

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

```
CREATE TABLE <table_name> (  
    <column_name1> data_type,  
    <column_name2> data_type,  
    <column_name3> data_type,  
    ...  
);
```

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. <ul style="list-style-type: none">The char data type is used to hold a fixed length text.
Varchar()	Used to store textual information. <ul style="list-style-type: none">The varchar data type is similar to char but stores variable length text.

	<ul style="list-style-type: none"> 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.

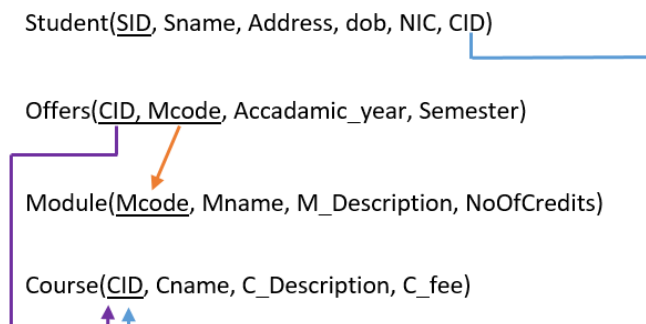
Constraint	Syntax	Definition
Primary Key Constraint	<ol style="list-style-type: none"> Primary key (column name) constraint <constraint_name> primary Key (<column_name>) 	The PRIMARY KEY constraint uniquely identifies each record in a table. Primary keys must contain UNIQUE values, and cannot contain NULL values.
Foreign Key Constraint	<ol style="list-style-type: none"> Foreign key (referncing column) refernces <refernced table> (refernced column) constraint <constraint_name> foreign key (<this_table_column_name> references <reference_table> (<reference_table_column_name>) 	<p>A FOREIGN KEY is a key used to link two tables together.</p> <p>A FOREIGN KEY is a field (or collection of fields) in one table that refers to the PRIMARY KEY in another table.</p>

Check Constraint	<ol style="list-style-type: none"> 1. Check <condition> 2. constraint <constraint_name> check (<put the condition here>) 	The CHECK constraint is used to limit the value range that can be placed in a column.
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*** 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.



1. 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		

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), Accademic_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