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**Lab: 4**

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**Database Schema:**

**REATE TABLE AccessProfiles**

**(**

**EmpClass VARCHAR2(20) PRIMARY KEY,**

**ExecLounge VARCHAR2(2),**

**ExecWashroom VARCHAR2(2),**

**SupplyCloset VARCHAR2(2),**

**EmpLounge VARCHAR2(2),**

**ServerRoom VARCHAR2(2)**

**);**

**delete from empaccess;**

**SELECT \* FROM empaccess;**

**insert into accessprofiles values ('manager','a','a','n','n','n');**

**insert into accessprofiles values ('adminassitants','a','n','a','a','n');**

**insert into accessprofiles values ('itemployees','n','n','n','a','a');**

**insert into accessprofiles values ('clerk','n','n','a','a','n');**

**insert into accessprofiles values ('collegiateinterns','n','n','n','a','n');**

**insert into accessprofiles values ('maintenancecrew','a','a','a','a','a');**

**insert into accessprofiles values ('visitors','n','n','n','n','n');**

**drop Table EmpAccess;**

**CREATE TABLE EmpAccess**

**(**

**EmpID NUMBER(3) PRIMARY KEY,**

**LName VARCHAR2(25),**

**YrsOfSvc NUMBER(2),**

**EmpClass VARCHAR(20),**

**CONSTRAINT empid1\_fk FOREIGN KEY (EmpClass)**

**REFERENCES AccessProfiles (EmpClass)**

**);**

**Insert into EmpAccess values (101,'Papas',8,'manager');**

**Insert into EmpAccess values (102,'George',8,'clerk');**

**Insert into EmpAccess values (103,'Davidson',22,'visitors');**

**Insert into EmpAccess values (104,'Rodriguez',4,'clerk');**

**Insert into EmpAccess values (105,'Smithers',13,'itemployees');**

**Insert into EmpAccess values (106,'Ramirez',15,'visitor');**

**Insert into EmpAccess values (107,'Ahmed',5,'manager');**

**Insert into EmpAccess values (999,'Kaushik',14,'manager');**

**Insert into EmpAccess values (203,'Smith',11,'collegiateinterns');**

**Insert into EmpAccess values (202,'Adams',6,'maintenancecrew');**

**Insert into EmpAccess values (322,'Mazard',10,'adminassitants');**

**Insert into EmpAccess values (381,'Reed',18,'visitors');**

**Insert into EmpAccess values (382,'Isaac',2,'manager');**

**Insert into EmpAccess values (108,'Daksh',18,'clerk');**

**Insert into EmpAccess values (120,'Louis',11,'visitors');**

**Insert into EmpAccess values (128,'Nate',33,'visitors');**

**Select \* from EmpAccess;**

**CREATE TABLE RealTimeTracking**

**(**

**AccessID NUMBER (5) PRIMARY KEY,**

**EmployeeID NUMBER(5),**

**TimeCurrent DATE,**

**CONSTRAINT empid1 FOREIGN KEY (EmployeeID)**

**REFERENCES EmpAccess(EmpID)**

**);**

**SELECT LNAME AS LASTNAME FROM EMPACCESS LEFT JOIN ACCESSPROFILES ON EMPACCESS.EMPCLASS = ACCESSPROFILES.EMPCLASS WHERE ACCESSPROFILES.SERVERROOM = 'n';**

**SELECT LNAME AS LASTNAME FROM EMPACCESS JOIN ACCESSPROFILES USING(EMPCLASS) WHERE (ACCESSPROFILES.SERVERROOM ='a') OR (ACCESSPROFILES.EXECLOUNGE ='a');**

**SELECT COUNT(LASTNAME) AS EmployeeCount FROM (SELECT LNAME AS LASTNAME FROM EMPACCESS JOIN ACCESSPROFILES ON EMPACCESS.EMPCLASS = ACCESSPROFILES.EMPCLASS WHERE EMPACCESS.EMPCLASS = 'collegiateinterns');**

**SELECT LNAME AS LASTNAME FROM EMPACCESS WHERE LNAME LIKE 'L%' OR LNAME LIKE 'N%';**

**commit work;**

* **Perform a query that lists all employees that do not have access to the server room**

**Query:**

**Select LNAME AS LASTNAME FROM EMPACCESS LEFT JOIN ACCESSPROFILES ON EMPACCESS.EMPCLASS = ACCESSPROFILES.EMPCLASS WHERE ACCESSPROFILES.SERVERROOM = 'n';**

**Graphical user interface, application

Description automatically generated**

* **Construct a query that lists all employees that have access to the supply closet or the executive lounge.**

**Query:**

**SELECT LNAME AS LASTNAME FROM EMPACCESS JOIN ACCESSPROFILES USING(EMPCLASS) WHERE (ACCESSPROFILES.SERVERROOM ='a') OR (ACCESSPROFILES.EXECLOUNGE ='a');**

**Graphical user interface, application, Word

Description automatically generated**

* **Determine the count of all the employees that are of the intern type.**

**Query:**

**SELECT COUNT(LASTNAME) AS EmployeeCount FROM (SELECT LNAME AS LASTNAME FROM EMPACCESS JOIN ACCESSPROFILES ON EMPACCESS.EMPCLASS = ACCESSPROFILES.EMPCLASS WHERE EMPACCESS.EMPCLASS = 'collegiateinterns');**

**Graphical user interface, application

Description automatically generated**

* **List all employees that have an " L" or an " N" as the first letter in their last name.**

**Query:**

**SELECT LNAME AS LASTNAME FROM EMPACCESS WHERE LNAME LIKE 'L%' OR LNAME LIKE 'N%';**

**Graphical user interface, application

Description automatically generated**

* **Design a database report that shows the distribution of the employees according to employee class. You can use a pie chart or other graphic image to show the distribution.**

**Consider the following report generated by oracle sql developers showing the distribution of employees according to the employee class.**

**A treemap is representing different employee categories according to the different roles. As manager class having most of the employees.**

**Graphical user interface, application

Description automatically generated**

**Chart, treemap chart

Description automatically generated**

**( Extra Credit )**

**Consider the following table tracking down the individual employees live access according to their employee ID.**

**CREATE TABLE RealTracking**

**(**

**Trackno NUMBER (5) PRIMARY KEY,**

**Emploid NUMBER(5),**

**Location VARCHAR2(20),**

**CONSTRAINT empid1l FOREIGN KEY (Emploid)**

**REFERENCES EmpAccess(EmpID)**

**);**

**Graphical user interface, application, Word

Description automatically generated**

**An transaction or trigger can be created to accomplish this task. Each time an employee taps the card and insert query will be triggered adding right information into the Realtrack Table.**

**Whenever employee taps the card, a code written in higher level language of the application will call a trigger or transaction in sql to insert query adding values into the RealTrack table with the empid and the location.**

**We can also modify this table by adding exact date and time. In Future this table could be also useful to show the tapping history of the user based on months, weeks, days or year.**

**STEP 7:**

* **What should happen to a proximity card belonging to a terminated employee?**

**All the access must be revoked from the employee that is no longer part of the organization. Employee should have access to only those facilities that are allowed according to non-employee access rules.**

**In most of the cases employees have to return the card after the termination. As they no longer belong to the organization and serve no purpose for the same.**

* **What must IT do when an employee loses a proximity card? What are the database consequences of such an event?**

**When an Employee loses his card, IT must revoke all access to those card to prevent unauthorized use of the card. Such action would make revoking od some privileges from the databases. It will alter the database permission records and log file.**

* **A company has expanded its physical facilities from one building to two buildings on the same property. The new building has now included a storage room that will contain sensitive information. Only the company’s attorney(s) may enter the room. What should be modified in your database for this lab to accommodate such a change?**

**Storage room privileges for the Attorney needs to be modified for the second building. As the room is having the sensitive information it is important to allocate access to the right individual.**

**Moreover, we can create a new access type related to classified information and classified area access. Such a access would allow individuals to access the highly classified zones in a particular company. Each access will come with predefined security clearances, and this access will require highest level of security clearance.**

* **Would / should login ids and passwords also be incorporated as part of the database table, or should that be placed in a separate table? Support your answer.**

**LoginID and Password could be a part of the database. But it is important to understand the must be encrypted to precent data theft.**

* **Find and cite at least two vendors for proximity cards ( you may list the Web sites ) .**

1. **IDWholesaler**

**2>IDenticard**

References

*Proximity cards - programmed: Id zone*. Print, Design, and Wear ID Badges | ID Wholesaler. (n.d.). Retrieved October 18, 2021, from <https://www.idwholesaler.com/prox-cards.html?_bt=332866304622&_bk=proximity+cards&_bm=p&_bn=g&creative=332866304622&keyword=proximity+cards&matchtype=p&network=g&device=c&offer_id=&gclid=Cj0KCQjwtrSLBhCLARIsACh6Rmgggo1WQNPJ26BuY_YcuzKUi7RX-3bgq-RVdambfxcFpSN3yZGZ11IaAksUEALw_wcB>.

*Proximity cards: Identification solutions*. IDenticard.com. (n.d.). Retrieved October 18, 2021, from https://identicard.com/collections/proximity-cards.