**SQL Lab Solutions.**

**Creating Tables: -**

1. **Emp**

CREATE TABLE "EMP"

( "EMPNO" NUMBER(4,0) NOT NULL ENABLE,

"ENAME" VARCHAR2(10 BYTE),

"JOB" VARCHAR2(9 BYTE),

"MGR" NUMBER(4,0),

"HIREDATE" DATE,

"SAL" NUMBER(7,0),

"COMM" NUMBER(7,0),

"DEPTNO" NUMBER(2,0)

) ;

1. **Designation\_Master**

CREATE TABLE "DESIGNATION\_MASTER"

( "DESIGN\_CODE" NUMBER(3,0) NOT NULL ENABLE,

"DESIGN\_NAME" VARCHAR2(50 BYTE)

);

1. **Department\_Master**

CREATE TABLE "DEPARTMENT\_MASTER"

( "DEPT\_CODE" NUMBER(2,0) NOT NULL ENABLE,

"DEPT\_NAME" VARCHAR2(50 BYTE)

);

1. **Student\_Master**

CREATE TABLE "STUDENT\_MASTER"

( "COLUMN1" NUMBER(6,0) NOT NULL ENABLE,

"STUDENT\_NAME" VARCHAR2(50 BYTE) NOT NULL ENABLE,

"DEPT\_CODE" NUMBER(2,0),

"STUDENT\_DOB" DATE,

"STUDENT\_ADDRESS" VARCHAR2(240 BYTE) );

1. **Student\_Marks**

CREATE TABLE "STUDENT\_MARKS"

( "STUDENT\_CODE" NUMBER(6,0),

"STUDENT\_YEAR" NUMBER NOT NULL ENABLE,

"SUBJECT1" NUMBER(3,0),

"SUBJECT2" NUMBER(3,0),

"SUBJECT3" NUMBER(3,0)

);

1. **Staff\_Master**

CREATE TABLE "STAFF\_MASTER"

( "STAFF\_CODE" NUMBER(8,0) NOT NULL ENABLE,

"STAFF\_NAME" VARCHAR2(50 BYTE) NOT NULL ENABLE,

"DESIGN\_CODE" NUMBER,

"DEPT\_CODE" NUMBER,

"COLUMN2" DATE,

"COLUMN1" DATE,

"STAFF\_ADDRESS" VARCHAR2(240 BYTE),

"MGR\_CODE" NUMBER(8,0),

"STAFF\_SAL" NUMBER(10,2)

);

1. **Book\_Master**

CREATE TABLE "BOOK\_MASTER"

( "COLUMN1" NUMBER(10,0) NOT NULL ENABLE,

"BOOK\_NAME" VARCHAR2(50 BYTE) NOT NULL ENABLE,

"BOOK\_PUB\_YEAR" NUMBER,

"BOOK\_PUB\_AUTHOR" VARCHAR2(50 BYTE) NOT NULL ENABLE

);

1. **Book\_Transactions**

CREATE TABLE "BOOK\_TRANSACTIONS"

( "BOOK\_CODE" NUMBER NOT NULL ENABLE,

"STUDENT\_CODE" NUMBER,

"STAFF\_CODE" NUMBER,

"BOOK\_ISSUE\_DATE" DATE NOT NULL ENABLE,

"BOOK\_EXPECTED\_RETURN\_DATE" DATE NOT NULL ENABLE,

"BOOK\_ACTUAL\_RETURN\_DATE" DATE

);

**1.1: Data Query Language : -**

**1.**

CREATE TABEL EMP123(NAME VARCHAR(10), DESC\_CODE NUMBER, DATE JOINING\_DATE, SALARY NUMBER);

INSERT INTO EMP123 VALUES(‘AKSHAY’, 100, DATE ‘2002-11-25’, 20000);

INSERT INTO EMP123 VALUES(‘AJAY’, 102, DATE ‘2002-08-20’, 28000);

SELECT NAME, DESC\_CODE FROM EMP123 WHERE EXTRACT(HIRE\_DATE)<2003 AND SALARY BETWEEN 12000 AND 25000;

**2.**

CREATE TABLE EMP1234(STAFF\_CODE NUMBER, NAME VARCHAR(10), DEPT\_NUMBER NUMBER, EXPERIENCE NUMBER);

INSERT INTO EMP1234 VALUES(100, 'AKSHAY', 10, 19);

INSERT INTO EMP1234 VALUES(101, 'AJAY', 11, 18);

SELECT STAFF\_CODE, NAME, DEPT\_NUMBER, EXPERIENCE FROM EMP1234 WHERE EXPERIENCE>=18 ORDER BY EXPERIENCE;

**3.**

SELECT \* FROM EMP WHERE MGR=0;

**4.**

SELECT \* FROM BOOK\_MASTER WHERE BOOK\_PUB\_YEAR BETWEEN 2001 AND 2004 AND BOOK\_NAME LIKE'%&%';

**5**.

SELECT STAFF\_NAME FROM STAFF\_MASTER WHERE STAFF\_NAME LIKE '%\_%';

**2.1: Single Row Functions:**

**1**.

SELECT STAFF\_NAME, $||LPAD(STAFF\_SAL,15,'') FROM STAFF\_MASTER;

**2.**

SELECT STUDENT\_NAME, TO\_CHAR(STUDENT\_DOB,'MONTH,DD YYY') FROM STUDENT\_MASTER WHERE (TO\_CHAR(STUDENT\_DOB,'DAY') IN ('SATURDAY','SUNDAY');

**3.**

SELECT STAFF\_NAME, ROUND(MONTHS\_BETWEEN(SYSDATE,HIREDATE))AS MONTHS WORKED FROM STAFF\_MASTER ORDER BY HIREDATE;

**4.**

SELECT STAFF\_NAME FROM STAFF\_MASTER WHERE EXTRACT(DATE FROM HIREDATE) < 16 AND EXTRACT(MONTH FROM HIREDATE ) = 12 ;

**5.**

SELECT STAFF\_NAME, HIREDATE, STAFF\_SAL

CASE

WHEN STFF\_SAL >=50000 THEN 'A',

WHEN STAFF\_SAL >= 25000 AND STAFF\_SAL <5000 THEN 'B',

WHEN STAFF\_SAL >= 10000 AND STAFF\_SAL <25000 THEN 'C',

WHEN STAFF\_SAL 10000 THEN 'D' END AS GRADE FROM STAFF\_MASTER;

**6.**

SELECT STAFF\_NAME, HIREDATE, TO\_CHAR(HIREDATE,'DAY') AS DAY FROM STAFF\_MASTER

ORDER BY NEXT\_DAY (HIREDATE, 'MONDAY')-HIREDATE;

**7.**SELECT INSTR('MISSISSIPPI','I',1,3) FROM DUAL;

**8.**SELECT TO\_CHAR(NEXT\_DAY(LAST\_DAY(SYSDATE) - INTERVAL '7' DAY, 'FRIDAY'),'ddthsp"of

"Month,YYYY') AS PAY\_DATE FROM DUAL;

**9**.

SELECT STUDENT\_CODE,STUDENT-NAME,DEPT\_CODE DECODE(DEPT\_CODE,10,'ELECTRICALS',20,'ELECTRONICS','OTHERS') FROM STUDENT\_MASTER;

**2.2 Group Functions:**

**1.**

SELECT ROUND(MAX(STAFF\_SAL)) AS MAXIMUM,ROUND(MIN(STAFF\_SAL)) AS MINIMUM,ROUND(AVG(STAFF\_SAL)) AS AVERAGE

FROM STAFF\_MASTER;

**2.**

SELECT DEPTNO,COUNT(DEPTNO) AS TOTAL\_NUMBER\_OF\_MANAGERS

FROM EMP WHERE JOB IN('MANAGER') GROUP BY DEPTNO,JOB;

**3.**

SELECT DEPTNO, SUM(SAL) FROM EMP WHERE JOB NOT IN('MANAGER') GROUP BY

DEPTNO--HAVING SUM(SAL) > 20000-- ORDER BY DEPTNO;

**3.1 Joins and Subqueries:**

**1.**

SELECT S.STAFF\_NAME, .DEPT\_CODE, D.DEPT\_NAME,S.STAFF\_SAL FROM STAFFMASTER S,

DEPARTMENT\_MASTER D WHERE S.DEPT\_CODE=D.DEPT\_CODE AND STAFF\_SAL>20000;

**2.**

SELECT S.STAFF\_CODE AS STAFF# ,S.STAFF\_NAME AS STAFF, D.DEPT\_NAME, S.MGR\_CODE AS MGR# FROM STAFFMASTER S, DEPARTMENT\_MASTER D WHERE S.DEPT\_CODE=D.DEPT\_CODE;

**3.**

SELECT S.STUDENT\_CODE,S.STUDENT\_NAME,B.BOOK\_CODE,BB.BOOK\_NAME FROM STUDENTMASTER S,BOOK\_TRANSACTIONS B, BOOK\_MASTER BB WHERE S.STUDENT\_CODE=B.STUDENT\_CODE AND TO\_CHAR(B.BOOK\_EXPECTED\_RETURN\_DATE,'DD MM YYYY') LIKE TO\_CHAR(SYSDATE,'DD MM YYYY');

**4.**

SELECT S.STAFF\_CODE,S.STAFF\_NAME,D.DEPT\_NAME,F.DESIGN\_NAME,G.BOOK\_NAME,

H.BOOK\_ISSUE\_DATE FROM STAFFMASTER S,DEPARTMENT\_MASTER D,

DESIGNATION-MASTER F,BOOK\_MASTER F,BOOK\_ISSUE\_DATE H

WHERE MONTHS\_BETWEEN(TO\_CHAR(H.BOOK\_ISSUE\_DATE,'MM'),

TO\_CHAR(SYSDATE,'MM'))<1;

**6.**

SELECT STAFF\_CODE, STAFF\_NAME,STAFF\_SAL FROM STAFFMASTER WHERE STAFF\_SAL<(SELECT AVG(STAFF\_SAL) FROM STAFFMASTER);

**7.**

SELECT AUTHOR,BOOK\_NAME FROM BOOK\_MASTER GROUP BY AUTHORNAME HAVING COUNT(AUTHOR)>1;

**8.**

SELECT S.STAFF\_CODE,D.STAFF\_NAME,D.DEPT\_NAME FROM STAFFMASTER S,BOOK\_TRANSACTIONS D GROUP BY S.STAFF\_NAME HAVING COUNT(D.STAFF\_NAME)>1;

**9.**

SELECT S.STUDENT\_CODE,S.STUDENT\_NAME,D.DEPT\_NAME FROM STAFFMASTER S,DEPARTMENT\_MASTER D GROUP BY S.DEPT\_CODE HAVING MAX(S.DEPT\_CODE);

**10.**

SELECT S.STAFF\_CODE,S.STAFF\_NAME,D.DEPT\_NAME,F.DESIGN\_NAME FROM STAFFMASTER S, DEPARTMENT\_MASTER D,DESIGNATION\_MASTER F WHERE MONTHS\_BETWEEN(TO\_CHAR(HIREDATE,'MM') ,TO\_CHAR(SYSDATE,'MM'))<3;

**13.**

SELECT DEPT\_CODE,DEPT\_NAME,COUNT(S.STAFF\_NAME) AS NUMBEROFPEOPLE FROM STAFFMASTER S,DEPARTMENT\_MASTER D GROUP BY DEPT\_CODE;

**4.1 Database Objects:**

**1.**

CREATE TABLE CUSTOMER

(

CUSTOMERID NUMBER(5),

CUST\_NAME VARCHAR2(20),

ADDRESS1 VARCHAR2(30),

ADDRESS2 VARCHAR2(30)

);

**2.**

ALTER TABLE CUSTOMER RENAME COLUMN CUST\_NAME TO CUSTOMERNAME;

ALTER TABLE CUSTOMER MODIFY CUSTOMERNAME VARCHAR2(30) NOT NULL;

**3.** A.

ALTER TABLE CUSTOMER ADD GENDER VARCHAR2(1);

ALTER TABLE CUSTOMER ADD AGE NUMBER(3);

ALTER TABLE CUSTOMER ADD PHONENO(10);

B.

RENAME CUSTOMER TO CUST\_TABLE;

1. INSERT INTO CUST\_TABLE(&CUSTOMERID,'&CUST\_NAME','&ADDRESS1',

'&ADDRESS2','&GENDER',&AGE,&PHONENO);

==>1000, ‘ALLEN’, ‘#115 CHICAGO’, ‘#115 CHICAGO’, ‘M’, ‘25, 7878776’

==>1001, GEORGE, #116 FRANCE, #116 FRANCE, M, 25, 434524

==>1002, BECKER, #114 NEW YORK, #114 NEW YORK, M, 45, 431525

5. ALTER TABLE CUST\_TABLE ADD CONSTRAINTS CUSTID\_PRIM PRIMARY KEY (CUSTOMERID);

7.

ALTER TABLE CUST\_TABLE DROP PRIMARY KEY CUSTID\_PRIM;

8. ALTER TABLE CUST\_TABLE ADD CONSTRAINTS CUSTID\_PRIM PRIMARY KEY (CUSTOMERID);

9.

ALTER TABLE CUST\_TABLE DROP PRIMARY KEY CUSTID\_PRIM;

INSERT INTO CUST\_TABLE(1002, BECKER, #114 NEW YORK, #114 NEW YORK , M, 45,431525, 15000.50);

INSERT INTO CUST\_TABLE(1003, NANAPATEKAR, #115 INDIA, #115 INDIA , M, 45, 431525,20000.50);

10.

TRUNCATE TABLE CUST\_TABLE;

11. ALTER TABLE ADD E\_MAIL VARCHAR2(30);

12.

ALTER TABLE CUST\_TABLE DROP E\_MAIL;

13.

CREATE TABLE SUPPLIERS AS SELECT(CUSTOMERID AS SUPPID,CUSTOMERNAME AS SNAME,ADDDRESS1 AS ADDR1,ADDRESS2 AS ADDR2,PHONENO AS CONTACTNO) FROM CUST\_TABLE;

14.

CREATE TABLE CUSTOMERMASTER(CUSTOMERID(10) PRIMARY KEY(CUSTID\_PK),CUSTOMERNAME VARCHAR2(30),ADDRESS1 VARCHAR2(30),ADDRESS2 VARCHAR2(30),GENDER VARCHAR2(1),AGE NUMBER(3),PHONENO NUMBER(10));

15.

CREATE TABLE ACCOUTNMASTER(CUSTOMERID NUMBER(5),ACCOUNTNUMBER NUMBER(10) PRIMARY KEY(ACNO),ACCOUNTTYPE CHAR(3),LEDGERBALANCE NUMBER(10) NOT NULL)

CREATE SEQUENCE SEQ\_ANO

MINVALUE 101

MAXVALUE 10000

START WITH 101

INCREMENT BY 1

CACHE 101;

16.

ALTER TABLE ACCOUNTMASTER ADD CONSTRAINT ASS\_FK FOREIGN KEY(CUSTOMERID) REFERENCES CUSTOMERMASTER(CUSTOMERID);

17.

INSERT INTO CUSTOMERMASTER VALUES(1000, ALLEN, #115 CHICAGO, #115 CHICAGO, M, 25, 7878776);

INSERT INTO CUSTOMERMASTER VALUES(1001, GEORGE, #116 FRANCE, #116 FRANCE, M, 25, 4345240;

INSERT INTO CUSTOMERMASTER VALUES(1002, BECKER, #114 NEW YORK, #114 NEW YORK, M, 45, 4315250;

18.

ALTER TABLE ACCOUNTMASTER ADD CONSTRAINT CK\_AC CHECK(ACCOUNTYPE='NRI' OR ACCOUNTYPE='IND');

19.

ALTER TABLE ACCOUNTMASTER ADD CONSTRAINT BALANCE\_CHECK(LEDGER BALANCE > 5000);

20.

DELETE FROM ACCOUNTMASTER,CUSTOMERTABLE WHERE CUSTOMERID = 1001

21.

CREATE TABLE ACCOUNTDETAILS AS SELECT \* FROM ACCOUNTMASTER;

22.

CREATE VIEW ACC\_VIEW AS SELECT(CUSTOMERID,CUSTOMERNAME,ACCOUNTNUMBER,ACCOUNTTYPE,LEDGERBALANCE)

FROM ACCOUNTMASTER;

23.

CREATE VIEW VACCS\_DTLS AS SELECT ACCOUNTTYPE,LEDGERBALANCE FROM ACCOUNTMASTER WHERE ACCOUNTTYPE = 'IND' AND LEDGERBALANCE < 10000;

24.

CREATE VIEW ACCSVW10 AS SELECT \* FROM EMPLOYEE WITH READ ONLY;

REVOKE INSERT,UPDATE,DELETE ON ACCSVW10 FROM USER1;

INSERT INTO ACCSVW10(EID,ENAME,SAL,JOB) VALUES('SQL\*PLUS','USER1','INSERT','DISABLED';)

25.

CREATE SEQUENCE SEQ\_DEPT MINVALUE 40 START WITH 40 INCREMENT BY 10 MAX VALUE 200 CACHE 40;

26.

INSERT INTO DEPARTMENTMASTER VALUES(SEQ\_DEPT.NEXTVAL,'MARKETING','NEW DELHI');

INSERT INTO DEPARTMENTMASTER VALUES(SEQ\_DEPT.NEXTVAL,'SALES','CHENNAI');

INSERT INTO DEPARTMENTMASTER VALUES(SEQ\_DEPT.NEXTVAL,'RESEARCH','BOSTON');

27.

DROP SEQUENCE SEQ\_DEPT;

28.

CREATE INDEX NO\_NAME ON EMP(EMPNO);

SELECT \* FROM EMP;

29.

CREATE SYNONYM SYNEMP FOR EMP;

30.

SELECT \* FROM SYNEMP;

31.

CREATE INDEX IDX\_EMP\_HIREDATE ON EMP(HIREDATE);

32.

CREATE SEQUENCE SEQ\_EMP MINVALUE 1001 START WITH 1001 INCREMENT BY 1 CACHE 1001;

5.1: DATA MANIPULATION LANGUAGE

1.

CREATE TABLE EMPLOYEE AS SELECT \* FROM EMP WHERE 1=3;

DESC EMPLOYEE;

NAME NULL? TYPE

EMPNO NOT NULL NUMBER(4)

ENAME VARCHAR2(10)

JOB VARCHAR2(50)

MGR NUMBER(4)

HIREDATE DATE

SAL NUMBER(7,2)

COMM NUMBER(7,2)

DEPTNO NUMBER(2)

SQL>SELECT \* FROM EMPLOYEE

2.

SQL>SELECT \* FROM EMPLOYEE;

EMPNO ENAME JOB MGR HIREDATE SAL COMM DEPTNO

7369 SMITH 800 20

7499 ALLEN 1600 30

7521 WARD 1250 30

7566 JONES 2975 20

7654 MARTIN 1250 30

7698 BLAKE 2850 30

7782 CLARK 2450 10

7788 SCOTT 3000 20

7839 KING 5000 10

7844 TURNER 1500 30

7876 ADAMS 1100 20

7900 JAMES 950 30

7902 FORD 3000 20

7934 MILLER 1300 10

14 ROWS SELECTED.

3.

UPDATE TABLE EMPLOYEE SET JOB=(SELECT JOB FROM EMPLOYEE WHERE EMPNO=7788),DEPTNO=(SELECT DEPTNO FROM EMPLOYEE WHERE EMPNO=7788) WHERE EMPNO=7698;

4.

DELETE FROM EMPLOYEE WHERE DEPARTMENTNAME LIKE '%SALES%';

5.

UPDATE TABLE EMPLOYEE SET DEPTNO=(SELECT DEPTNO FROM EMPLOYEE WHERE DEPTNO=7788) WHERE DEPTNO=7698;

6.

INSERT INTO EMP (EMPNO,'ENAME','JOB',MGR,'HIREDATE',SAL,COMM,DEPTNO) VALUES (1000,ALLEN, CLERK,1001,12-JAN-01, 3000, 2,10);

INSERT INTO EMP (EMPNO,'ENAME','JOB',MGR,'HIREDATE',SAL,COMM,DEPTNO) VALUES (1001,GEORGE, ANALYST, NULL, 08 SEP 92, 5000,0, 10);

INSERT INTO EMP (EMPNO,'ENAME','JOB',MGR,'HIREDATE',SAL,COMM,DEPTNO) VALUES (1002, BECKER, MANAGER, 1000, 4 NOV 92, 2800,4, 20);

INSERT INTO EMP (EMPNO,'ENAME','JOB',MGR,'HIREDATE',SAL,COMM,DEPTNO) VALUES (1003, 'BILL', CLERK, 1002, 4 NOV 92,3000, 0, 20);

6.1: TRANSACTION CONTROL LANGUAGE STATEMENTS

1.

INSERT INTO CUSTOMERMASTER (CUSTOMERID,'CUSTOMERNAME','ADDRESS1','ADDRESS2','GENDER',AGE,'PHONENO) VALUES ( 6000, JOHN, #115 CHICAGO, #115 CHICAGO, M, 25, 7878776, 10000 );

INSERT INTO CUSTOMERMASTER (CUSTOMERID,'CUSTOMERNAME','ADDRESS1','ADDRESS2','GENDER',AGE,'PHONENO) VALUES ( 6001, JACK, #116 FRANCE, #116 FRANCE, M, 25, 434524, 20000 );

INSERT INTO CUSTOMERMASTER (CUSTOMERID,'CUSTOMERNAME','ADDRESS1','ADDRESS2','GENDER',AGE,'PHONENO) VALUES ( 6002, JAMES, #114 NEW YORK, #114 NEW YORK, M, 45, 431525, 15000.50);

2.

INSERT INTO CUSTOMERMASTER (CUSTOMERID,'CUSTOMERNAME','ADDRESS1','ADDRESS2','GENDER',AGE,'PHONENO) VALUES ( 6000, JOHN, #115 CHICAGO, #115 CHICAGO, M, 25, 7878776, 10000 );

INSERT INTO CUSTOMERMASTER (CUSTOMERID,'CUSTOMERNAME','ADDRESS1','ADDRESS2','GENDER',AGE,'PHONENO) VALUES ( 6001, JACK, #116 FRANCE, #116 FRANCE, M, 25, 434524, 20000 );

INSERT INTO CUSTOMERMASTER (CUSTOMERID,'CUSTOMERNAME','ADDRESS1','ADDRESS2','GENDER',AGE,'PHONENO) VALUES ( 6002, JAMES, #114 NEW YORK, #114 NEW YORK, M, 45, 431525, 15000.50);

SAVEPOINT P1;

3.

INSERT INTO CUSTOMERMASTER (CUSTOMERID,'CUSTOMERNAME','ADDRESS1','ADDRESS2','GENDER',AGE,'PHONENO) VALUES ( 6003, JOHN, #114 CHICAGO, #114 CHICAGO, M, 45, 439525, 19000.60);

4.

ROLLBACK P1;