

Lab 4: SQL DDL

Question 1:

a. Create a table called SECOND (sno, city, status). Every supplier lives in a city and every city has a status. Populate this table using table S (you should already have table S in your account from an earlier lab). SECOND should have the following rows in it.

sno	status	city
S1	20	LONDON
S2	10	PARIS
S3	30 10	PARIS
S4	20	LONDON
S5	30	ATHENS
S6	12	GUELPH

b. Create a table called SS using attributes S# and STATUS from table SECOND. Create another table called CS using attributes CITY and STATUS from table SECOND.

Is the decomposition of SECOND into SS and CS non-loss? Write a SQL command that you can use to verify this.

c. Create another table called SC with attributes S# and CITY of SECOND. Using an SQL command, prove that decomposition of SECOND into smaller tables SC (SNO, CITY) and CS (CITY, STATUS) is non-loss.

Submit the SQL commands used in 1b and 1c in a text file called lab4q1.txt.

Question 2: Create a schema called SPJ_Schema. In that schema, create the following relations using. You must create all primary and foreign key constraints.

- Tables S and P: Create these tables in your current schema SPJ using existing tables S and P that you must have created in an earlier lab. (For example, create table s as select * from public.s;)
- Add primary keys to S (sno) and P (pno) using ALTER TABLE command.
- Table J has the following structure:

Submit Question 2 as lab4q2.txt

JNO	VARCHAR	PRIMARY KEY
JNAME	VARCHAR	
CITY	VARCHAR	

Create table J using CREATE TABLE. Populate table J using the \copy command with tableJ.csv posted in lab4 on moodle. You must save the csv file in your current working folder. The command is:

\copy J from tableJ.csv delimiter ',' csv header

d. Use CREATE TABLE command to create table SPJ which has the following structure:

```
SNO    VARCHAR
PNO    VARCHAR
JNO    VARCHAR
QTY    INTEGER
PRIMARY KEY (SNO, PNO, JNO)
FOREIGN KEYS: SNO REFERENCES SNO of table S
FOREIGN KEY (PNO) REFERENCES PNO of table P
FOREIGN KEY (JNO) REFERENCES JNO of table J
```

Submit Question 2 as lab4q2.txt

Populate SPJ using \copy command with tableSPJ.csv.

Question 3: Creating SQL commands in bulk (using SELECT, Postgres's system catalog tables and \o)

In this exercise, you will create a script that has the command to describe the structure of every table in your current schema (e.g. \d+ nameOfTable).

```
SELECT '\d+ ' || tablename
FROM pg_tables;
```

Using \o, save output of this query in a file called lab4q3.sql.

This sql file will have a series of \d+ commands, one for each table. This file can then be run using \i to display the structure of each table in your schema.

Submit lab4q3.sql file.