Sort the results in ascending order of salary.
- (5) Give names of depositors having same living city as mr. anil and having deposit amount greater than 2000
- (6) Display the last name and salary of every employee who reports to ford.
- (7) Display the department number, name, and job for every employee in the Accounting department.
- (8) List the name of branch having highest number of depositors.
- (9) Give the name of cities where in which the maximum numbers of branches are located.
- (10) Give name of customers living in same city where maximum depositors are located.

Practical 10 To apply the concept of security and privileges.

Practical 11. To study Transaction control commands

Open Ended Problem:

- 1) Develop a Online leave management system, Leave Management process includes defining the leave types, assigning entitlements and calculating carry over leaves, employees applying for leaves, managers approving or rejecting the leave requests, importing the leave data into payroll for calculations etc.
- 2) Develop a Library management system, where indexing of book according to the author or alphabetical order can be done. Issuing of books to the student can be managed and searching of books.
- 3) Make a SQL data base of student details and collaborate it with student semester performance and display each student performance individually.
- 4) Develop Inventory control and procurements for school management systems. School does have regular purchase of chalk box, chairs, benches etc.