# **M,BTD210- Lab 7**

Please work in **groups** to complete this lab. This lab is worth 2% of the total course grade and will be evaluated through your written submission, as well as the lab demo. During the lab demo, group members are randomly selected to present the answers to each of the lab questions. Group members not present during the lab demo will lose the demo mark.

Please submit the following files through Blackboard. Only one person must submit for the team.

* Lab7.docx

1. Add this declaration on the top of your file.

We, Muskan, Priya, declare that the attached assignment is our own work in accordance with the Seneca Academic Policy. No part of this assignment has been copied manually or electronically from any other source (including web sites) **or distributed to other students.**

1. Specify what each member has done towards the completion of this work:

|  |  |  |
| --- | --- | --- |
|  | Name | Task(s) |
| 1 | Muskan | Answers, submission |
| 2 | Priya | Answers |
| 3 |  |  |

Consider the STUDENT table with the following fields:

|  |  |
| --- | --- |
| Field Name | Description |
| CLG\_ID | College ID number |
| ST\_ID | Student ID number |
| ST\_LNAME | Student's last name |
| ST\_MAJOR | Student major |
| CLG\_NAME | College name |
| DPT\_CODE | Student's department code |
| DPT\_NAME | department name |
| DPT\_PHONE | department phone extension |
| ADV\_LNAME | Advisor's last name |
| ADV\_OFFICE | Advisor's office room number |
| ADV\_BLDG | Advisor's building |
| ADV\_PHONE | Advisor's phone extension |
| ST\_GPA | Student's GPA |
| ST\_HOURS | Student's completed hours |
| ST\_LEVEL | Student's level |

1. Some data regarding the students in two colleges are entered into the table, as shown on the last page. However, the staff who are entering the data are complaining about the design of this table. What are some of the problems you can identify? Hint: The 3 anomalies.

a. There can be the need to perform the same **update** in several locations of the database because the same data is repeated.  This can be troubling because students can have the same last name, student major, college name, department name, advisors last name, students GPA, students completed hours or students level. For example, if we need to make a change to the advisor last name from Mr. Grastrand to Mr. Tillery then we would have to make changes to all the locations where advisor last name is Mr. Grastrand.

b. Also, the un-normalization problem to **insert.** For example, if there is a new department then there is no way to add it to the database without students in it.

c. As well as the problem with the **deletion** problem. If there is no separate teacher table, and if a teacher’s students all go to high school, then the teacher will disappear from our database or the database will get an error when we try to delete.

1. Review the slides in Chap 6. Note the dependencies identified in the example- step 1 and 2. Similarly, identify all dependencies in the STUDENTS table and write in the arrow notation.

ADV\_OFFICE

ST\_LEVEL

ST\_GPA

ADV\_PHONE

ADV\_BLDG

ADV\_LNAME

DEPT\_PHONE

DEPT\_NAME

CLG\_NAME

ST\_MAJOR

CLG\_ID

**ST\_**ID

ST\_HOURS

DEPT\_CODE

ST\_LNAME

TP

TP

PD

TP

TP

TP

PD

PD

PD

PD

**1NF** (CLG\_ID, STD\_ID, ST\_LNAME, ST\_MAJOR, CLG\_NAME, DEPT\_CODE, DEPT\_NAME, DEPT\_PHONE, ADV\_LNAME, ADV\_OFFICE, ADV\_BLDG, ADV\_PHONE, ST\_GPA, ST\_HOURS, ST\_LEVEL)

**PARTIAL DEPENDENCIES**:

(CLG\_ID → CLG\_NAME, DEPT\_CODE)

(ST\_ID→ ST\_LNAME, ST\_MAJOR, ST\_GPA, ST\_HOURS, ST\_LEVEL)

**TRANSITIVE DEPENDENCIES**:

(DEPT\_CODE→DEPT\_NAME, DEPT\_PHONE)

(ADV\_BLDG→ADV\_OFFICE)

(ADV\_OFFICE→ADV\_PHONE)

(ST\_HOURS→ST\_LEVEL)

1. Draw and attach the dependency diagram (use any drawing tool you like: Paint, Visio, Drawing tools in MS Word, etc.). As shown in the slides example in chap 6, the dependency on the PK is drawn above the diagram, and the partial and transitive dependencies are drawn below the diagram. Label the partial and transitive dependencies.

* (CLG\_ID → CLG\_NAME)
* (ST\_ID → ST\_LNAME, ST\_MAJOR, ST\_GPA)
* (ST\_HOURS→ ST\_LEVEL)
* (DPT\_CODE → DPT\_NAME, DPT\_PHONE)
* (ADV\_ID → ADV\_LNAME, ADV\_OFFICE, ADV\_BLDG, ADV\_PHONE)

**TABLE NAME: COLLEGE**

COLLEGE (CLG\_ID, CLG\_NAME)

CLG\_NAME

CLG\_ID

**TABLE NAME: STUDENT**

STUDENT (ST\_ID, ST\_LNAME, ST\_MAJOR, ST\_GPA)

ST\_ID

ST\_GPA

ST\_MAJOR

ST\_LNAME

**TABLE NAME: DEPARTMENT**

DEPARTMENT (DEPT\_CODE, DEPT\_NAME, DEPT\_PHONE)

DEPT\_CODE

DEPT\_NAME

DEPT\_PHONE

**TABLE NAME: ADVISOR**

ADVISOR (ADV\_ID, ADV\_LNAME, ADV\_OFFICE ADV\_BLDG, ADV\_PHONE)

ADV\_PHONE

ADV\_OFFICE

ADV\_BLDG

ADV\_ID

ADV\_LNAME

| **STUDENT** | | | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **CLG\_ID** | **ST\_ID** | **ST\_LNAME** | **ST\_MAJOR** | **CLG\_NAME** | **DPT\_CODE** | **DPT\_NAME** | **DPT\_PHONE** | **ADV\_LNAME** | **ADV\_OFFICE** | **ADV\_BLDG** | **ADV\_PHONE** | **ST\_GPA** | **ST\_HOURS** | **ST\_LEVEL** |
| 1 | 100 | Stephanos | Accounting | Business Admin | ACCT | Accounting | 4356 | Grastrand | T201 | TEL Building | 2115 | 3.87 | 75 | L1 |
| 1 | 101 | Smith | Accounting | Business Admin | ACCT | Accounting | 4356 | Grastrand | T201 | TEL Building | 2115 | 2.78 | 45 | L0 |
| 1 | 200 | Jones | Marketing | Business Admin | MKTG | Marketing | 4378 | Gentry | T228 | TEL Building | 2123 | 2.31 | 117 | L3 |
| 1 | 201 | Ortiz | Marketing | Business Admin | MKTG | Marketing | 4378 | Tillery | T356 | TEL Building | 2159 | 3.45 | 113 | L3 |
| 2 | 100 | Stephanos | Accounting | Arts & Sciences | MATH | Mathematics | 3420 | Chen | J331 | Jones Building | 3209 | 3.87 | 75 | L1 |
| 2 | 202 | Johnson | Graph | Arts & Sciences | MATH | Mathematics | 3420 | Jackson | J332 | Jones Building | 3210 | 3.42 | 115 | L3 |