

**CSCI835 Database Systems**  
**Assignment 0 (zero)**  
22 June 2020

**This assignment replaces an in-class test originally planned for Summer session 2020**

---

**Scope**

This assignment includes the tasks related to the design and creation of a relational database, loading data into a database, modification of database structures, implementation of data manipulation operations and data retrieval from a database.

The outcomes of the assignment work are due by **Saturday 20 June, 2020, 9.00 pm (sharp)**.

**Please read very carefully information listed below.**

This supplementary assignment contributes to 5% of the total evaluation in a subject CSCI835.

A submission procedure is explained at the end of assignment specification.

This assignment consists of 5 tasks and specification of each task starts from a new page.

A submission marked by Moodle as "late" is treated as a late submission no matter how many seconds it is late.

A policy regarding late submissions is included in the subject outline.

A submission of compressed files (zipped, gzipped, rared, tared, 7-zipped, lhzed, ... etc) is not allowed. The compressed files will not be evaluated.

All files left on Moodle in a state "Draft (not submitted) " will not be evaluated.

An implementation that does not compile due to one or more syntactical errors scores no marks.

All submissions must be in a form of reports from processing of SQL scripts. It is explained at the end of specification of each task how to create a report from processing of SQL script. Plain SQL files without the reports from the processing will not be evaluated.

It is expected that all tasks included within **Assignment 0** (zero) will be solved **individually without any cooperation** with the other students. If you have any doubts, questions, etc. please consult your lecturer or tutor during lab classes or office hours. Plagiarism will result in a **FAIL** grade being recorded for the assessment task.

---

## **Prologue**

Start SQL Developer and connect to your database account Oracle database server. IP address of the server is 39.106.85.232, port is 1521, and SID is orcl. It is explained in Cookbook at

<https://documents.uow.edu.au/~jrg/835ccnu/cookbook/e2-3-frame.html>

how to use SQL Developer. A link to SQL Developer User's Guide is the following

<https://docs.oracle.com/database/121/RPTUG/toc.htm>

The link is also provided on Moodle in RESOURCES section.

### **Task 1 (1 mark)**

**An objective of this task is to implement a relational database**

We would like to implement a relational database to store information about the people and the cities visited by the people during the tourist trips.

*A traveller is described by a passport number, nationality, first name, last name and date of birth. A pair of attributes passport number and nationality uniquely identifies each traveller.*

*A hotel is described by a hotel name, country it is located in, city, street name and building number.*

*A pair of attributes hotel name and city uniquely identifies each hotel. A quadruple of attributes country, city, street, and building number also uniquely identifies a hotel. A hotel is also described by the total number of possessed stars.*

*Travellers visit hotel while travelling all over the world (maybe not now, but let us hope that it will be possible in the future ☺). A traveller visits one or more hotels. A hotel is visited by zero or more people. We would like to record in a database arrival date of a traveller in a hotel and departure date from a hotel. Note, that travellers who just arrived and stay in a hotel do not have a departure date. Also note, that a traveller may visit the same hotel several times.*

Implement SQL script `solution1.sql` with CREATE TABLE statements that implement the database described above.

When ready use SQL Developer to process SQL script file `solution1.sql` and save a report from processing in a file `solution1.lst`.

Your report must include a listing of all SQL statements processed. To achieve that put the following commands:

```
SPOOL <a-path-to-location-of>\solution1
SET ECHO ON
SET FEEDBACK ON
SET LINESIZE 100
SET PAGESIZE 200
SET SERVEROUTPUT ON
```

at the beginning of SQL script and

```
SPOOL OFF
```

at the end of SQL script. Note, that a symbol `<a-path-to-location-of>` represent a path to location of a file `solution1.lst` with a report. For example, a command

SPOOL C:\CSCI835\assignment0\solution1

saves a report solution1.lst from processing of a script solution1.sql at location C:\CSCI835\assignment0 .

Process your script with SQL Developer. A report from processing of a script can be found in a file <a-path-to-location-of>\solution1.lst . It is also possible to save a report in a file solution1.lst using a **Save File** button in Script Output tab of SQL Developer.

### **Deliverables**

A file solution1.lst with a report from processing of SQL script solution1.sql. A report must have no errors and it must list all SQL statements processed.

---

## Task 2 (1 mark)

**An objective of this task is to enter sample data into a relational database**

We would like to store in the database information that satisfies the following constraints.

- (1) *The database contains information about 3 travellers and 3 hotels.*
- (2) *One hotel has been just built and it has no visitors(travellers) so far.*
- (3) *The total number of visits in the hotels cannot be greater than 4.*
- (4) *Each traveller must visit at least one hotel.*
- (5) *All values of attributes must be meaningful, for example a name of hotel like QQQ is rather unacceptable. A name like Eagle's Nest is more appropriate. No marks will be granted for task 2 and 30% will be deducted from the total evaluation of supplementary assignment for not meaningful values of the attributes.*

Please also note, that the values of attributes will be used to verify originality of your work.

Implement SQL script `solution2.sql` with INSERT statements that enter data into the database created in the previous step.

When ready use SQL Developer to process SQL script file `solution2.sql` and save a report from processing in a file `solution2.lst`.

Your report must include a listing of all SQL statements processed. To achieve that put the following commands:

```
SPOOL <a-path-to-location-of>\solution2
SET ECHO ON
SET FEEDBACK ON
SET LINESIZE 100
SET PAGESIZE 200
SET SERVEROUTPUT ON
```

at the beginning of SQL script and

```
SPOOL OFF
```

at the end of SQL script. Note, that a symbol `<a-path-to-location-of>` represent a path to location of a file `solution2.lst` with a report. For example, a command

```
SPOOL C:\CSCI835\assignment0\solution2
```

saves a report `solution2.lst` from processing of a script `solution2.sql` at location `C:\CSCI835\assignment0` .

Process your script with SQL Developer. A report from processing of a script can be found in a file `<a-path-to-location-of>\solution2.lst` . It is also possible to save a report in a file `solution2.lst` using a **Save File** button in **Script Output** tab of SQL Developer.

**Deliverables**

A file `solution2.lst` with a report from processing of SQL script `solution2.sql`. A report must have no errors and it must list all SQL statements processed.

---

### **Task 3 (1 mark)**

**An objective of this task is to perform the structural modifications of a relational database**

We would like to change the structures of the database created and loaded with data in the previous steps such that:

- (1) it is possible to keep information about the total number of hotels visited by each traveller, and*
- (2) it is possible to keep information about the names of countries and cities visited by each traveller.*

Implement SQL script `solution3.sql` with SQL statements that perform the structural modification listed above.

When ready use SQL Developer to process SQL script file `solution3.sql` and save a report from processing in a file `solution3.lst`.

Your report must include a listing of all SQL statements processed. To achieve that put the following commands:

```
SPOOL <a-path-to-location-of>\solution3
SET ECHO ON
SET FEEDBACK ON
SET LINESIZE 100
SET PAGESIZE 200
SET SERVEROUTPUT ON
```

at the beginning of SQL script and

```
SPOOL OFF
```

at the end of SQL script. Note, that a symbol `<a-path-to-location-of>` represent a path to location of a file `solution3.lst` with a report. For example, a command

```
SPOOL C:\CSCI835\assignment0\solution3
```

saves a report `solution3.lst` from processing of a script `solution3.sql` at location `C:\CSCI835\assignment0` .

Process your script with SQL Developer. A report from processing of a script can be found in a file `<a-path-to-location-of>\solution3.lst` . It is also possible to save a report in a file `solution3.lst` using a **Save File** button in **Script Output** tab of SQL Developer.



**Deliverables**

A file `solution3.lst` with a report from processing of SQL script `solution3.sql`. A report must have no errors and it must list all SQL statements processed.

---

#### **Task 4 (1 mark)**

**An objective of this task is to perform the data manipulations on a relational database**

We would like to change the contents of the database created and loaded with data in the previous steps in the following ways.

- (1) We would like to remove from a database information about a hotel and all visits of travellers to the hotel. A hotel to be deleted is up to you.*
- (2) We would like to fill with data a column that contains the total number of hotels visited by each traveller.*
- (3) We would like to update a date when a hotel has been visited by a traveller, A hotel and a traveller is up to you.*

Implement SQL script `solution4.sql` with SQL statements that perform the modifications listed above.

When ready use SQL Developer to process SQL script file `solution4.sql` and save a report from processing in a file `solution4.lst`.

Your report must include a listing of all SQL statements processed. To achieve that put the following commands:

```
SPOOL <a-path-to-location-of>\solution4
SET ECHO ON
SET FEEDBACK ON
SET LINESIZE 100
SET PAGESIZE 200
SET SERVEROUTPUT ON
```

at the beginning of SQL script and

```
SPOOL OFF
```

at the end of SQL script. Note, that a symbol `<a-path-to-location-of>` represent a path to location of a file `solution4.lst` with a report. For example, a command

```
SPOOL C:\CSCI835\assignment0\solution4
```

saves a report `solution4.lst` from processing of a script `solution4.sql` at location `C:\CSCI835\assignment0` .

Process your script with SQL Developer. A report from processing of a script can be found in a file <a-path-to-location-of>\solution4.lst . It is also possible to save a report in a file solution4.lst using a **Save File** button in Script Output tab of SQL Developer.

**Deliverables**

A file solution4.lst with a report from processing of SQL script solution4.sql. A report must have no errors and it must list all SQL statements processed.

---

**Task 5 (1 mark)**

**An objective of this task is to implement data retrieval from a relational database**

We would like to implement the following queries as `SELECT` statements.

- (1) Find the first and the last names of travellers who visited a hotel that possess a given number of stars. The total number of stars is up to you.*
- (2) Find the names of all hotels together with total number of travellers who visited each hotel. Remember a hotel may have no visitors yet.*
- (3) Find the names of hotels that had no visitors yet.*
- (4) Find the last names of all travellers and the names of all hotels and list the results in a single column.*

Implement SQL script `solution5.sql` with `SELECT` statements that perform the modifications listed above.

When ready use SQL Developer to process SQL script file `solution5.sql` and save a report from processing in a file `solution5.lst`.

Your report must include a listing of all SQL statements processed. To achieve that put the following commands:

```
SPOOL <a-path-to-location-of>\solution5
SET ECHO ON
SET FEEDBACK ON
SET LINESIZE 100
SET PAGESIZE 200
SET SERVEROUTPUT ON
```

at the beginning of SQL script and

```
SPOOL OFF
```

at the end of SQL script. Note, that a symbol `<a-path-to-location-of>` represent a path to location of a file `solution5.lst` with a report. For example, a command

```
SPOOL C:\CSCI835\assignment0\solution5
```

saves a report `solution5.lst` from processing of a script `solution5.sql` at location `C:\CSCI835\assignment0` .

Process your script with SQL Developer. A report from processing of a script can be found in a file <a-path-to-location-of>\solution5.lst . It is also possible to save a report in a file solution5.lst using a **Save File** button in Script Output tab of SQL Developer.

**Deliverables**

A file solution5.lst with a report from processing of SQL script solution5.sql. A report must have no errors and it must list all SQL statements processed.

---

### **Submission**

Submit the files **solution1.lst**, **solution2.lst**, **solution3.lst**, **solution4.lst**, and **solution5.lst** through Moodle in the following way:

- (1) Access Moodle at **<http://moodle.uowplatform.edu.au/>**
- (2) To login use a **Login** link located in the right upper corner the Web page or in the middle of the bottom of the Web page
- (3) When logged select a site **CSCI835 (JI20) Database Systems**
- (4) Scroll down to a section **SUBMISSIONS**
- (5) Click at a link **In this place you can submit the outcomes of Assignment 0 (zero)**
- (6) Click at a button **Add Submission**
- (7) Move a file **solution1.lst** into an area **You can drag and drop files here to add them**. You can also use a link **Add...**
- (8) Repeat a step (7) for the files **solution2.lst**, **solution3.lst**, **solution4.lst**, and **solution5.lst**.
- (9) Click at a button **Save changes**
- (10) Click at a button **Submit assignment**
- (11) Click at the checkbox with a text attached: **By checking this box, I confirm that this submission is my own work, ...** in order to confirm the authorship of your submission.
- (12) Click at a button **Continue**

---

*End of specification*