
Homework 1

Due on **Wednesday, October 4, 2017 at 11:59 PM**

Submit ***1-FirstName.pdf*** and ***1-FirstName-Lab.txt*** through Canvas

Topics: Database Design and Relational Model

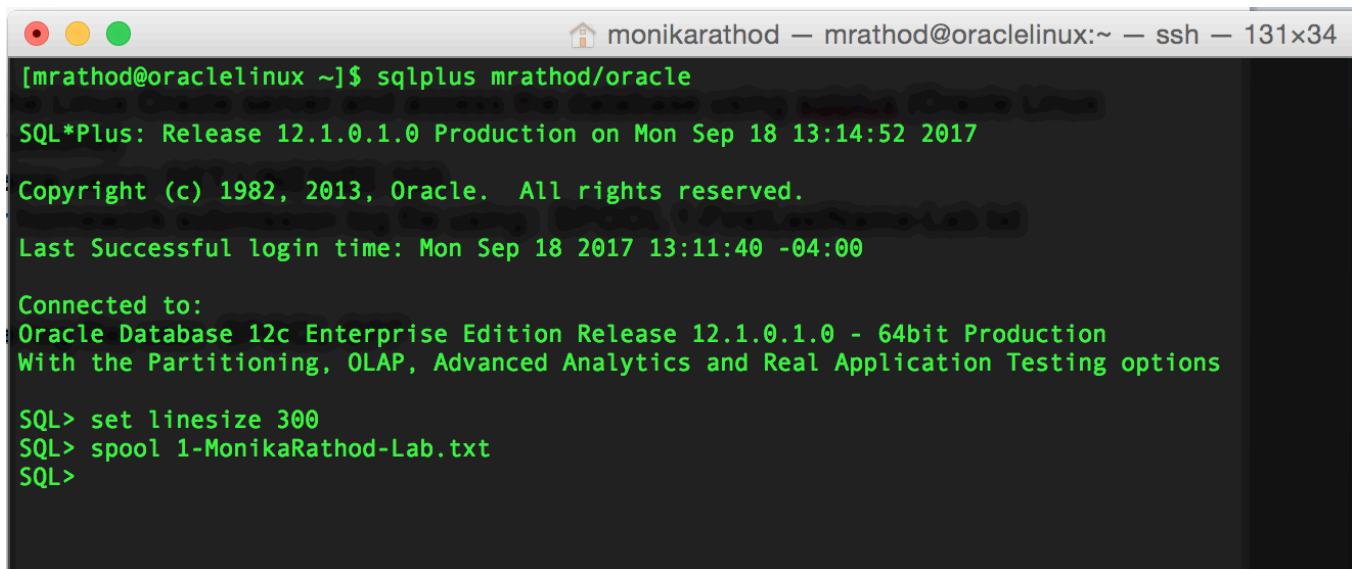
Instructions:

- Complete Section 1 and submit *1-FirstName-Lab.txt*
- Complete Section 2 and submit *1-FirstName.pdf*

Section 1:

This section covers the practical implementation of a database schema using DDL and data manipulation using DML (50 points).

- Login in to the Linux Oracle server and access the database using *sqlplus* (refer to Oracle Linux Server Instructions)
- Modify line size using: SET LINESIZE 300
- Display the SQL commands using: SET ECHO ON
- Create your homework submission log file using: SPOOL *1-FirstName-Lab.txt* command



```
monikarathod — mrathod@oraclelinux:~ — ssh — 131x34
[mrathod@oraclelinux ~]$ sqlplus mrathod/oracle
SQL*Plus: Release 12.1.0.1.0 Production on Mon Sep 18 13:14:52 2017
Copyright (c) 1982, 2013, Oracle. All rights reserved.
Last Successful login time: Mon Sep 18 2017 13:11:40 -04:00
Connected to:
Oracle Database 12c Enterprise Edition Release 12.1.0.1.0 - 64bit Production
With the Partitioning, OLAP, Advanced Analytics and Real Application Testing options
SQL> set linesize 300
SQL> spool 1-MonikaRathod-Lab.txt
SQL>
```

- To terminate log file after working on parts A), B) and C) use: SPOOL OFF command
- A) Using SQL, construct DDL statements that create the relational schema below. Include all the necessary domain key, and referential integrity constraints (20 points).

star(*id*: integer, *name*: string, *birth_year*: integer, *gender*: string, *salary*: integer)
role(*m_id*: integer, *s_id*: integer, *character_name*: string)
movie (*id*: integer, *title*: string, *rating*: string, *genre*: string, *budget*: integer)

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B) Using the data given below, write DML statements and populate the relational database created above (15 points).

Movie

id	title	rating	genre	budget
1	Castaway	PG-13	Drama	90000000
2	You Got Mail	PG	Romance	65000000
3	City of Angels	PG-13	Horror	66000000
4	When Harry Met Sally	PG-13	Romance	25000000

Role

m_id	s_id	character_name
1	1	Chuck Noland
2	1	Joe Fox
2	2	Kathleen Kelly
3	2	Maggie Rice
3	5	Cassiel
3	3	Seth
4	2	Sally
4	4	Harry

Star

id	name	birth_year	gender	Salary
1	Tom Hanks	1956	Male	8000000
2	Meg Ryan	1961	Female	10500000
3	Nicolas Cage	1964	Male	15000000
4	Billy Crystal	1948	Male	7000000

C) Using single DML statements, complete the following: (15 points)

- (i) Increase Tom Hank's salary by 33.35%
- (ii) Change the genre of 'City of Angels' to 'Romance'
- (iii) Delete all the tuples from all the tables pertaining to the movie 'When Harry Met Sally'

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Section 2:

This section covers database design and ER diagrams (50 points).

(A) Birdie Inc. is a twitter-like company that sends “chirps” to its users. Draw an ER diagram for this organization using the database requirements defined below. Your ER diagram should incorporate attributes, key attributes and constraints (35 points).

- The company records information about users, followers, and chirps sent
- There are millions of users sending chirps
- When a user signs up for this service, they enter their name
- These users are then given a userid and a password
- The userid given to each user is unique
- The user can follow other users of this application
- A user can have many followers
- A chirp is composed by a user
- Each chirp has a unique identifier assigned to it
- A chirp consists of text and the date it was generated

(B) Using the ER diagram you have created, write the corresponding DDL statements. Use appropriate data types and specify any CASCADE deletions. Enforce as many as possible integrity constraints as you can. (15 points)

Additional Information:

- You may use any of the following data types:
 - VARCHAR(SIZE [BYTE | CHAR]) - Variable-length character data, with maximum length size bytes or characters
 - CHAR(SIZE [BYTE | CHAR]) - Fixed-length character data of length size bytes or characters
 - NUMBER(p, s) - Variable-length numeric data with precision p and/or scale s
 - INTEGER – gets created as NUMBER(38)
 - DATE - Fixed-length date and time data