Lab 10. Data Definition Language (DDL)

Point Distribution:

DDL: Question Number	Points
1, 3, 4	3 pts x 3
5, 6, 9, 10, 12, 13, 14, 15,17, 19, 20	5 pts x 11
2, 7, 8, 11, 16, 18	6 pts x 6
Total	**100 pts**

Objectives:
- Be able to add, remove and modify constraints
- Be able to enable and disable constraints
- Be able to state the purpose of constraints and explain why they do or do not work.

Questions

1	Create table AIRDB_ALL_INFO by copying it from the CNIT372TA account. Run the following Statement. `CREATE TABLE AIRDB_ALL_INFO AS SELECT * FROM CNIT372TA.AIRDB_ALL_INFO;`

2	Create constraints for AIRDB_ALL_INFO you created in Q1 in such a way that:
	   a. No NULL value in City Names (in the table they correspond to Origin_City_Name and Dest_City_Name).
	   b. No NULL value in States (in the table they correspond to Origin_State_Nm and Dest_State_Nm).
	   c. Origin_Airport_ID + Dest_Airport_ID + Fl_Num + Carrier + Fl_Date, (the combination of these columns) should be unique.
	NOTE: Remember that NOT NULL is NOT a table constraint, it is only an inline constraint.

3	List all constraints by executing the following command (redo the quotation marks if there is an error): `SELECT * FROM User_Constraints WHERE Table_Name = 'AIRDB_ALL_INFO';`
4	Copy AIRDB_ALL_INFO into AIRDB_CLONE by executing the following command: `CREATE TABLE AIRDB_CLONE AS SELECT * FROM AIRDB_ALL_INFO;`
5	Observe constraints (list constraints for the new table AIRDB_CLONE) – is anything missing? Make certain to include both the code to list the constraints and the short answer in your submission.
6	Add the missing constraints that have not been copied to AIRDB_CLONE.
7	Create a table AIRDB_AIRPORTS that includes information about

	• AIRPORT_ID, • CITY_MARKET_ID, • AIRPORT_CODE, • CITY_NAME, • STATE_ABR, • STATE_FIPS, • STATE_NAME. Make AIRPORT_CODE a PRIMARY KEY in your table definition. Make certain the datatype of the new columns matches with corresponding columns in AIRDB_ALL_INFO. NOTE: Airport Code is a 3 letter abbreviation which correspond to the Origin and Destination in the AIRDB_ALL_INFO table.

8	In one command, populate AIRDB_AIRPORTS by copying (selecting) the needed information from AIRDB_ALL_INFO
	   a. Using a UNION ALL to combine the information from Origins and Destinations.
	   b. Using a UNION to combine the information from Origins and Destinations.
	You should get an error in part a. Compare the differences between what information is being selected in the two parts. Explain your results.
	Make certain to include both the code and the short answering in your submission.

9	Create FOREIGN KEYS in your AIRDB_CLONE to a primary key in your AIRDB_AIRPORTS table. You will have to create two foreign keys, one for the origin and one for the destination.
10	In one command, remove the following columns from AIRDB_CLONE • Origin_City_Market_ID • Origin_State_Fips • Dest_City_Market_ID • Dest_State_Fips
11	Add a constraint to your AIRDB_AIRPORTS table stating that state abbreviations can only come in the form of abbreviations of the 50 states. You should get an error. Look at your data and hypothesize why you are getting this error. Make certain to include both the code and the short answering in your submission
12	You can disable the constraint that you are trying to add by adding the keyword DISABLE at the end of the code for Q11. After you add a disabled constraint, display all constraints on AIRDB_AIRPORTS. (You may try enabling your constraint, but you should be able to see the same error as in Q11) Make certain to include the code for both adding and displaying the constraints in your submission.

13	Using your hypothesis in Q11, try to remove conflicting data in AIRDB_AIRPORTS, but do not alter other tables. You should see an error message, explain why. Make certain to include both the code and the short answering in your submission.
14	Modify your foreign key from Q9 that deals with Destination to the option 'ON DELETE SET NULL' (You will have to drop the original constraint and add a new one).
15	Modify your foreign key from Q9 that deals with Origin to the option 'ON DELETE CASCADE'. (You will have to drop the original constraint and add a new one).
16	Using your hypothesis in Q11, try to remove conflicting data in AIRDB_AIRPORTS again, but do not alter other tables. Explain why it works now. Make certain to include both the code and the short answering in your submission.
17	Enable your state abbreviation check constraint using an ALTER TABLE statement. Explain why it works now. Make certain to include both the code and the short answering in your submission.
18	Count the number of rows with NULL Destination Airport ID in the AIRDB_CLONE table. Count the number of rows with NULL Origin Airport ID in the AIRDB_CLONE table. Compare the results to the AIRDB_ALL_INFO table. Compare the two options (in Q14 and Q15) that you were asked to use for DELETE and analyze which one makes more sense for this database. Make certain to include both the code and the short answering in your submission.
19	a. Create constraint UNIQUE for Airport Code attribute in AIRDB_AIRPORTS. b. Create a constraint that specifies that Airport Code cannot be NULL. Remember what constraints are inline constraints and what constraints can be used as out-of-line/table constraints.
20	Create constraints UNIQUE for City Name attribute in AIRDB_AIRPORTS. Explain why it failed.
21	Please include the following statements to the very end of your code. DROP TABLE AIRDB_ALL_INFO CASCADE CONSTRAINTS; DROP TABLE AIRDB_CLONE CASCADE CONSTRAINTS; DROP TABLE AIRDB_AIRPORTS CASCADE CONSTRAINTS;