

# BSc (Hons) in Information Technology - Year 1

#### Lab Sheet 8

### IT1090 - Information Systems and Data Modeling

Semester 2

**Objective**: At the end of this lab session you will be able to learn about the CREATE TABLE command used to create database tables and to specify Primary key, foreign key and other constraints on the tables created.

# Section 1

#### Create table:

The CREATE TABLE statement is used to create a new table in a database.

### **Syntax for the CREATE TABLE**

The following table lists few of the data types that is used in SQL

Data type	Definition	
Integer	For numbers.	
Char()	Use to store textual information.	
	The char data type is used to hold a	
	fixed length text.	
Varchar()	Used to store textual information.	
	The varchar data type is similar to	
	char but stores variable length text.	



# BSc (Hons) in Information Technology – Year 1

#### **Lab Sheet 8**

## IT1090 - Information Systems and Data Modeling

### Semester 2

	• Eg: char(10) – to store the NIC	
	values.	
	Varchar(50) – To store the address	
	of a customer.	
Datetime	For date and time.	
Real	For floating point numbers	
Money	For currency values.	

The following table shows the Syntaxes and the definitions for the Primary Key, Foreign Key and Check constraints.

Constraint	Syntax	(	Definition
Primary Key	1.	Primary key (column name)	The PRIMARY KEY
Constraint	2.	<pre>constraint &lt; constraint_name&gt;</pre>	constraint uniquely
		<pre>primary Key (<column _name="">)</column></pre>	identifies each record
			in a table. Primary keys
			must contain UNIQUE
			values, and cannot
			contain NULL values.
Foreign Key	1.	Foreign key (referncing column)	A FOREIGN KEY is a key
Constraint		refernces <refernced table=""></refernced>	used to link two tables
		(refernced column)	together.
	2.	<pre>constraint &lt; constraint_name&gt;</pre>	A FOREIGN KEY is a
		foreign key	field (or collection of
		( <this_table_column_name>)</this_table_column_name>	fields) in one table that
		references < reference_table >	refers to the PRIMARY
		( <reference_table_column_name>)</reference_table_column_name>	KEY in another table.



# BSc (Hons) in Information Technology - Year 1

#### **Lab Sheet 8**

### IT1090 - Information Systems and Data Modeling

#### Semester 2

Check Constraint	1. Check <condition></condition>	The CHECK constraint
	<pre>2. constraint &lt; constraint_name &gt;</pre>	is used to limit the
	<pre>check (<put condition="" here="" the="">)</put></pre>	value range that can be
		placed in a column.

<sup>\*\*\*</sup> even though there are different methods available inform the students that method 2 which provides name for the constraint is the best option, since we can easily figure out the error using the constraint name.

# Section 2

1. Consider the following relational schema.

Student( <u>SID</u> , Sname, Address, dob, NIC, CID)
Offers( <u>CID, Mcode</u> , Accadamic_year, Semester)
Module( <u>Mcode</u> , Mname, M_Description, NoOfCredits)
Course( <u>CID</u> , Cname, C_Description, C_fee)

List the primary keys and foreign keys you have identified in each table?
(Hint: In the above schema, Foreign keys (FK) are pointed by tail side of the arrow and the Primary Keys (PK) are pointed by the head side of the arrow.)

Table Name	Primary Key(PK)	Foreign Key(FK)
Student		
Offers		
Module		
Course		



## BSc (Hons) in Information Technology - Year 1

#### Lab Sheet 8

### IT1090 - Information Systems and Data Modeling

Semester 2

- 2. What is the correct order of creating tables in the above mention relational schema? Hint: When you consider about the order of creating tables, as the first table you have to identify the table which are not having foreign keys.
- 3. Consider the following data types for the above schema, create the following relational database using CREATE TABLE SQL statement. Ensure that appropriate referential integrity constraints (Foreign key) are met. Save the script as "CreateDB.sql".

Student(SID:CHAR(10), Sname:VARCHAR(50), Address:VARCHAR(50), dob:DATE, NIC:CHAR(10), CID:CHAR(6))

Offers (CID:CHAR(6), Mcode:CHAR(6), Accadamic year:CHAR(2), Semester:INTEGER)

Module (Mcode: CHAR(6), Mname: VARCHAR(50), M\_Description: VARCHAR(200), NoOfCredits: INTEGER)

Course (CID:CHAR(6), Cname:VARCHAR(50), C Description:VARCHAR(200), C fee:INTEGER)

- 4. What is the difference between ALTER and DROP in SQL?
- 5. Use **CHECK** constraint to enforce the following rules stated by modifying existing **Student** and **Module** tables.

Hint: Use ALTER TABLE <table\_name>

ADD CONSTRAINT <constraint\_name> CHECK(<condition>)

- Ensure that the Student's NIC number contains 9 digits (0-9) and one character which is "V" or "v".
- Ensure that number of credits for module should be one of the following :1,2,3,4