**INDEX**

|  |  |  |  |
| --- | --- | --- | --- |
| **Sr.no** | **Title** | **Date** | **Sign** |
| 1 | **VERTICAL FRAGMENTATION**  For a given a global conceptual schema, divide the schema into vertical fragments and place them on different nodes. Execute queries on these fragments that will demonstrate distributed databases environment. |  |  |
| 2 | **HORIZONTAL FRAGMENTATION**  For a given a global conceptual schema, divide the schema into horizontal fragments and place them on different nodes. Execute queries on these fragments that will demonstrate distributed databases environment. |  |  |
| 3 | **CREATING REPLICA OF DATABASES**  Place the replication of global conceptual schema on different nodes and execute queries that will demonstrate distributed databases environment. |  |  |
| 4 | **TEMPORAL DATABASES**  Create a temporal database and issue queries on it. |  |  |
| 5 | **ACTIVE DATABASES**  Formulate a database using active rules with row and statement level. |  |  |
| 6 | **XML** **DATABASES**  Create a XML data base and demonstrate insert, update and delete operations on these tables. Issue queries on it. |  |  |

**PRACTICAL NO. 1**

**AIM : VERTICAL FRAGMENTATION**

Create a global conceptual schema Emp(Eno;Ename;Address;Email; Salary) and insert 5 records. Divide Emp into vertical fragments Emp1(Eno;Ename;Address) and Emp2(Eno;Email;Salary) on two different nodes. Fire the following queries:

1. Find the salary of an employee where employee number is known.
2. Find the Email where the employee name is known.
3. Find the emp name and Email where employee number is known.
4. Find the employee name whose salary is > 5000.

**SOURCE CODE :**

**Creating Emp1 At Node1**

SQL> connect

Enter user-name: SCOTT

Enter password: \*\*\*\*\*

Connected.

create table emp1(eno number(5),ename varchar2(20),address varchar2(30));

insert into emp1 values(1,'vedant','airoli');

insert into emp1 values(2,'aditya','vashi');

insert into emp1 values(3,'yashdeep','sanpada');

insert into emp1 values(4,'kavita','koparkhairane');

insert into emp1 values(5,'anjali','uran');

select \* from emp1;

|  |  |  |
| --- | --- | --- |
| **ENO** | **ENAME** | **ADDRESS** |
| 1 | vedant | Airoli |
| 2 | aditya | Vashi |
| 3 | yashdeep | sanpada |
| 4 | kavita | koparkhairane |
| 5 | anjali | Uran |

**Creating Emp2 At Node2**

SQL> connect

Enter user-name: MSC

Enter password: \*\*\*\*

Connected.

create table emp2(eno number(5),email varchar2(20),salary number(8));

insert into emp2 values(1,'vedant@gmail.com',11000);

insert into emp2 values(2,'aditya@yahoo.com',5500);

insert into emp2 values(3,'yashdeep@gmail.com',5100);

insert into emp2 values(4,'kavita@yahoo.com',4500);

insert into emp2 values(5,'anjali@yahoo.com',3000);

select \* from emp2;

|  |  |  |
| --- | --- | --- |
| **ENO** | **EMAIL** | **SALARY** |
| 1 | vedant@gmail.com | 11000 |
| 2 | aditya@yahoo.com | 5500 |
| 3 | yashdeep@gmail.com | 5100 |
| 4 | kavita@yahoo.com | 4500 |
| 5 | anjali@yahoo.com | 3000 |

**Connecting as System User**

SQL> connect

Enter user-name: system

Enter password: \*\*\*\*\*\*\*

Connected.

**Creating Public Database Links at the Central Machine**

CREATE PUBLIC DATABASE LINK emp\_link1 CONNECT TO SCOTT IDENTIFIED BY tiger USING 'XE';

CREATE PUBLIC DATABASE LINK emp\_link2 CONNECT TO MSC IDENTIFIED BY lion USING 'XE';

**Retrieving the records from emp\_link1 and emp\_link2:**

select emp1.eno@emp\_link1,ename,address,email,salary from emp1@emp\_link1,emp2@emp\_link2 where emp1.eno@emp\_link1 = emp2.eno@emp\_link2;

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ENO** | **ENAME** | **ADDRESS** | **EMAIL** | **SALARY** |
| 1 | vedant | Airoli | vedant@gmail.com | 11000 |
| 2 | aditya | vashi | aditya@yahoo.com | 5500 |
| 3 | yashdeep | sanpada | yashdeep@gmail.com | 5100 |
| 4 | kavita | koparkhairane | kavita@yahoo.com | 4500 |
| 5 | anjali | Uran | anjali@yahoo.com | 3000 |

1. **To Find the salary of an employee where employee number is known**

select emp1.eno@emp\_link1,ename,salary from emp1@emp\_link1,emp2@emp\_link2 where emp1.eno@emp\_link1 = emp2.eno@emp\_link2 and emp2.eno@emp\_link2 = 1;

|  |  |  |
| --- | --- | --- |
| **ENO** | **ENAME** | **SALARY** |
| 1 | vedant | 11000 |

1. **To Find the Email where the employee name is known**

select emp1.eno@emp\_link1,emp2.email@ emp\_link2 from emp1@emp\_link1,emp2@emp\_link2 where emp1.ename@emp\_link1 = 'kavita' and emp1.eno@emp\_link1 = emp2.eno@emp\_link2;

|  |  |
| --- | --- |
| **ENO** | **EMAIL** |
| 4 | kavita@yahoo.com |

1. **To Find the emp name and Email where employee number is known**

select emp1.eno@emp\_link1,ename,email from emp1@emp\_link1,emp2@emp\_link2 where emp1.eno@emp\_link1 = 2 and emp1.eno@emp\_link1 = [emp2.eno@emp\_link2](mailto:emp2.eno@emp_link2);

|  |  |  |
| --- | --- | --- |
| **ENO** | **ENAME** | **EMAIL** |
| 2 | aditya | aditya@yahoo.com |

1. **To Find the employee name whose salary is > 5000.**

select emp1.ename@emp\_link1,emp2.salary@emp\_link2 from emp1@emp\_link1,emp2@emp\_link2 where emp2.salary@emp\_link2 > 5000 and emp1.eno@emp\_link1 = emp2.eno@emp\_link2**;**

|  |  |
| --- | --- |
| **ENAME** | **SALARY** |
| vedant | 11000 |
| aditya | 5500 |
| yashdeep | 5100 |

**PRACTICAL NO. 2**

**AIM : HORIZONTAL FRAGMENTATION**

Create a global conceptual schema Emp(Eno;Ename;Address;Email;Salary) and insert 5 records. Divide Emp into horizontal fragments on two different nodes. Fire the following queries:

1) Find the salary of all employees.

2) Find the Email of all employees where salary > 5,000

3) Find the employee name and Email where employee number is known.

4) Find the employee name and address where employee number is known.

**SOURCE CODE :**

**Creating Emp1 At Node1**

SQL> connect

Enter user-name: SCOTT

Enter password: \*\*\*\*\*

Connected.

create table emp1(eno number(6),ename varchar2(15),address varchar2(20),email varchar2(15),salary number(6));

insert into emp1 values(1001,'Suhas','Pune','suhas@gmail.com',10000);

insert into emp1 values(1002,'Rajesh','Juinagar','raj@gmail.com',20000);

insert into emp1 values(1004,'Mahesh','Nashik','mm@yahoo.com',3000);

insert into emp1 values(1006,'Prakash','Nagpur','pk@rediff.com',5000);

insert into emp1 values(1008,'Rahul','Pune','rahul@dot.com',6000);

select \* from emp1;

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ENO** | **ENAME** | **ADDRESS** | **EMAIL** | **SALARY** |
| 1001 | Suhas | Pune | suhas@gmail.com | 10000 |
| 1002 | Rajesh | Juinagar | raj@gmail.com | 20000 |
| 1004 | Mahesh | Nashik | mm@yahoo.com | 3000 |
| 1006 | Prakash | Nagpur | pk@rediff.com | 5000 |
| 1008 | Rahul | Pune | rahul@dot.com | 6000 |

**Creating Emp2 At Node2**

SQL> connect

Enter user-name: MSC

Enter password: \*\*\*\*

Connected.

create table emp2(eno number(6),ename varchar2(15),address varchar2(20),email varchar2(15),salary number(6));

insert into emp2 values(1003,'Shiva','Banglore','ss@hotmail.com',4000);

insert into emp2 values(1005,'Sita','Delhi','sita@yahoo.com',7000);

insert into emp2 values(1007,'Ramesh','Kerala','r\_sh@yahoo.com',3000);

insert into emp2 values(1009,'Rakesh','Pune','rak@yahoo.com',2000);

insert into emp2 values(1010,'Sudha','Nashik','sudha@yahoo.com',6000);

select \* from emp2;

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ENO** | **ENAME** | **ADDRESS** | **EMAIL** | **SALARY** |
| 1003 | Shiva | Banglore | ss@hotmail.com | 4000 |
| 1005 | Sita | Delhi | sita@yahoo.com | 7000 |
| 1007 | Ramesh | Kerala | r\_sh@yahoo.com | 3000 |
| 1009 | Rakesh | Pune | rak@yahoo.com | 2000 |
| 1010 | Sudha | Nashik | sudha@yahoo.com | 6000 |

**Connecting as System User**

SQL> connect

Enter user-name: system

Enter password: \*\*\*\*\*\*\*

Connected.

**Creating Public Database Links at the Central Machine**

CREATE PUBLIC DATABASE LINK emp\_link1 CONNECT TO SCOTT IDENTIFIED BY tiger USING 'XE';

CREATE PUBLIC DATABASE LINK emp\_link2 CONNECT TO MSC IDENTIFIED BY lion USING 'XE';

**Retrieving the records from emp\_link1 and emp\_link2:**

select \* from emp1@emp\_link1 union select \* from emp2@emp\_link2;

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ENO** | **ENAME** | **ADDRESS** | **EMAIL** | **SALARY** |
| 1001 | Suhas | Pune | suhas@gmail.com | 10000 |
| 1002 | Rajesh | Juinagar | raj@gmail.com | 20000 |
| 1003 | Shiva | Banglore | ss@hotmail.com | 4000 |
| 1004 | Mahesh | Nashik | mm@yahoo.com | 3000 |
| 1005 | Sita | Delhi | sita@yahoo.com | 7000 |
| 1006 | Prakash | Nagpur | pk@rediff.com | 5000 |
| 1007 | Ramesh | Kerala | r\_sh@yahoo.com | 3000 |
| 1008 | Rahul | Pune | rahul@dot.com | 6000 |
| 1009 | Rakesh | Pune | rak@yahoo.com | 2000 |
| 1010 | Sudha | Nashik | sudha@yahoo.com | 6000 |

**1) Find the salary of all employees.**

select eno,salary from emp1@emp\_link1 union select eno,salary from emp2@emp\_link2;

|  |  |
| --- | --- |
| **ENO** | **SALARY** |
| 1001 | 10000 |
| 1002 | 20000 |
| 1003 | 4000 |
| 1004 | 3000 |
| 1005 | 7000 |
| 1006 | 5000 |
| 1007 | 3000 |
| 1008 | 6000 |
| 1009 | 2000 |
| 1010 | 6000 |

**2) Find the Email of all employees where salary > 5,000**

select eno,email from emp1@emp\_link1 where salary > 5000 union select eno,email from emp2@emp\_link2 where salary > 5000;

|  |  |
| --- | --- |
| **ENO** | **EMAIL** |
| 1001 | suhas@gmail.com |
| 1002 | raj@gmail.com |
| 1005 | sita@yahoo.com |
| 1008 | rahul@dot.com |
| 1010 | sudha@yahoo.com |

**3) Find the employee name and Email where employee number is known.**

select ename,email from emp1@emp\_link1 where eno = 1008 union select ename,email from emp2@emp\_link2 where eno = 1008;

|  |  |
| --- | --- |
| **ENAME** | **EMAIL** |
| Rahul | rahul@dot.com |

**4) Find the employee name and address where employee number is known.**

select ename,address from emp1@emp\_link1 where eno = 1010 union select ename,address from emp2@emp\_link2 where eno = 1010;

|  |  |
| --- | --- |
| **ENAME** | **ADDRESS** |
| Sudha | Nashik |

**PRACTICAL NO. 3**

**AIM : CREATING REPLICA OF DATABASE**

Create a global conceptual schema emp(eno,ename,address,email,salary) and insert 10 records. Store the replication of emp in two different nodes and fire the following queries:

1.    Find the salary of all employees.

2.    Find the email of all employees where salary=15000.

3.    Find the employee name and email where employee number is known.

4.    Find the employee name and address where employee number is known.

**SOURCE CODE :**

**Creating Emp1 At Node1**

SQL> connect

Enter user-name: SCOTT

Enter password: \*\*\*\*\*

Connected.

create table emp1(eno number(6),ename varchar2(15),address varchar2(20),email varchar2(15),salary number(6));

**Creating Emp2 At Node2**

SQL> connect

Enter user-name: MSC

Enter password: \*\*\*\*

Connected.

create table emp2(eno number(6),ename varchar2(15),address varchar2(20),email varchar2(15),salary number(6));

# Creating Links(system) :

CREATE PUBLIC DATABASE LINK "LINK2" CONNECT TO MSC IDENTIFIED BY LION USING 'XE';

# Creating Triggers(scott) :

create or replace Trigger insert\_data

after insert on Emp1

for each row

begin

insert into Emp2@LINK2 values(:new.Eno,:new.Ename,:new.Address, :new.Email,:new.Salary);

end;

insert into Emp1 values(111,'Shweta','Goregaon','sh@ya.com',1000);

insert into Emp1 values(112,'Sweha','Goregaon','sw@ya.com',10400);

insert into Emp1 values(113,'Lata','Virar','lata@ya.com',10000);

insert into Emp1 values(114,'Sheejal','Goregaon','she@ya.com',15000);

insert into Emp1 values(115,'Shalmali','Jogeshwari','shal@ya.com',5000);

insert into Emp1 values(116,'Meghna','Borivali','megh@ya.com',1000);

insert into Emp1 values(117,'Swati','Andheri','swati@ya.com',15000);

insert into Emp1 values(118,'Reena','Kandivali','reena@ya.com',3000);

insert into Emp1 values(119,'Niyati','Malad','ni@ya.com',15000);

insert into Emp1 values(120,'Ekta','Kandivali','ekta@ya.com',2000);

**Retrieving the records from Master Table and Replicated Table:**

select \* from emp1;

select \* from emp2@link2;

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ENO** | **ENAME** | **ADDRESS** | **EMAIL** | **SALARY** |
| 111 | Shweta | Goregaon | sh@ya.com | 1000 |
| 112 | Sweha | Goregaon | sw@ya.com | 10400 |
| 113 | Lata | Virar | lata@ya.com | 10000 |
| 114 | Sheejal | Goregaon | she@ya.com | 15000 |
| 115 | Shalmali | Jogeshwari | shal@ya.com | 5000 |
| 116 | Meghna | Borivali | megh@ya.com | 1000 |
| 117 | Swati | Andheri | swati@ya.com | 15000 |
| 118 | Reena | Kandivali | reena@ya.com | 3000 |
| 119 | Niyati | Malad | ni@ya.com | 15000 |
| 120 | Ekta | Kandivali | ekta@ya.com | 2000 |

**1.    Find the salary of all employees.**

select salary from emp1;

select salary from emp2@link2;

|  |
| --- |
| **SALARY** |
| 5000 |
| 1000 |
| 15000 |
| 3000 |
| 15000 |
| 1000 |
| 10400 |
| 10000 |
| 15000 |
| 2000 |

**2.    Find the email of all employees where salary=15000.**

select email from emp1 where salary = 15000;

|  |
| --- |
| **EMAIL** |
| swati@ya.com |
| ni@ya.com |
| she@ya.com |

select email from emp2@link2 where salary = 15000;

|  |
| --- |
| **EMAIL** |
| swati@ya.com |
| ni@ya.com |
| she@ya.com |

**3.    Find the employee name and email where employee number is known.**

select ename,email from emp1 where eno = 119;

|  |  |
| --- | --- |
| **ENAME** | **EMAIL** |
| Niyati | ni@ya.com |

select ename,email from emp2@link2 where eno = 119;

|  |  |
| --- | --- |
| **ENAME** | **EMAIL** |
| Niyati | ni@ya.com |

**4.    Find the employee name and address where employee number is known.**

select ename,address from emp1 where eno = 119;

|  |  |
| --- | --- |
| **ENAME** | **ADDRESS** |
| Niyati | Malad |

select ename,address from emp2@link2 where eno = 119;

|  |  |
| --- | --- |
| **ENAME** | **ADDRESS** |
| Niyati | Malad |

**PRACTICAL NO. 4**

**AIM : TEMPORAL DATABSES**

1) Create a table EMP\_ANT, which stores the account number, name, valid time, recruitment data retirement date. Insert records and fire the following queries:

1. Find all the employees who join the company on 2/3/2001
2. Find all the employees who will retired on 2/3/2001

2) Create a table tbl\_shares, which stores the name of company, number of shares, and price per share at transaction time. Insert records and fire the following queries:

1. Find names of a company whose share price is more than Rs.100 at 11:45 A.M.
2. Find the name of company which has highest shares price at 5.00 P.M.

**SOURCE CODE :**

**1.Creating Table EMP\_ENT**

CREATE TABLE EMP\_ANT ( ACC\_NO NUMBER(10), ANAME VARCHAR2(20), JOIN\_DATE DATE, RETIRE\_DATE DATE );

INSERT INTO EMP\_ANT VALUES(1, 'AJITI', '02-MAR-2001', '21-MAR-2004');

INSERT INTO EMP\_ANT VALUES(3, 'SANJAY', '01-DEC-1998', '10-JUNE-2002');

INSERT INTO EMP\_ANT VALUES(4, 'PARAG', '15-MAY-2000', '02-MAR-2001');

INSERT INTO EMP\_ANT VALUES(5, 'SIDDHESH', '10-AUG-1995', '9-AUG-2005');

INSERT INTO EMP\_ANT VALUES(6, 'YATIN', '02-MAR-2001', '20-MAR-2005');

INSERT INTO EMP\_ANT VALUES(7, 'KAVITA', '12-SEP-2000', '02-MAR-2001');

SELECT \* FROM EMP\_ANT;

|  |  |  |  |
| --- | --- | --- | --- |
| **ACC\_NO** | **ANAME** | **JOIN\_DATE** | **RETIRE\_DATE** |
| 1 | AJITI | 02-MAR-01 | 21-MAR-04 |
| 3 | SANJAY | 01-DEC-98 | 10-JUN-02 |
| 4 | PARAG | 15-MAY-00 | 02-MAR-01 |
| 5 | SIDDHESH | 10-AUG-95 | 09-AUG-05 |
| 6 | YATIN | 02-MAR-01 | 20-MAR-05 |
| 7 | KAVITA | 12-SEP-00 | 02-MAR-01 |

**a)Find all the employees who join the company on 2/3/2001**

select \* from emp\_ant where join\_date = '02-MAR-2001' ;

|  |  |  |  |
| --- | --- | --- | --- |
| **ACC\_NO** | **ANAME** | **JOIN\_DATE** | **RETIRE\_DATE** |
| 1 | AJITI | 02-MAR-01 | 21-MAR-04 |
| 6 | YATIN | 02-MAR-01 | 20-MAR-05 |

**b)Find all the employees who will retired on 2/3/2001**

SELECT \* FROM EMP\_ANT WHERE RETIRE\_DATE = '02-MAR-2001';

|  |  |  |  |
| --- | --- | --- | --- |
| **ACC\_NO** | **ANAME** | **JOIN\_DATE** | **RETIRE\_DATE** |
| 4 | PARAG | 15-MAY-00 | 02-MAR-01 |
| 7 | KAVITA | 12-SEP-00 | 02-MAR-01 |

**2.Creating Table TBL\_SHARES**

CREATE TABLE TBL\_SHARES( CNAME VARCHAR2(20), NOFSHARES NUMBER(5), PRICEPSHARE NUMBER(5), TRANSTIME TIMESTAMP(6) );

INSERT INTO TBL\_SHARES VALUES('SAIL',250,25,SYSTIMESTAMP);

INSERT INTO TBL\_SHARES VALUES('TATATELE',205,20,'05-JUN-04 11.45.00.000000 AM');

INSERT INTO TBL\_SHARES VALUES('WIPRO',250,25,'10-MAR-03 06.15.00.000000 PM');

INSERT INTO TBL\_SHARES VALUES('INFOSYS',115,15,'08-MAY-01 07.25.00.000000 AM');

INSERT INTO TBL\_SHARES VALUES('BHARTI',140,12,'14-APR-05 05.30.00.000000 PM');

INSERT INTO TBL\_SHARES VALUES('TAJHOTEL',310,30,'12-SEP-03 10.30.00.000000 AM');

INSERT INTO TBL\_SHARES VALUES('MARUTI',100,250,'21-AUG-04 05.30.00.000000 PM');

SELECT \* FROM TBL\_SHARES;

|  |  |  |  |
| --- | --- | --- | --- |
| **CNAME** | **NOFSHARES** | **PRICEPSHARE** | **TRANSTIME** |
| SAIL | 250 | 25 | 11-JAN-16 09.16.06.843000 AM |
| TATATELE | 205 | 20 | 05-JUN-04 11.45.00.000000 AM |
| WIPRO | 250 | 25 | 10-MAR-03 06.15.00.000000 PM |
| INFOSYS | 115 | 15 | 08-MAY-01 07.25.00.000000 AM |
| BHARTI | 140 | 12 | 14-APR-05 05.30.00.000000 PM |
| TAJHOTEL | 310 | 30 | 12-SEP-03 10.30.00.000000 AM |
| MARUTI | 100 | 250 | 21-AUG-04 05.30.00.000000 PM |

**a)Find names of a company whose share price is more than Rs.100 at 11:45 A.M.**

SELECT CNAME FROM TBL\_SHARES WHERE PRICEPSHARE > 15 AND TO\_CHAR(TRANSTIME,'HH12:MI:AM')='11:45:AM';

|  |
| --- |
| **CNAME** |
| TATATELE |

**b)Find the name of company which has highest shares price at 5.00 P.M.**

SELECT CNAME FROM TBL\_SHARES WHERE PRICEPSHARE IN ( SELECT MAX(PRICEPSHARE) FROM TBL\_SHARES WHERE TO\_CHAR(TRANSTIME,'HH12:MI:AM')='05:30:PM');

|  |
| --- |
| CNAME |
| MARUTI |

**PRACTICAL NO. 5**

**AIM : ACTIVE DATABSES**

Create table emp (eno, ename, hrs, pno, super\_no) and project (pname, pno, thrs, head\_no) where thrs is the total hours and is the derived attribute. Its value is the sum of all employees working on that project. eno and pno are primary keys, head\_no is foreign key to emp relation. Insert 10 tuples and write triggers to do the following:

1. Creating a trigger to insert new employee tuple and display the new total hours from project table.
2. Creating a trigger to change the hrs of existing employee and display the new total hours from project table.
3. Creating a trigger to change the project of an employee and display the new total hours from project table.
4. Creating a trigger to delete the project of an employee.

**SOURCE CODE :**

create table Emp( eno number(8) primary key, ename varchar(20), hrs number(8), pno number(8), super\_no number(8) CONSTRAINT sup UNIQUE );

insert into Emp values(1,'maya',4,20,1001);

insert into Emp values(2,'sweta',5,20,1002);

insert into Emp values(3,'sharmila',3,10,1003);

insert into Emp values(4,'anita',1,20,1004);

insert into Emp values(5,'sandeep',5,30,1005);

insert into Emp values(6,'gautam',8,40,1006);

insert into Emp values(7,'akshay',3,30,1007);

insert into Emp values(8,'sagar',12,40,1008);

insert into Emp values(9,'aarti',1,10,1009);

insert into Emp values(10,'bhakti',9,20,1010);

select \* from Emp;

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ENO** | **ENAME** | **HRS** | **PNO** | **SUPER\_NO** |
| 1 | maya | 4 | 20 | 1001 |
| 2 | sweta | 5 | 20 | 1002 |
| 3 | sharmila | 3 | 10 | 1003 |
| 4 | anita | 1 | 20 | 1004 |
| 5 | sandeep | 5 | 30 | 1005 |
| 6 | gautam | 8 | 40 | 1006 |
| 7 | akshay | 3 | 30 | 1007 |
| 8 | sagar | 12 | 40 | 1008 |
| 9 | aarti | 1 | 10 | 1009 |
| 10 | bhakti | 9 | 20 | 1010 |

create table project( pno number(8) primary key, pname varchar(20), thrs number(8), super\_no number(8) CONSTRAINT supfk references Emp(super\_no) );

insert into project values(10,'distributed',10,1001);

insert into project values(20,'parallel',6,1002);

insert into project values(30,'active',5,1005);

insert into project values(40,'temporal',5,1008);

select \* from project;

|  |  |  |  |
| --- | --- | --- | --- |
| PNO | PNAME | THRS | SUPER\_NO |
| 10 | distributed | 10 | 1001 |
| 20 | parallel | 6 | 1002 |
| 30 | active | 5 | 1005 |
| 40 | temporal | 5 | 1008 |

a)**Creating a trigger to insert new employee tuple and display the new total hours from project table.**

create or replace Trigger thrs1

after insert on Emp

for each row

when(New.pno IS NOT NULL)

begin

update project

set thrs=thrs + :New.hrs

where pno=:New.pno;

end;

insert into Emp values(11,'nancy',4,30,1011);

select \* from Emp;

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ENO | ENAME | HRS | PNO | SUPER\_NO |
| 1 | maya | 4 | 20 | 1001 |
| 2 | sweta | 5 | 20 | 1002 |
| 3 | sharmila | 3 | 10 | 1003 |
| 4 | anita | 1 | 20 | 1004 |
| 5 | sandeep | 5 | 30 | 1005 |
| 6 | gautam | 8 | 40 | 1006 |
| 7 | akshay | 3 | 30 | 1007 |
| 8 | sagar | 12 | 40 | 1008 |
| 9 | aarti | 1 | 10 | 1009 |
| 10 | bhakti | 9 | 20 | 1010 |
| 11 | nancy | 4 | 30 | 1011 |

**b)Creating a trigger to change the hrs of existing employee and display the new total hours from project table.**

create Trigger thrs2

after update of hrs on Emp

for each row

when(New.pno IS NOT NULL)

begin

update project

set thrs=thrs+:New.hrs-:Old.hrs

where pno=:New.pno;

end;

update Emp set hrs=100 where eno=11;

select \* from Emp where eno=11;

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ENO | ENAME | HRS | PNO | SUPER\_NO |
| 11 | nancy | 100 | 30 | 1011 |

**c)Creating a trigger to change the project of an employee and display the new total hours from project table.**

create Trigger thrs3

after update of pno on Emp

for each row

when(New.pno IS NOT NULL)

begin

update project

set thrs=thrs+:New.hrs-:Old.hrs

where pno=:New.pno;

end;

update Emp set pno=20 where eno=2;

update Emp set pno=10 where eno=7;

select \* from Emp where eno in (2,7);

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ENO | ENAME | HRS | PNO | SUPER\_NO |
| 2 | sweta | 5 | 20 | 1002 |
| 7 | akshay | 3 | 10 | 1007 |

**d)Creating a trigger to delete the project of an employee.**

create trigger thrs4

after delete on Emp

for each row

when(OLD.pno IS NOT NULL)

begin

update project

set thrs=thrs-:OLD.hrs

where pno=:OLD.pno;

end;

delete from Emp where eno=11;

select \* from Emp order by eno;

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ENO | ENAME | HRS | PNO | SUPER\_NO |
| 1 | maya | 4 | 20 | 1001 |
| 2 | sweta | 5 | 20 | 1002 |
| 3 | sharmila | 3 | 10 | 1003 |
| 4 | anita | 1 | 20 | 1004 |
| 5 | sandeep | 5 | 30 | 1005 |
| 6 | gautam | 8 | 40 | 1006 |
| 7 | akshay | 3 | 10 | 1007 |
| 8 | sagar | 12 | 40 | 1008 |
| 9 | aarti | 1 | 10 | 1009 |
| 10 | bhakti | 9 | 20 | 1010 |

**PRACTICAL NO. 6**

**AIM : XML DATABASES**

Create a table employee having dept\_id as number datatype and employee\_spec as XML datatype(XM\_Type). The employee\_spec is a schema with attributes emp\_id, name, email, acc\_no, managerEmail, dataOf Joning. Insert 10 tuples into employee table. Fire the following queries on XML database.

1. Retrieve the names of employee.
2. Retrieve the acc\_no of employees.
3. Retrieve the names, acc\_no, email of employees.
4. Update the 3rd record from the table and display the name of an employee.
5. Delete 4th record from the table.

**SOURCE CODE :**

create table employee( dept\_id number(4), employee\_spec XMLtype);

insert into employee values(1,XMLtype(

'<emp id="1">

<name> sharmila </name>

<email>dave@yahoo.com</email>

<acc\_no>23456</acc\_no>

<mgr\_email>rekha.shah@hotmail.com</mgr\_email>

<doj>12/12/2003</doj>

</emp>'));

insert into employee values(1,XMLtype(

'<emp id="2">

<name> anita </name>

<email>ani@yahoo.com</email>

<acc\_no>234346</acc\_no>

<mgr\_email>rekha.shah@hotmail.com</mgr\_email>

<doj>2/6/2003</doj>

</emp>'));

insert into employee values(1,XMLtype(

'<emp id="3">

<name> ekta </name>

<email>ektabhatt@yahoo.com</email>

<acc\_no>2343456</acc\_no>

<mgr\_email>ekta.bhatt@hotmail.com</mgr\_email>

<doj>24/5/2001</doj>

</emp>'));

insert into employee values(1,XMLtype(

'<emp id="4">

<name> nancy </name>

<email>nancyshah@yahoo.com</email>

<acc\_no>2343678</acc\_no>

<mgr\_email>ekta.shah@hotmail.com</mgr\_email>

<doj>21/5/2002</doj>

</emp>'));

insert into employee values(1,XMLtype(

'<emp id="5">

<name> falguni </name>

<email>falgunishah@yahoo.com</email>

<acc\_no>2343345</acc\_no>

<mgr\_email>falguni.shah@hotmail.com</mgr\_email>

<doj>1/8/2002</doj>

</emp>'));

insert into employee values(1,XMLtype(

'<emp id="6">

<name> sweta </name>

<email>swetamehta@yahoo.com</email>

<acc\_no>2343890</acc\_no>

<mgr\_email>sweta.mehta@hotmail.com</mgr\_email>

<doj>2/1/2001</doj>

</emp>'));

insert into employee values(2,XMLtype(

'<emp id="7">

<name> aarti </name>

<email>aartigupta@yahoo.com</email>

<acc\_no>23433898</acc\_no>

<mgr\_email>falguni.shah@hotmail.com</mgr\_email>

<doj>4/9/2002</doj>

</emp>'));

insert into employee values(2,XMLtype(

'<emp id="8">

<name> sandy </name>

<email>sagupta@yahoo.com</email>

<acc\_no>23567898</acc\_no>

<mgr\_email>sweta.shah@hotmail.com</mgr\_email>

<doj>4/4/2004</doj>

</emp>'));

**A)Retrieve the names of employee.**

select e.employee\_spec.extract('//name/text()').getStringVal() "EMP\_NAME" from employee e;

|  |
| --- |
| EMP\_NAME |
| sharmila |
| anita |
| ekta |
| nancy |
| falguni |
| sweta |
| aarti |
| sandy |

**B)Retrieve the acc\_no of employees.**

select e.employee\_spec.extract('//acc\_no/text()').getStringVal() "Acc\_No" from employee e;

|  |
| --- |
| Acc\_No |
| 23456 |
| 234346 |
| 2343456 |
| 2343678 |
| 2343345 |
| 2343890 |
| 23433898 |
| 23567898 |

**C)Retrieve the names, acc\_no, email of employees.**

select e.employee\_spec.extract('//name/text()').getStringVal() "NAME",e.employee\_spec.extract('//acc\_no/text()').getStringVal() "ACC\_NO",e.employee\_spec.extract('//email/text()').getStringVal() "EMAIL" from employee e;

|  |  |  |
| --- | --- | --- |
| NAME | ACC\_NO | EMAIL |
| sharmila | 23456 | dave@yahoo.com |
| anita | 234346 | ani@yahoo.com |
| ekta | 2343456 | ektabhatt@yahoo.com |
| nancy | 2343678 | nancyshah@yahoo.com |
| falguni | 2343345 | falgunishah@yahoo.com |
| sweta | 2343890 | swetamehta@yahoo.com |
| aarti | 23433898 | aartigupta@yahoo.com |
| sandy | 23567898 | sagupta@yahoo.com |

**D)Update the 3rd record from the table and display the name of an employee.**

update employee e set employee\_spec=XMLtype(

'<emp id="3">

<name> ekta </name>

<email>ektabhatt@yahoo.com</email>

<acc\_no>2343456</acc\_no>

<mgr\_email>ekta.bhatt@hotmail.com</mgr\_email>

<doj>24/5/2001</doj>

<update>This is the updated record</update>

</emp>') where e.employee\_spec.extract('//acc\_no/text()').getStringVal() ='2343456';

select e.employee\_spec.extract('//name/text()').getStringVal()"NAME",

e.employee\_spec.getClobVal() "EMP\_SPECIFICATION"

from employee e where

e.employee\_spec.extract('//name/text()').getStringVal()=' ekta ';

|  |  |
| --- | --- |
| NAME | EMP\_SPECIFICATION |
| ekta | <emp id="3"> <name> ekta </name> <email>ektabhatt@yahoo.com</email> <acc\_no>2343456</acc\_no> <mgr\_email>ekta.bhatt@hotmail.com</mgr\_email> <doj>24/5/2001</doj> <update>This is the updated record</update> </emp> |

**E)Delete 4th record from the table.**

delete from employee e where e.employee\_spec.extract('//name/text()').getStringVal() =' nancy ';

select e.employee\_spec.extract('//name/text()').getStringVal() "NAME" from employee e;

|  |
| --- |
| **NAME** |
| sharmila |
| anita |
| ekta |
| falguni |
| sweta |
| aarti |
| sandy |