

CS 338 Final Exam Practice Problems
Not for handing in
Model Solutions will be posted on Friday, August 7

1 Lectures 13-14

Topics

1. **CREATE**
 - (a) TABLEs
 - (b) Integrity Constraints
2. **ALTER**
 - (a) TABLEs
 - (b) Integrity Constraints
3. **DROP**
 - (a) TABLEs
 - (b) Integrity Constraints
4. **DELETE** queries
5. **INSERT** queries
6. **UPDATE** queries
7. **VIEW**s
8. **ASSERTION**s
9. **TRIGGER**s

Questions

1. Write a query to create a COST_CENTER table, having these attributes:
 - (a) CCID Integer
 - (b) CCName char(30)
 - (c) Account char(12)
 - (d) DNO Integer
2. Write a query to alter the COST_CENTER table created above, to add this attribute:
 - (a) Since date,and to make DNO a FK to DEPARTMENT.DNUMBER.
3. Write a query to drop the COST_CENTER table created above.
4. Write a query to delete all records from the DEPENDENT table, having ESSN = '123456789'.
5. Write a query to insert into the DEPENDENT table, these values:

'123456789'	'Han Xiang'	'M'	2006-01-17	'NEPHEW'
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6. Write a query to update the DEPENDENT table, setting NAME='John Smith', for all records where ESSN = '123456789'.
7. Create a VIEW named LOW_SALARY, for the query
SELECT * FROM EMPLOYEE WHERE SALARY <= 99999.
8. Create an ASSERTION named SALARY_CAP, to enforce the constraint EMPLOYEE.SALARY <= 500000.
9. Create an TRIGGER named SALARY_CAP_ENFORCED, to update the EMPLOYEE ta-

ble to set SALARY = 500000, when the constraint EMPLOYEE.SALARY $\leq$ 500000 is violated by an insert or update.

2 Lectures 19-22

Topics

1. Transactions
2. Indexes
3. RAID
4. Data Backup
 - (a) Online versus Offline
 - (b) Full versus Incremental
5. SSD
6. Tape Drives

Questions

1. CREATE a transaction containing the following queries:
 - (a) **INSERT INTO WORKS_ON VALUES**('987654321',5,20);
 - (b) **DELETE FROM WORKS_ON WHERE** ESSN = '123456789' AND DNO = 3;
2. Create an INDEX on the EMPLOYEE relation's LNAME attribute.
3. Which of RAID0, RAID1, RAID5 can tolerate the loss of one HDD, without any immediate loss of data?
4. Give a reason why we would choose an incremental daily backup scheme over a full daily backup scheme.
5. Give a reason why we would NOT choose SSD as our primary storage medium for our databases.
6. Give a situation in which a tape drive is preferred over a HDD.

3 Company Database Schema

1. **DEPARTMENT**

<u>DNAME</u>	<u>DNUMBER</u>	MGRSSN	MGRSTARTDATE
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2. **DEPENDENT**

<u>ESSN</u>	<u>DEPENDENT_NAME</u>	SEX	BDATE	RELATIONSHIP
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3. **DEPT_LOCATIONS**

<u>DNUMBER</u>	<u>DLOCATION</u>
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4. **EMPLOYEE**

FNAME	MINIT	LNAME	<u>SSN</u>	BDATE	ADDRESS	SEX	SALARY	SUPERSSN	DNO
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5. **PROJECT**

PNAME	<u>PNUMBER</u>	PLOCATION	DNUM
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6. **WORKS_ON**

<u>ESSN</u>	<u>PNO</u>	HOURS
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