# Contents

* + Overview
    1. Objectives
    2. Prerequisites
    3. Hand-In
    4. Text Format
    5. Screen Shoot Format
    6. Due Date
    7. Scoring
  + Lab Assignment
    1. Managing Tables and Constraints

# Overview

## Objectives

The purpose of this lab is to become familiar with managing tables using constraints by:

* Describing constraints.
* Create and maintain constraints.

## Prerequisites

1. Read Chapter 10, pages 306-312.
2. Review the slides on Constraints on D2L.

## Demo Due Date:

For all sections,the **lab demo** is due in 1 week (Mar 22-26) by the end of your lab session.

All labs must be completed. Late labs will be marked as zero.

## Scoring:

Lab is out of **19** marks. Each query is worth 1 mark.

# Lab Demo

Use SQL Developer to demo your answers to the following questions.

**Note:** You should save your answers either in this document or a separate text document so you can demo your answers easily.

1. In your Oracle schema create a table called **NEW\_STUDENTS** with the following structure (Note: case is not important). ***(1 mark)***

|  |  |
| --- | --- |
| **temp\_id** | **number(5)** |
| **prog\_id** | **char(4)** |
| **fname** | **varchar2(25)** |
| **lname** | **varchar2(25)** |
| **reg\_date** | **date** |

1. Add 2 columns to the table you created above as follows (again, case is not important):

|  |  |
| --- | --- |
| **created\_by** | **varchar2(30)** |
| **created\_date** | **date** |

When you add these columns to the table, add a constraint for **created\_by** and a default value for **created\_date**:

* 1. **created\_by** should not allow **NULL** values
  2. **created\_date** should default to the system date

***(1 mark)***

1. Confirm your modifications. (Hint, use the **describe** command). ***(1 mark)***
2. Confirm that the constraint was added by querying the **USER\_CONSTRAINTS** data dictionary. Note the ***constraint name***, ***constraint type*** and ***search*** ***condition*** for the constraints. Show **ONLY** the constraints for your **NEW\_STUDENTS** table. ***(1 mark)***
3. Create another table called **PROGRAMMES**with the following structure (Note, case is not important). ***(1 mark)***

|  |  |
| --- | --- |
| **prog\_id** | **char(4)** |
| **prog\_desc** | **varchar2(30)** |

1. Run the following two insert commands. ***(1 mark)***

|  |
| --- |
| INSERT INTO new\_students  (temp\_id,prog\_id,fname,lname,reg\_date, created\_by)  VALUES  (9516, 'comp','Ted','Codd',sysdate,user);  INSERT INTO programmes  (prog\_id, prog\_desc)  VALUES  ('comp','Computer Technology'); |

1. Using a Select(s), confirm that the data have been added to both tables. ***(1 mark)***
2. Alter the **PROGRAMMES** table to make **prog\_id** a primary key. Name your constraint ***prog\_id\_pk***. ***(1 mark)***
3. Alter the **NEW\_STUDENTS** table to make **temp\_id** plus **prog\_id** (both columns) the primary key. Name your constraint ***tempid\_progid\_pk***. ***(1 mark)***
4. The column **prog\_id** is a foreign key in the **NEW\_STUDENTS** table, so make it a foreign key. Name your constraint ***prog\_id\_fk***. ***(1 mark)***
5. Confirm that the constraints were added by querying the **USER\_CONSTRAINTS** data dictionary. Note the ***constraint name***, ***constraint type*** and ***search*** ***condition*** for the constraints. Show **ONLY** the constraints for your **NEW\_STUDENTS** and **PROGRAMMES** tables. Order the results by the table name. ***(1 mark)***
6. Try and insert the following values into your **NEW\_STUDENTS** table as a new record. ***(1 mark)***

|  |
| --- |
| **temp\_id = 9517** |
| **prog\_id = econ** |
| **fname = Bill** |
| **lname = Gates** |
| **reg\_date = today's date** |
| **created\_by = your name** |

1. You should get an error when you insert this record. Explain **EXACTLY** what caused the error, don’t just repeat the error message? ***(1 mark)***
2. New students have only been registered since the year 1997. Add a constraint to the **reg\_date** column to ensure that only registration dates as of January 1, 1997 can be entered. Name your constraint ***dates\_ck***. ***(1 mark)***
3. Try and insert the following values into your **NEW\_STUDENTS** table to test your new constraint. ***(1 mark)***

|  |
| --- |
| **temp\_id = 9519** |
| **prog\_id = comp** |
| **fname = Grace** |
| **lname = Hopper** |
| **reg\_date = January 2, 1948** |
| **created\_by = your name** |

1. You should get an error when you insert this record. Explain **EXACTLY** what caused the error, don’t just repeat the error message? ***(1 mark)***
2. Change the date to **January 2, 2018** and try and insert the following values into your **NEW\_STUDENTS** table to test your new constraint. ***(1 mark)***

|  |
| --- |
| **temp\_id = 9519** |
| **prog\_id = comp** |
| **fname = Grace** |
| **lname = Hopper** |
| **reg\_date = January 2, 2018** |
| **created\_by = your name** |

1. Again, list all the constraints (as described in #11 above) for your **NEW\_STUDENTS** and **PROGRAMMES** tables (and these **ONLY**). ***(1 mark)***
2. Clean up your schema by dropping both the **NEW\_STUDENTS** and **PROGRAMMES** tables. Remember to **purge** when you drop the tables. ***(1 mark)***