NOVEMBER 6, 2024
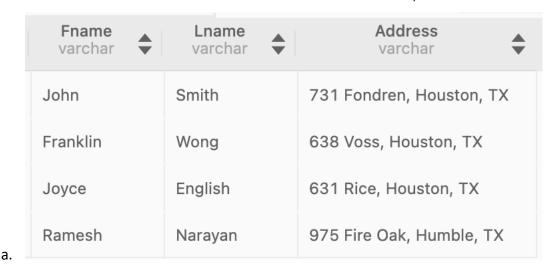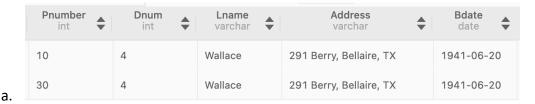
HOMEWORK 4 B
CS 457 B

UMAIR DADA
2O281 - SFBU

(8.15)

1. SELECT Fname, Lname, Address FROM EMPLOYEE JOIN DEPARTMENT ON EMPLOYEE.Dno = DEPARTMENT.Dnumber WHERE DEPARTMENT.Dname = 'Research';

Fname varchar	Lname varchar	Address varchar
John	Smith	731 Fondren, Houston, TX
Franklin	Wong	638 Voss, Houston, TX
Joyce	English	631 Rice, Houston, TX
Ramesh	Narayan	975 Fire Oak, Humble, TX

   a.

2. SELECT PROJECT.Pnumber, PROJECT.Dnum, EMPLOYEE.Lname, EMPLOYEE.Address, EMPLOYEE.Bdate FROM PROJECT JOIN DEPARTMENT ON PROJECT.Dnum = DEPARTMENT.Dnumber JOIN EMPLOYEE ON DEPARTMENT.Mgr_ssn = EMPLOYEE.Ssn WHERE PROJECT.Plocation = 'Stafford';

Pnumber int	Dnum int	Lname varchar	Address varchar	Bdate date
10	4	Wallace	291 Berry, Bellaire, TX	1941-06-20
30	4	Wallace	291 Berry, Bellaire, TX	1941-06-20

   a.

3. SELECT EMPLOYEE.Lname, EMPLOYEE.Fname FROM EMPLOYEE WHERE NOT EXISTS (SELECT Pnumber FROM PROJECT WHERE Dnum = 4 AND NOT EXISTS (SELECT * FROM WORKS_ON WHERE WORKS_ON.Essn = EMPLOYEE.Ssn AND WORKS_ON.Pno = PROJECT.Pnumber));

Lname varchar	Fname varchar
Jabbar	Ahmad
Zelaya	Alicia

   a.

4. SELECT DISTINCT Pno FROM WORKS_ON JOIN EMPLOYEE ON WORKS_ON.Essn = EMPLOYEE.Ssn
    WHERE EMPLOYEE.Lname = 'Smith' UNION SELECT DISTINCT PROJECT.Pnumber FROM PROJECT
    JOIN DEPARTMENT ON PROJECT.Dnum = DEPARTMENT.Dnumber JOIN EMPLOYEE ON
    DEPARTMENT.Mgr_ssn = EMPLOYEE.Ssn WHERE EMPLOYEE.Lname = 'Smith';

Pno int
1
2

a.

5. SELECT EMPLOYEE.Lname, EMPLOYEE.Fname FROM EMPLOYEE JOIN (SELECT Essn, COUNT(*)
    AS DependentCount FROM DEPENDENT GROUP BY Essn HAVING COUNT(*) >= 2) AS
    DEP_COUNT ON EMPLOYEE.Ssn = DEP_COUNT.Essn;

Lname varchar	Fname varchar
Smith	John
Wong	Franklin

a.

6. SELECT Lname, Fname FROM EMPLOYEE WHERE Ssn NOT IN (SELECT Essn FROM DEPENDENT);

Lname varchar	Fname varchar
English	Joyce
Narayan	Ramesh
Borg	James
Jabbar	Ahmad
Zelaya	Alicia

a.

7. SELECT EMPLOYEE.Lname, EMPLOYEE.Fname FROM EMPLOYEE JOIN DEPARTMENT ON EMPLOYEE.Ssn = DEPARTMENT.Mgr_ssn WHERE EMPLOYEE.Ssn IN (SELECT Essn FROM DEPENDENT);

Lname varchar	Fname varchar
Wong	Franklin
Wallace	Jennifer

a.

(8.16)

A. SELECT Fname, Lname FROM EMPLOYEE JOIN WORKS_ON ON EMPLOYEE.Ssn = WORKS_ON.Essn WHERE EMPLOYEE.Dno = 5 AND WORKS_ON.Pno = 1 AND WORKS_ON.Hours > 10;

Fname varchar	Lname varchar
John	Smith
Joyce	English

a.

B. SELECT Fname, Lname FROM EMPLOYEE JOIN DEPENDENT ON EMPLOYEE.Ssn = DEPENDENT.Essn WHERE EMPLOYEE.Fname = DEPENDENT.Dependent_name;

a. NO OUTPUT

C. SELECT Fname, Lname FROM EMPLOYEE WHERE Super_ssn = (SELECT Ssn FROM EMPLOYEE WHERE Fname = 'Franklin' AND Lname = 'Wong');

Fname varchar	Lname varchar
John	Smith
Joyce	English
Ramesh	Narayan

a.

D. SELECT Pname, SUM(Hours) AS Total_Hours FROM PROJECT JOIN WORKS_ON ON PROJECT.Pnumber = WORKS_ON.Pno GROUP BY Pname;

Pname varchar	Total_Hours newdecimal
Computerization	55.0
Newbenefits	55.0
ProductX	52.5
ProductY	37.5
ProductZ	50.0
Reorganization	25.0

a.

E. SELECT Fname, Lname FROM EMPLOYEE WHERE NOT EXISTS (SELECT Pnumber FROM PROJECT WHERE NOT EXISTS (SELECT * FROM WORKS_ON WHERE WORKS_ON.Essn = EMPLOYEE.Ssn AND WORKS_ON.Pno = PROJECT.Pnumber));

a. NO OUTPUT

F.   SELECT Fname, Lname FROM EMPLOYEE WHERE Ssn NOT IN (SELECT Essn FROM WORKS_ON);

   a.   NO OUTPUT

G.   SELECT Dname, AVG(Salary) AS Average_Salary FROM DEPARTMENT JOIN EMPLOYEE ON

   DEPARTMENT.Dnumber = EMPLOYEE.Dno GROUP BY Dname;

Dname varchar	Average_Salary newdecimal
Research	37250.000000
Headquarters	66000.000000
Administration	34000.000000

   a.

H.   SELECT AVG(Salary) AS Average_Female_Salary FROM EMPLOYEE WHERE Sex = 'F';

Average_Female_Salary newdecimal
34333.333333

   a.

I.   SELECT Fname, Lname, Address FROM EMPLOYEE WHERE Ssn IN (SELECT Essn FROM

   WORKS_ON JOIN PROJECT ON WORKS_ON.Pno = PROJECT.Pnumber WHERE PROJECT.Plocation

   = 'Houston') AND Dno NOT IN (SELECT Dnumber FROM DEPT_LOCATIONS WHERE Dlocation =

   'Houston');

Fname varchar	Lname varchar	Address varchar
Jennifer	Wallace	291 Berry, Bellaire, TX

   a.

J. SELECT Lname FROM EMPLOYEE WHERE Ssn IN (SELECT Mgr_ssn FROM DEPARTMENT) AND Ssn NOT IN (SELECT Essn FROM DEPENDENT);

Lname varchar
Borg

a.

(8.18)

A. BOOK_LOST_TRIBE ← σTitle='The Lost Tribe'(BOOK) SHARPSTOWN_BRANCH ← σBranch_name='Sharpstown'(LIBRARY_BRANCH) RESULT ← πNo_of_copies(BOOK_LOST_TRIBE ⋈ BOOK_COPIES ⋈ SHARPSTOWN_BRANCH)

B. BOOK_LOST_TRIBE ← σTitle='The Lost Tribe'(BOOK) RESULT ← πBranch_name, No_of_copies(BOOK_LOST_TRIBE ⋈ BOOK_COPIES ⋈ LIBRARY_BRANCH)

C. ALL_BORROWERS ← πCard_no(BORROWER) BORROWERS_WITH_LOANS ← πCard_no(BOOK_LOANS) BORROWERS_WITHOUT_LOANS ← ALL_BORROWERS - BORROWERS_WITH_LOANS RESULT ← πName(BORROWERS_WITHOUT_LOANS ⋈ BORROWER)

D. SHARPSTOWN_BRANCH ← σBranch_name='Sharpstown'(LIBRARY_BRANCH) LOANS_DUE_TODAY ← σDue_date=TODAY(BOOK_LOANS ⋈ SHARPSTOWN_BRANCH) RESULT ← πTitle, Name, Address(LOANS_DUE_TODAY ⋈ BORROWER ⋈ BOOK)

E. RESULT ← πBranch_name, COUNT(Book_id)(BOOK_LOANS ⋈ LIBRARY_BRANCH) GROUP BY Branch_name

F. BORROWERS_LOAN_COUNT ← πCard_no, COUNT(Book_id)(BOOK_LOANS) GROUP BY Card_no BORROWERS_WITH_MORE_THAN_FIVE ← σCOUNT(Book_id)>5(BORROWERS_LOAN_COUNT)

RESULT ← πName, Address, COUNT(Book_id)(BORROWERS_WITH_MORE_THAN_FIVE ⋈ BORROWER)

G. KING_BOOKS ← σAuthor_name='Stephen King'(BOOK_AUTHORS) CENTRAL_BRANCH ← σBranch_name='Central'(LIBRARY_BRANCH) RESULT ← πTitle, No_of_copies(KING_BOOKS ⋈ BOOK ⋈ BOOK_COPIES ⋈ CENTRAL_BRANCH)