**EXPERIMENT: 11**

Develop programs using before and after triggers, row and statement triggers and instead of triggers.

Sol:

SQL>create table customers(id number(3), name varchar2(10), age number(3), address varchar2(10), salary number(10,2));

Table created.

SQL>insert into customers values(1,'ramesh',32,'ahmedabad',2000);

1 row created.

SQL>insert into customers values(2,'khilan',25,'Delhi',1500);

1 row created.

SQL>insert into customers values(3,'kaushik',23,'Kota',2000);

1 row created.

SQL>insert into customers values(4,'chitali',25,'Mumbai',6500);

1 row created.

SQL>select \*from customers;

ID NAME AGE ADDRESS SALARY

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1 ramesh 32 ahmedabad 2000

2 khilan 25 Delhi 1500

3 kaushik 23 Kota 2000

4 chitali 25 Mumbai 6500

4 rows selected.

PL/SQL Code for creation of trigger while insert / update records into a table.

SQL>SET SERVEROUTPUT ON;

SQL>CREATE OR REPLACE TRIGGER display\_salary\_changes

BEFORE INSERT OR UPDATE OR DELETE ON customers

FOR EACH ROW

DECLARE

sal\_diff NUMBER;

BEGIN

IF INSERTING THEN

dbms\_output.put\_line('New Employee Added: ' || :NEW.NAME);

dbms\_output.put\_line('New Salary: ' || :NEW.SALARY);

ELSIF UPDATING THEN

sal\_diff := :NEW.salary - :OLD.salary;

dbms\_output.put\_line('Updating Employee: ' || :OLD.NAME);

dbms\_output.put\_line('Old Salary: ' || :OLD.salary);

dbms\_output.put\_line('New Salary: ' || :NEW.salary);

dbms\_output.put\_line('Salary Difference: ' || sal\_diff);

ELSIF DELETING THEN

dbms\_output.put\_line('Employee Deleted: ' || :OLD.NAME);

dbms\_output.put\_line('Deleted Salary: ' || :OLD.SALARY);

END IF;

END;

**/**

Trigger created.

SQL> insert into customers values(5,'Hardik',27,'Mumbai',5500);

New Employee Added: Hardik

New Salary: 5500

1 row created.

SQL> update customers set salary=salary+500 where id=2;

Updating Employee: khilan

Old Salary: 1500

New Salary: 2000

Salary Difference: 5001 row updated

**EXPERIMENT: 12**

Create a table and perform the search operation on table using indexing and non-indexing techniques.

SQL> CREATE TABLE TEACHER(STAFF\_ID VARCHAR2(4) PRIMARY KEY, STAFF\_NAME VARCHAR2(30), QUALIFICATION VARCHAR2(10), HIREDATE DATE, JOB VARCHAR2(30),ADDRESS VARCHAR2(15), PH\_NUM NUMBER(10), SALARY NUMBER(7, 2), DEPARTMENT

VARCHAR2(10));

SQL> insert into teacher values('T101','SUNITHA','MCA','29-JUN-06','ASSOCIATE PROFESSOR','VIJAYAWADA',9985061308,23000,'MCA');

1 row created.

SQL>insert into teacher values('T102','FRED SMITH','MTECH','07-MAR-03','ASSOCIATE PROFESSOR','GUNTUR',9985063445,36000,'MBA');

1 row created.

SQL>insert into teacher values('T103','JACK BARNES','BTECH','27-JUN-

07','PROFESSOR','TENALI',9985012345,27000,'MTECH');

1 row created.

SQL>insert into teacher values('T104','JANE DOE','MCA','04-JUL-06','ASSISTANT PROFESSOR','VIJAYAWADA',9985045678,29000,'BTECH');

1 row created.

SQL>insert into teacher values('T105','JOE SHMOE','MBA','16-AUG-08','ASSOCIATE PROFESSOR','ELURU',9987651308,36000,'MCA');

1 row created.

SQL>insert into teacher values('T106','JON BAKER','MSC(COM)','12-JAN-

03','PROFESSOR','HYDERABAD',8876561308,46000,'MCA');

1 row created.

SQL>insert into teacher values('T107','JOHN DOE','MSC(PHY)','06-FEB-04','ASSISTANT PROFESSOR','VIJAYAWADA',8345661308,31000,'MBA');

1 row created.

SQL>insert into teacher values('T108','KIM SMITH','MCA','10-MAR-08','ASSISTANT PROFESSOR','VIZAG',8374561308,26000,'MTECH');

1 row created.

SQL>insert into teacher values('T109','MARY PARKER','MTECH','02-APR- 09','PROFESSOR','NELLORE',7893427649,52000,'MBA');

1 row created.

SQL>insert into teacher values('T110','SAMUEL JOHN','BTECH','19-MAY-05','ASSISTANT PROFESSOR','ELURU',9982222208,26000,'MBA');

1 row created.

SQL>insert into teacher values('T111','FRANKLIN WONG','MBA','20-AUG-06','ASSOCIATE PROFESSOR','VIZAG',9985033333,20000,'MTECH');

1 row created.

SQL>insert into teacher values('T112','SLICIA ZELAYA','MCA','16-SEP-04','ASSISTANT PROFESSOR','VIJAYAWADA',9985202020,33000,'BTECH');

1 row created.

SQL>insert into teacher values('T113','JENNIFER WALLACE','MSC(MATHS)','25-OCT- 03','PROFESSOR','HYDERABAD',9902192033,54000,'MCA');

1 row created.

SQL>insert into teacher values('T114','RAMESH NARAYANA','MCA','24-NOV- 04','ASSOCIATE PROFESSOR','NARASARAOPET',9988776655,34000,'MBA');

1 row created.

SQL>insert into teacher values('T115','JOYCE ENGLISH','MBA','22-DEC-06','ASSISTANT PROFESSOR','VIJAYAWADA',9998765443,45000,'MBA');

1 row created.

To show the query execution timing use the following query SQL> Set timing on;

Retrieve details of teacher before creation of index.

SQL> SET TIMING ON;

SQL> select \*from teacher;

Creating an Index

SQL> CREATE INDEX teacher\_job\_ind ON teacher(job);

Searching With an Index

SQL> SELECT \* FROM teacher WHERE job = 'PROFESSOR';

Checking Index Usage

SQL> EXPLAIN PLAN FOR

SELECT \* FROM teacher WHERE job = 'PROFESSOR';

SQL> SELECT \* FROM TABLE(DBMS\_XPLAN.DISPLAY);

Dropping the Index (For Comparison)

SQL> DROP INDEX teacher\_job\_ind;