

COMP810 – Data Warehousing and Big Data

Lab 3: SQL DDL commands and DML Commands

After completing this lesson, you should be able to do the following:

- Promote understanding of table creation.
- Promote understanding of table relationships and referential integrity.
- Promote understanding of populating tables (insert) and updating tables
- Promote understanding of table relationships and referential integrity

Task 1:

- 1- Create a table name **student** with the following attributes

Name	Null	Type
Student_no (PK)		Number (4)
Student_name	Not null	Varchar2 (20)
Student_address		Varchar2 (50)

- 2- Create a table name **course** with the following attributes

Name	Null	Type
Course_no (PK)		Number (2)
Course_name	Not Null	Varchar2 (20)
Course_details		Varchar2 (50)

- 3- Create a table name **grade** with the following attributes

Name	Null	Type
Student_no (PK) (FK)		Number (4)
Course_no (PK) (FK)		Number (2)
Grade	Not null	Number (3)

All work must be completed by the student. The teaching assistant may ask you to explain your code and results.

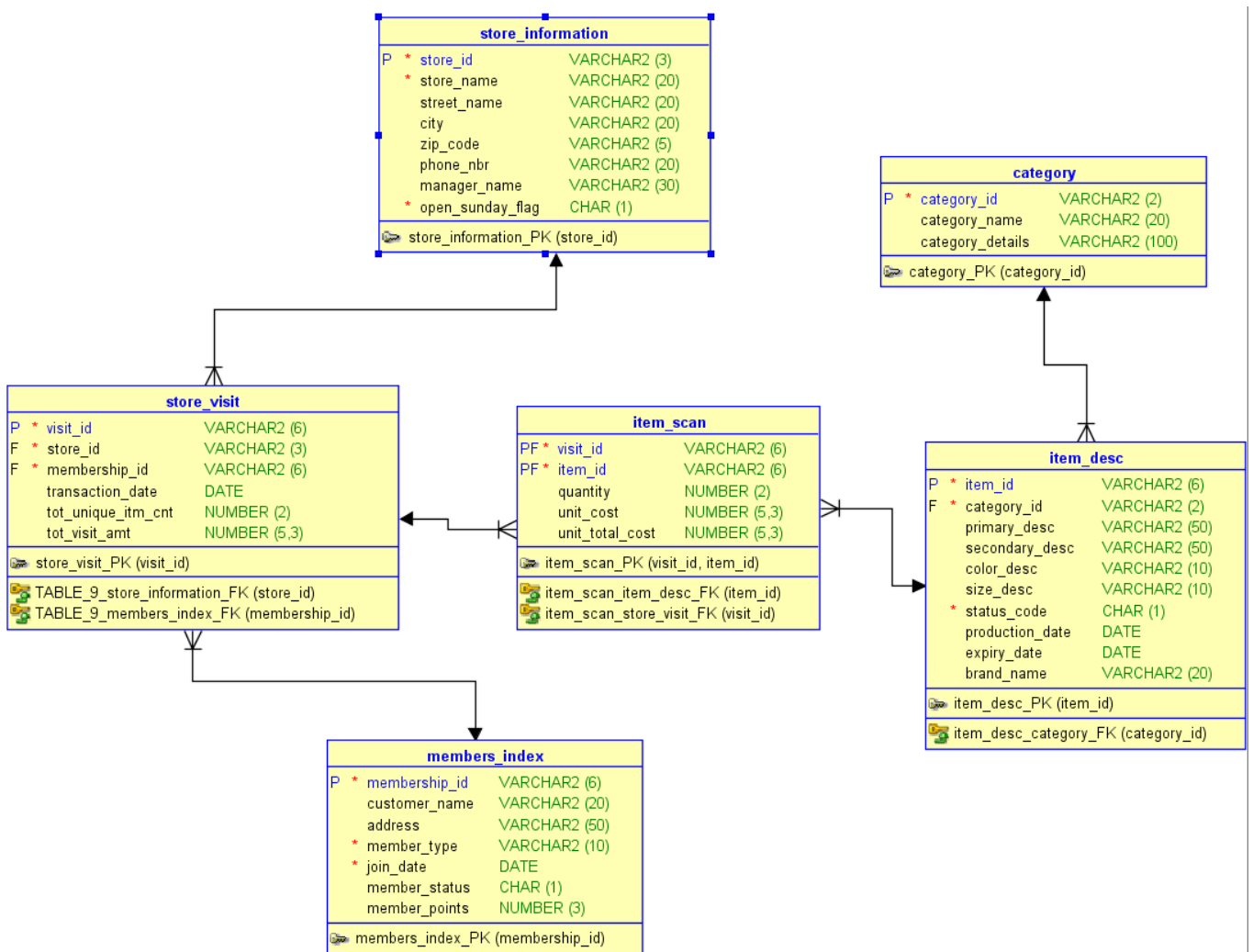
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Note that "grade" table contain a composite primary key of (student_no, course_no). However, each of these attributes "individually" is a foreign key.

- 4- Identify the relationship type (1:1, 1:M, M:N) among the three tables above and create the necessary constraints to join them.

Task 2: Map the given conceptual model into internal model using CREATE and ALTER commands. Apply all foreign keys using ALTER command.



* → Not Null Constraint

P → Primary key

F → Foreign key

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Task 3: write a query to generate the students grade report (below). You should first insert the data from the report into the 3 tables that you created in task 2 (*student*, *course*, *grade*). Your answer should include the SQL code and explain the logic behind the sequence of implementation.

Student no	Student Name	Course no	Course Name	Grade %
S-7895	John Little	ML	Machine Learning	65
S-1478	Carol Wang	P1	Programming 1	70
S-7895	John Little	P1	Programming 1	70
S-2054	Tony Vegas	ML	Machine Learning	75
S-1478	Carol Wang	ML	Machine Learning	77
S-2054	Tony Vegas	LDD	Logical Database Design	77
S-1478	Carol Wang	LDD	Logical Database Design	80
S-3982	Allis Ship	P1	Programming 1	85
S-3695	James Ship	P1	Programming 1	88
S-3695	James Ship	LDD	Logical Database Design	90

Hint: remember to use the “commit” and “rollback” commands to save and undo changes.

Task 4: Use the HR schema to implement the following scenario.

The megacorp company want to expand its operation to New Zealand (NZ) by establishing a new department “**Research and Development**” department ID “**280**” located in Auckland city. The new department has the location ID “**3300**”, address “**AUT City Campus, WT Building**” and postal code “**1010**”. You and 4 of your friends are hired to work in the new department as “**IT_PROG**”. This position comes with a salary package of **5000** and does NOT include any **commission percentage**. All employees in the new department are hired on **1st of March, 2016** and will report to the manager “**Steven King (Emp ID: 100)**”. The new 5 employees will take the Employee ID values of (**207 – 211**) and must get **email IDs** according to the format used in the employees table.

Implement the scenario above by inserting the necessary data into (*employees*, *departments*, *locations*, *countries*) tables.

All work must be completed by the student. The teaching assistant may ask you to explain your code and results.

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Task 5: Use the HR schema to implement the following scenario.

You did an excellent work during the past few weeks and your manager decided to give you a commission of **0.05%**. Update your record in the employees table to give yourself the 0.05% commission.

Hint: remember to use the “commit” and “rollback” commands to save and undo changes.