

23.24 Consider the relational database schema Write SQL statements to grant these privileges. Use views were appropriate:

(a) Account A can retrieve or modify any relation except DEPENDENT and can grant any of these privileges to other users.

EMPLOYEE

Fname	Minit	Lname	<u>Ssn</u>	Bdate	Address	Sex	Salary	Super_ssn	Dno
-------	-------	-------	------------	-------	---------	-----	--------	-----------	-----

DEPARTMENT

Dname	<u>Dnumber</u>	Mgr_ssn	Mgr_start_date
-------	----------------	---------	----------------

DEPT_LOCATIONS

<u>Dnumber</u>	<u>Dlocation</u>
----------------	------------------

PROJECT

Pname	<u>Pnumber</u>	Plocation	Dnum
-------	----------------	-----------	------

WORKS_ON

<u>Essn</u>	<u>Pno</u>	Hours
-------------	------------	-------

DEPENDENT

<u>Essn</u>	<u>Dependent_name</u>	Sex	Bdate	Relationship
-------------	-----------------------	-----	-------	--------------

Figure 5.5
Schema diagram for
the COMPANY
relational database
schema.

23.24 Consider the relational database schema Write SQL statements to grant these privileges. Use views were appropriate:

(a) Account A can retrieve or modify any relation except DEPENDENT and can grant any of these privileges to other users.

GRANT SELECT, UPDATE
ON EMPLOYEE, DEPARTMENT,
DEPT_LOCATIONS, PROJECT,
WORKS_ON
TO USER_A
WITH GRANT OPTION;

EMPLOYEE

Fname	Minit	Lname	<u>Ssn</u>	Bdate	Address	Sex	Salary	Super_ssn	Dno
-------	-------	-------	------------	-------	---------	-----	--------	-----------	-----

DEPARTMENT

Dname	<u>Dnumber</u>	Mgr_ssn	Mgr_start_date
-------	----------------	---------	----------------

DEPT_LOCATIONS

<u>Dnumber</u>	<u>Dlocation</u>
----------------	------------------

PROJECT

Pname	<u>Pnumber</u>	Plocation	Dnum
-------	----------------	-----------	------

WORKS_ON

<u>Essn</u>	<u>Pno</u>	Hours
-------------	------------	-------

DEPENDENT

<u>Essn</u>	<u>Dependent_name</u>	Sex	Bdate	Relationship
-------------	-----------------------	-----	-------	--------------

Figure 5.5
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23.24 Consider the relational database schema Write SQL statements to grant these privileges. Use views were appropriate:

(b) Account B can retrieve all the attributes of EMPLOYEE and DEPARTMENT except for SALARY, MGRSSN, and MGRSTARTDATE.

EMPLOYEE

Fname	Minit	Lname	<u>Ssn</u>	Bdate	Address	Sex	Salary	Super_ssn	Dno
-------	-------	-------	------------	-------	---------	-----	--------	-----------	-----

DEPARTMENT

Dname	<u>Dnumber</u>	Mgr_ssn	Mgr_start_date
-------	----------------	---------	----------------

DEPT_LOCATIONS

<u>Dnumber</u>	<u>Dlocation</u>
----------------	------------------

PROJECT

Pname	<u>Pnumber</u>	Plocation	Dnum
-------	----------------	-----------	------

WORKS_ON

<u>Essn</u>	<u>Pno</u>	Hours
-------------	------------	-------

DEPENDENT

<u>Essn</u>	<u>Dependent_name</u>	Sex	Bdate	Relationship
-------------	-----------------------	-----	-------	--------------

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23.24 Consider the relational database schema Write SQL statements to grant these privileges. Use views where appropriate:

(b) Account B can retrieve all the attributes of EMPLOYEE and DEPARTMENT except for SALARY, MGRSSN, and MGRSTARTDATE.

```
CREATE VIEW EMPS AS  
SELECT FNAME, MINIT, LNAME, SSN,  
BDATE, ADDRESS, SEX, SUPERSSN,  
DNO  
FROM EMPLOYEE;
```

```
GRANT SELECT ON EMPS  
TO USER_B;
```

```
CREATE VIEW DEPTS AS  
SELECT DNAME, DNUMBER FROM  
DEPARTMENT;
```

```
GRANT SELECT ON DEPTS  
TO USER_B;
```

EMPLOYEE

Fname	Minit	Lname	<u>Ssn</u>	Bdate	Address	Sex	Salary	Super_ssn	Dno
-------	-------	-------	------------	-------	---------	-----	--------	-----------	-----

DEPARTMENT

Dname	<u>Dnumber</u>	Mgr_ssn	Mgr_start_date
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DEPT_LOCATIONS

<u>Dnumber</u>	<u>Dlocation</u>
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PROJECT

Pname	<u>Pnumber</u>	Plocation	Dnum
-------	----------------	-----------	------

WORKS_ON

<u>Essn</u>	<u>Pno</u>	Hours
-------------	------------	-------

DEPENDENT

<u>Essn</u>	<u>Dependent_name</u>	Sex	Bdate	Relationship
-------------	-----------------------	-----	-------	--------------

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23.24 Consider the relational database schema Write SQL statements to grant these privileges. Use views were appropriate:

(c) Account C can retrieve or modify WORKS_ON but can only retrieve the FNAME, MINIT, LNAME, SSN attributes of EMPLOYEE and the PNAME, PNUMBER attributes of PROJECT.

EMPLOYEE

Fname	Minit	Lname	<u>Ssn</u>	Bdate	Address	Sex	Salary	Super_ssn	Dno
-------	-------	-------	------------	-------	---------	-----	--------	-----------	-----

DEPARTMENT

Dname	<u>Dnumber</u>	Mgr_ssn	Mgr_start_date
-------	----------------	---------	----------------

DEPT_LOCATIONS

<u>Dnumber</u>	<u>Dlocation</u>
----------------	------------------

PROJECT

Pname	<u>Pnumber</u>	Plocation	Dnum
-------	----------------	-----------	------

WORKS_ON

<u>Essn</u>	<u>Pno</u>	Hours
-------------	------------	-------

DEPENDENT

<u>Essn</u>	<u>Dependent_name</u>	Sex	Bdate	Relationship
-------------	-----------------------	-----	-------	--------------

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23.24 Consider the relational database schema. Write SQL statements to grant these privileges. Use views where appropriate:

(c) Account C can retrieve or modify WORKS_ON but can only retrieve the FNAME, MINIT, LNAME, SSN attributes of EMPLOYEE and the PNAME, PNUMBER attributes of PROJECT.

GRANT SELECT, UPDATE ON WORKS_ON
TO USER_C;

CREATE VIEW EMP1 AS
SELECT FNAME, MINIT, LNAME, SSN
FROM EMPLOYEE;

GRANT SELECT ON EMP1
TO USER_C;

EMPLOYEE

Fname	Minit	Lname	<u>Ssn</u>	Bdate	Address	Sex	Salary	Super_ssn	Dno
-------	-------	-------	------------	-------	---------	-----	--------	-----------	-----

DEPARTMENT

Dname	<u>Dnumber</u>	Mgr_ssn	Mgr_start_date
-------	----------------	---------	----------------

DEPT_LOCATIONS

<u>Dnumber</u>	<u>Dlocation</u>
----------------	------------------

PROJECT

Pname	<u>Pnumber</u>	Plocation	Dnum
-------	----------------	-----------	------

WORKS_ON

<u>Essn</u>	<u>Pno</u>	Hours
-------------	------------	-------

DEPENDENT

<u>Essn</u>	<u>Dependent_name</u>	Sex	Bdate	Relationship
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Figure 5
Schema diagram
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23.24 Consider the relational database schema. Write SQL statements to grant these privileges. Use views where appropriate:

(c) Account C can retrieve or modify WORKS_ON but can only retrieve the FNAME, MINIT, LNAME, SSN attributes of EMPLOYEE and the PNAME, PNUMBER attributes of PROJECT.

```
CREATE VIEW PROJ1 AS  
SELECT PNAME, PNUMBER  
FROM PROJECT;
```

```
GRANT SELECT ON PROJ1  
TO USER_C;
```

EMPLOYEE

Fname	Minit	Lname	<u>Ssn</u>	Bdate	Address	Sex	Salary	Super_ssn	Dno
-------	-------	-------	------------	-------	---------	-----	--------	-----------	-----

DEPARTMENT

Dname	<u>Dnumber</u>	Mgr_ssn	Mgr_start_date
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DEPT_LOCATIONS

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PROJECT

Pname	<u>Pnumber</u>	Plocation	Dnum
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WORKS_ON

<u>Essn</u>	<u>Pno</u>	Hours
-------------	------------	-------

DEPENDENT

<u>Essn</u>	<u>Dependent_name</u>	Sex	Bdate	Relationship
-------------	-----------------------	-----	-------	--------------

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23.24 Consider the relational database schema Write SQL statements to grant these privileges. Use views were appropriate:

(d) Account D can retrieve any attribute of EMPLOYEE or DEPENDENT and can modify DEPENDENT.

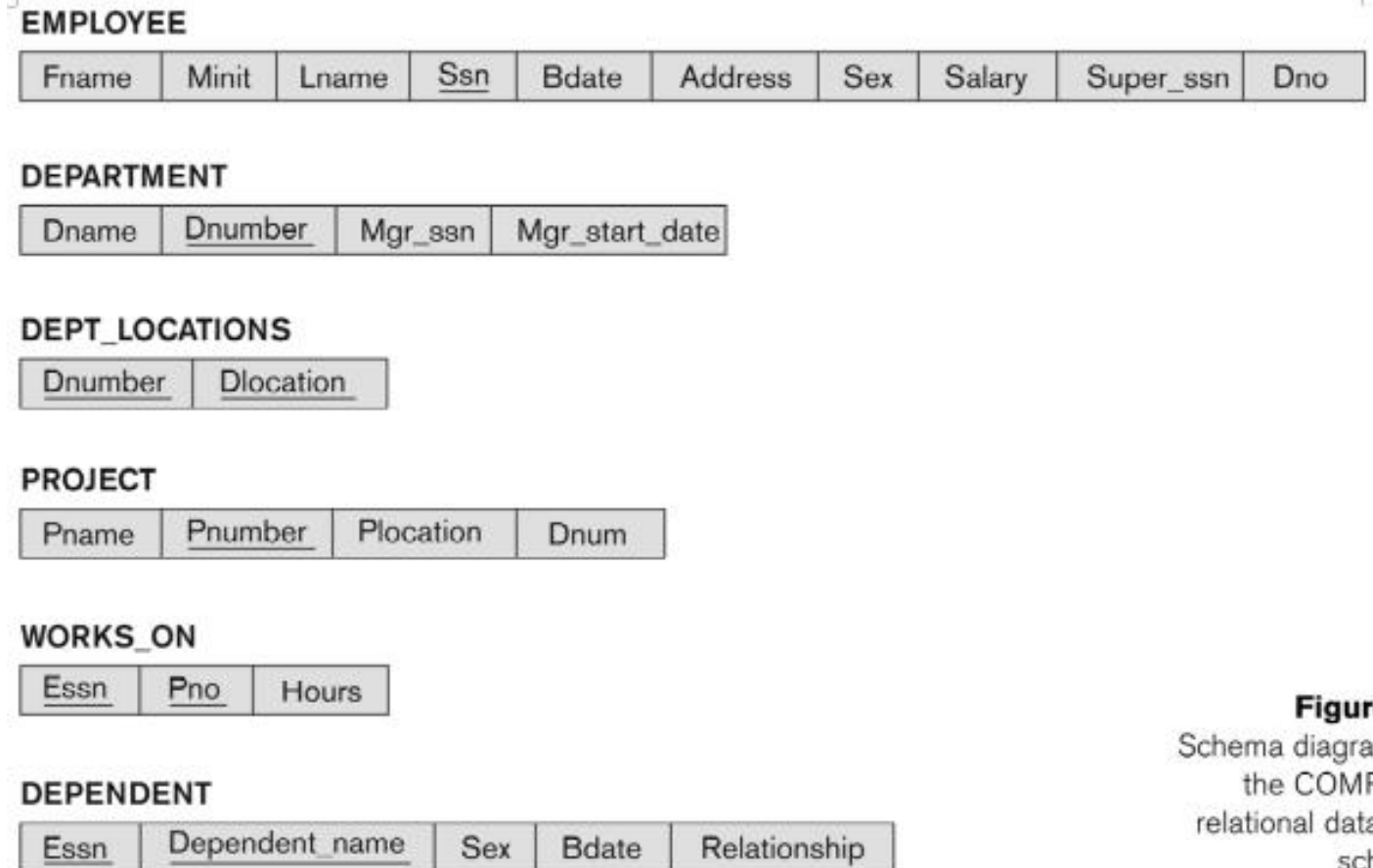


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(d) Account D can retrieve any attribute of EMPLOYEE or DEPENDENT and can modify DEPENDENT.

GRANT SELECT ON EMPLOYEE,
DEPENDENT TO USER_D;

GRANT UPDATE ON
DEPENDENT TO USER_D;

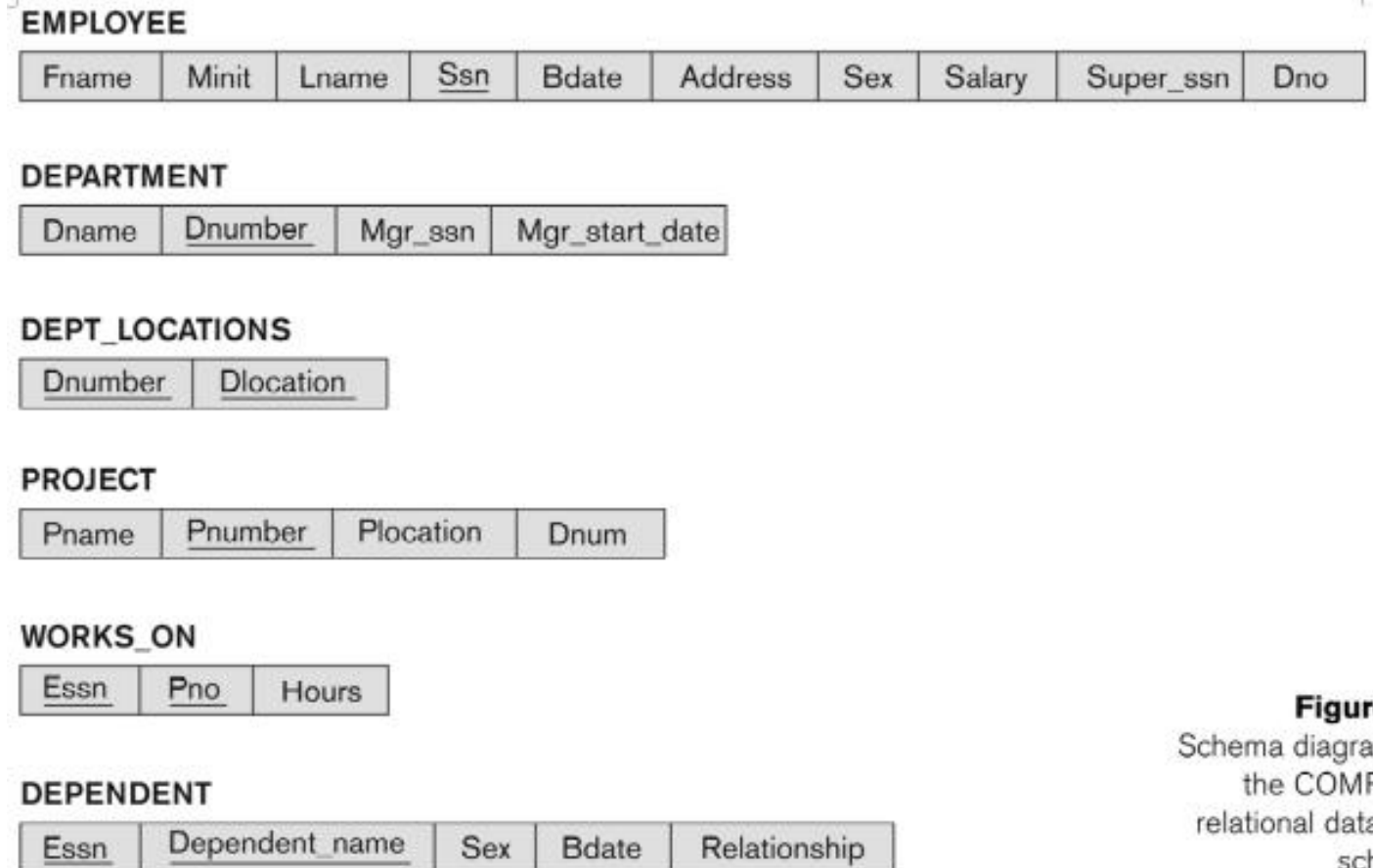


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23.24 Consider the relational database schema Write SQL statements to grant these privileges. Use views were appropriate:

(e) Account E can retrieve any attribute of EMPLOYEE but only for EMPLOYEE tuples that have DNO = 3.

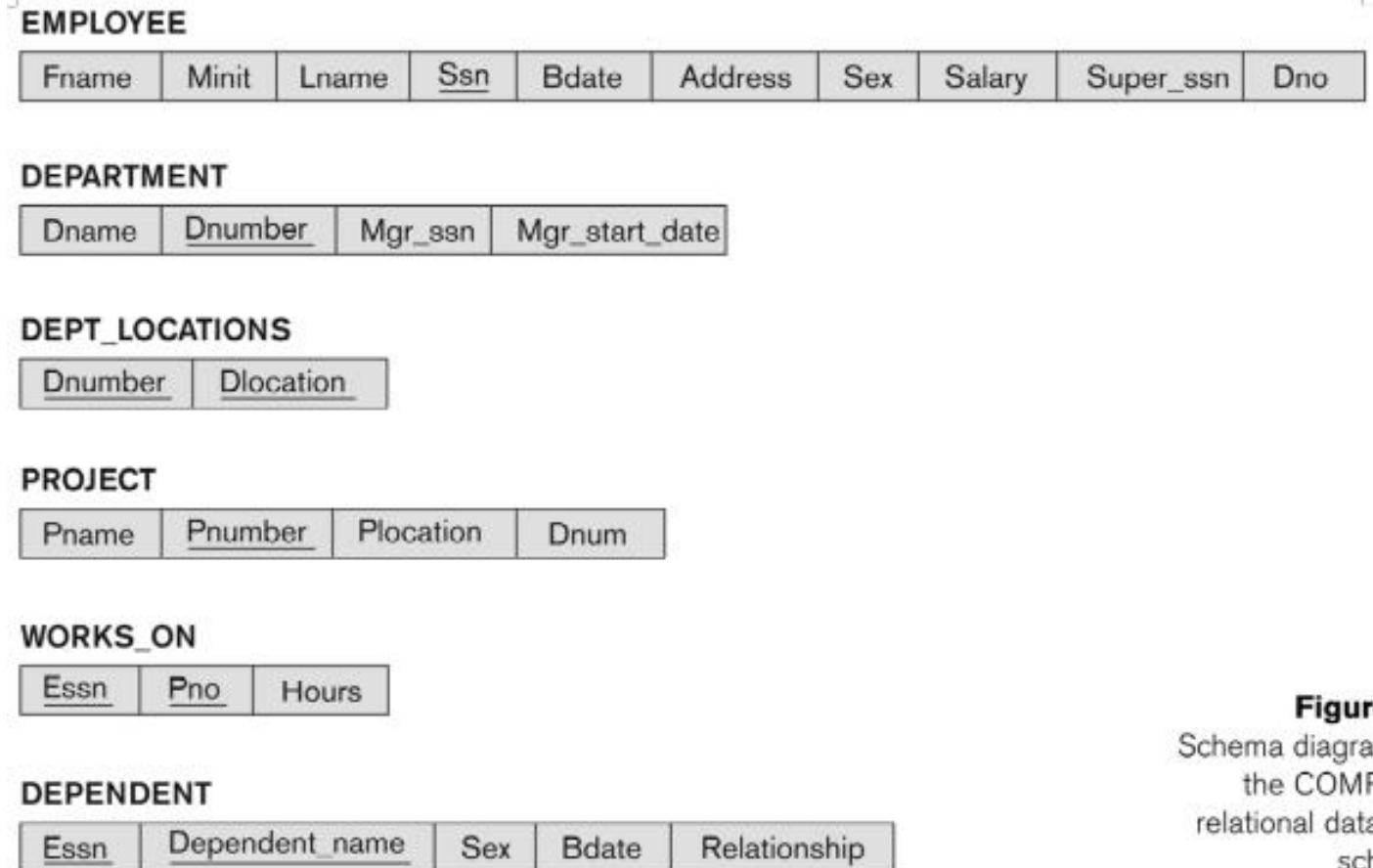


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23.24 Consider the relational database schema Write SQL statements to grant these privileges. Use views where appropriate:

(e) Account E can retrieve any attribute of EMPLOYEE but only for EMPLOYEE tuples that have DNO = 3.

```
CREATE VIEW DNO3_EMPLOYEES  
AS SELECT * FROM EMPLOYEE  
WHERE DNO=3;
```

```
GRANT SELECT ON  
DNO3_EMPLOYEES TO USER_E;
```

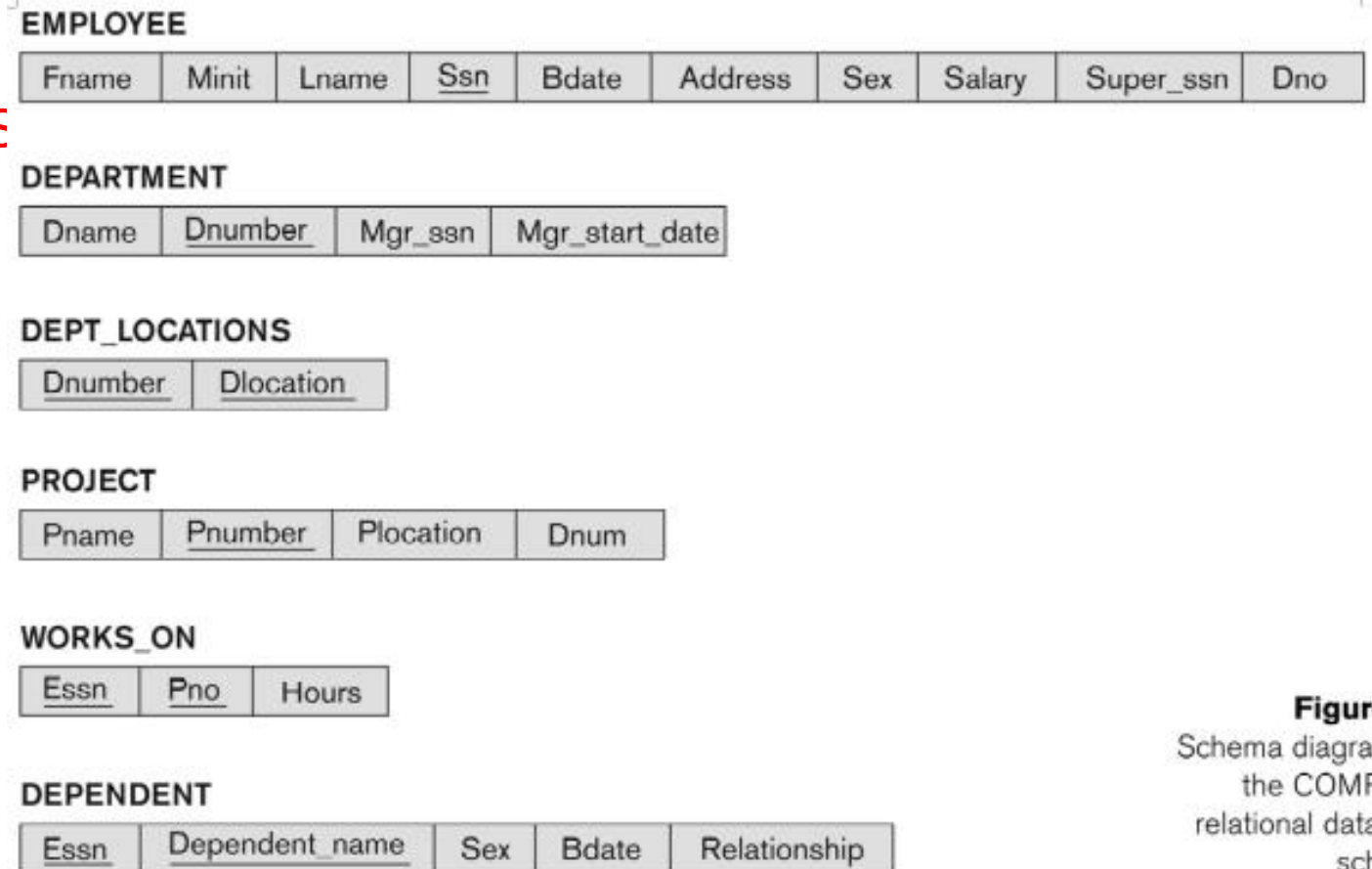


Figure 5.5
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How would it appear to a user with classification U?

(d) EMPLOYEE

Name	Salary	JobPerformance	TC
Smith U	40000 C	Fair S	S
Smith U	40000 C	Excellent C	C
Brown C	80000 S	Good C	S

How would it appear to a user with classification U?

(d) EMPLOYEE

Name	Salary	JobPerformance	TC
Smith U	40000 C	Fair S	S
Smith U	40000 C	Excellent C	C
Brown C	80000 S	Good C	S

Name	Salary	JobPerformance	TC
Smith U	NULL	NULL	NULL

Suppose a classification U user tries to update the salary of "Smith" to \$50,000; what would be the result of this action?

(d) EMPLOYEE

Name	Salary	JobPerformance	TC
Smith U	40000 C	Fair S	S
Smith U	40000 C	Excellent C	C
Brown C	80000 S	Good C	S

Name	Salary	JobPerformance	TC
Smith U	40000 U	Fair S	S
Smith U	40000 U	Excellent C	C
Smith U	50000 U	NULL	U
Brown C	80000 S	Good C	S

- Incremental logging with deferred updates implies that the recovery system must necessarily

- a. store the old value of the updated item in the log.

- b. store the new value of the updated item in the log.

- c. store both the old and new value of the updated item in the log.

- d. store only the Begin Transaction and Commit Transaction records in the log.

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The write-ahead logging (WAL) protocol simply means that

- a. writing of a data item should be done ahead of any logging operation.
- b. the log record for an operation should be written before the actual data is written.
- c. all log records should be written before a new transaction begins execution.
- d. the log never needs to be written to disk.

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In case of transaction failure under a deferred update incremental logging scheme, which of the following will be needed?

- a. an undo operation
- b. a redo operation
- c. an undo and redo operation
- d. none of the above

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- a. an undo operation
- b. a redo operation**
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For incremental logging with immediate updates, a log record for a transaction would contain

- a. a transaction name, a data item name, and the old and new value of the item.
- b. a transaction name, a data item name, and the old value of the item.
- c. a transaction name, a data item name, and the new value of the item.
- d. a transaction name and a data item name.

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c. a transaction name, a data item name, and the new value of the item.

d. a transaction name and a data item name.

For correct behavior during recovery, undo and redo operations must be

- a. commutative.
- b. associative.
- c. idempotent.
- d. distributive.

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- b. associative.
- c. idempotent.**
- d. distributive.

There is a possibility of a cascading rollback when

- a. a transaction writes items that have been written only by a committed transaction.
- b. a transaction writes an item that is previously written by an uncommitted transaction.
- c. a transaction reads an item that is previously written by an uncommitted transaction.
- d. both (b) and (c).

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- d. both (b) and (c).**

To cope with media (disk) failures, it is necessary

- a. for the DBMS to only execute transactions in a single user environment.
- b. to keep a redundant copy of the database.
- c. to never abort a transaction.
- d. all of the above.

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a. for the DBMS to only execute transactions in a single user environment.

b. to keep a redundant copy of the database.

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d. all of the above.

If the shadowing approach is used for flushing a data item back to disk, then

- a. the item is written to disk only after the transaction commits.
- b. the item is written to a different location on disk.
- c. the item is written to disk before the transaction commits.
- d. the item is written to the same disk location from which it was read.

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Aries

For recovery in ARIES, study the shown log at time of crash.

- (a) Show the transaction table and the dirty page table at time of check point and after the analysis phase of the recovery process.
- (b) Explain what will happen in the other two phases of the recovery process

LSN	Last_LSN	Trans_Id	Type	Page_Id
1	0	T1	Update	A
2	0	T2	Update	B
3	2	T2	Commit	
4	Begin checkpoint			
5	End checkpoint			
6	1	T1	Commit	C
7	0	T3	Update	
8	7	T3	Commit	A