



Faculty of Technology and Engineering

Chandubhai S. Patel Institute of Technology (CSPIT)

Department of Computer Science & Engineering

Date: / /

Laboratory Manual

Academic Year	:	2024-25	Semester	:	4
Course code	:	CSE206	Course name	:	DATABASE MANAGEMENT SYSTEM

Practical - 1

Aim: Global Trust Bank is expanding its operations and requires a robust database management system to efficiently manage its employees, job profiles, customers' accounts, and loan information. The bank has laid out specific requirements and constraints to ensure data integrity, uniqueness, and completeness.

Requirements

Employee Management:

- Job Profiles: Maintain records of different job profiles.
- Employees: Store detailed information about employees, including their association with job profiles.

Customer Management:

- Accounts: Maintain separate records for customers' bank accounts.
- Loans: Maintain separate records for customers' loan details
- Design and implement the schema as per the given information.

Constraints –

- Not Null Constraints: Critical fields must not be null to ensure data completeness.
- Unique Constraints: Certain fields must have unique values to avoid duplicates (e.g., Account Number).
- Check Constraints: Enforce domain integrity by limiting the values that can be placed in a column.

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

The screenshot shows the Oracle SQL Developer interface. On the left, the 'Connections' pane lists several database connections, with 'C23CS46' selected. The 'Reports' pane is also visible. The main window displays the 'SQL Worksheet' for 'C23CS46.sql'. The SQL code in the worksheet is as follows:

```
CREATE TABLE JOB(
    JOB_ID VARCHAR2(15) NOT NULL UNIQUE,
    JOB_TITLE VARCHAR2(30) NOT NULL,
    MIN_SAL NUMBER(7,2),
    MAX_SAL NUMBER(7,2)
);

SELECT * FROM JOB

INSERT INTO JOB(JOB_ID,JOB_TITLE,MIN_SAL,MAX_SAL)
VALUES('IT_PROG','Programmer',4000,10000);
INSERT INTO JOB(JOB_ID,JOB_TITLE,MIN_SAL,MAX_SAL)
VALUES('MK_MGR','Marketing Manager',9000,15000);
INSERT INTO JOB(JOB_ID,JOB_TITLE,MIN_SAL,MAX_SAL)
VALUES('FI_MGR','Finance Manager',8200,12000);
INSERT INTO JOB(JOB_ID,JOB_TITLE,MIN_SAL,MAX_SAL)
VALUES('FI_ACC','Accountant',4200,9000);
INSERT INTO JOB(JOB_ID,JOB_TITLE,MIN_SAL,MAX_SAL)
VALUES('LEC','Lecturer',6000,17000);
INSERT INTO JOB(JOB_ID,JOB_TITLE,MIN_SAL,MAX_SAL)
VALUES('COMP OP','Computer Operator',1500,13000);
```

Below the SQL code, the 'Query Result' pane shows the output of the 'SELECT * FROM JOB' query. It indicates that 5 rows were fetched in 0.018 seconds. The resulting table is:

JOB_ID	JOB_TITLE	MIN_SAL	MAX_SAL
1 MK_MGR	Marketing Manager	9000	15000
2 FI_MGR	Finance Manager	8200	12000
3 FI_ACC	Accountant	4200	9000
4 LEC	Lecturer	6000	17000
5 COMP OP	Computer Operator	1500	13000

2. Create Table Employee (emp_no, emp_name, emp_sal, emp_comm, dept_no)

The screenshot shows the Oracle SQL Developer interface. On the left, the 'Connections' pane lists several database connections, with 'C23CS46' selected. The 'Reports' pane is also visible. The main window displays the 'SQL Worksheet' for 'C23CS46.sql'. The SQL code in the worksheet is as follows:

```
CREATE TABLE EMPLOYEE(
    EMP_NO NUMBER(3) NOT NULL UNIQUE,
    EMP_NAME VARCHAR2(30) NOT NULL,
    EMP_SAL NUMBER(8,2) NOT NULL,
    EMP_COMM NUMBER(6,1),
    DEPT_NO NUMBER(3) NOT NULL
);

SELECT * FROM EMPLOYEE

INSERT INTO EMPLOYEE(EMP_NO,EMP_NAME,EMP_SAL,EMP_COMM,DEPT_NO)
VALUES(101,'Smith',800,455,20);
INSERT INTO EMPLOYEE(EMP_NO,EMP_NAME,EMP_SAL,EMP_COMM,DEPT_NO)
VALUES(102,'Snehal',1600,0,25);
INSERT INTO EMPLOYEE(EMP_NO,EMP_NAME,EMP_SAL,EMP_COMM,DEPT_NO)
VALUES(103,'Adama',1100,425,20);
INSERT INTO EMPLOYEE(EMP_NO,EMP_NAME,EMP_SAL,EMP_COMM,DEPT_NO)
VALUES(104,'Aman',3000,NULL,15);
INSERT INTO EMPLOYEE(EMP_NO,EMP_NAME,EMP_SAL,EMP_COMM,DEPT_NO)
VALUES(105,'Anita',5000,425,10);
INSERT INTO EMPLOYEE(EMP_NO,EMP_NAME,EMP_SAL,EMP_COMM,DEPT_NO)
VALUES(106,'Anamika',2975,NULL,30);
```

Below the SQL code, the 'Query Result' pane shows the output of the 'SELECT * FROM EMPLOYEE' query. It indicates that 6 rows were fetched in 0.003 seconds. The resulting table is:

EMP_NO	EMP_NAME	EMP_SAL	EMP_COMM	DEPT_NO
1	101 Smith	800	455	20
2	102 Snehal	1600	0	25
3	103 Adama	1100	425	20
4	104 Aman	3000	(null)	15
5	105 Anita	5000	425	10
6	106 Anamika	2975	(null)	30

3. Create Table Deposit (a_no, cname, bname, amount, a_date)

The screenshot shows the Oracle SQL Developer interface. On the left, the 'Connections' pane lists several database connections, with 'C23CS46' selected. The 'Reports' pane is also visible. The main window displays the 'SQL Worksheet' for 'C23CS46.sql'. The 'Query Builder' tab is active, showing the following SQL code:

```

CREATE TABLE DEPOSIT (
  AMT NUMBER(7,2) NOT NULL,
  A_DATE DATE NOT NULL
);

SELECT * FROM DEPOSIT

INSERT INTO DEPOSIT (A_NO, C_NAME, B_NAME, AMT, A_DATE)
VALUES (101, 'Anil', 'anderi', 7000, '01-JAN-2006');
INSERT INTO DEPOSIT (A_NO, C_NAME, B_NAME, AMT, A_DATE)
VALUES (102, 'sunil', 'virar', 5000, '15-JUL-2006');
INSERT INTO DEPOSIT (A_NO, C_NAME, B_NAME, AMT, A_DATE)
VALUES (103, 'jay', 'villeparle', 6500, '12-MAR-2006');
INSERT INTO DEPOSIT (A_NO, C_NAME, B_NAME, AMT, A_DATE)
VALUES (104, 'vijay', 'andheri', 8000, '17-SEPT-2006');
INSERT INTO DEPOSIT (A_NO, C_NAME, B_NAME, AMT, A_DATE)
VALUES (105, 'keyur', 'dadar', 7500, '19-NOV-2006');
INSERT INTO DEPOSIT (A_NO, C_NAME, B_NAME, AMT, A_DATE)
VALUES (106, 'mayur', 'borivali', 5500, '21-DEC-2006');

```

The 'Query Result' pane shows the results of the 'SELECT * FROM DEPOSIT' query, displaying 5 rows of data:

	A_NO	C_NAME	B_NAME	AMT	A_DATE
1	101	Anil	anderi	7000	01-JAN-06
2	102	sunil	virar	5000	15-JUL-06
3	103	jay	villeparle	6500	12-MAR-06
4	105	keyur	dadar	7500	19-NOV-06
5	106	mayur	borivali	5500	21-DEC-06

4. Create Table Borrow (loan_no, cname, bname, amount)

The screenshot shows the Oracle SQL Developer interface. On the left, the 'Connections' pane lists several database connections, with 'C23CS46' selected. The 'Reports' pane is also visible. The main window displays the 'SQL Worksheet' for 'C23CS46.sql'. The 'Query Builder' tab is active, showing the following SQL code:

```

CREATE TABLE BORROW (
  LOAN_NO VARCHAR2(5) NOT NULL UNIQUE,
  C_NAME VARCHAR2(15) NOT NULL,
  B_NAME VARCHAR2(10) NOT NULL,
  AMT NUMBER(7,2) NOT NULL
);

SELECT * FROM BORROW

INSERT INTO BORROW (LOAN_NO, C_NAME, B_NAME, AMT)
VALUES (201, 'ANIL', 'VREC', 1000.00);
INSERT INTO BORROW (LOAN_NO, C_NAME, B_NAME, AMT)
VALUES (206, 'MEHUL', 'AJNI', 5000.00);
INSERT INTO BORROW (LOAN_NO, C_NAME, B_NAME, AMT)
VALUES (311, 'SUNIL', 'DHARAMPETH', 3000.00);
INSERT INTO BORROW (LOAN_NO, C_NAME, B_NAME, AMT)
VALUES (321, 'MADHURI', 'ANDHERI', 2000.00);
INSERT INTO BORROW (LOAN_NO, C_NAME, B_NAME, AMT)
VALUES (375, 'PRMOD', 'VIRAR', 8000.00);
INSERT INTO BORROW (LOAN_NO, C_NAME, B_NAME, AMT)
VALUES (481, 'KRANTI', 'NEHRU_PLA', 3000.00);

```

The 'Query Result' pane shows the results of the 'SELECT * FROM BORROW' query, displaying 6 rows of data:

	LOAN_NO	C_NAME	B_NAME	AMT
1	201	ANIL	VREC	1000
2	206	MEHUL	AJNI	5000
3	311	SUNIL	DHARAMPETH	3000
4	321	MADHURI	ANDHERI	2000
5	375	PRMOD	VIRAR	8000
6	481	KRANTI	NEHRU_PLA	3000