

# MSDS 7330 File Organization and Database Management Mini Project 1 – MySQL

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This is a mini project for MSDS 7330, File Organization and Database Management. For this assignment, turn in a single pdf file containing all of your answers. The file should be named `yourLastNameMiniProject-Number.pdf`. For example, the file name for my mini project 1 would be 'RafiqiMiniProject-1.pdf'. Insert your answer pages into this file with the answer for Question 1 inserted immediately after Question 1 and before Question 2, the answer for Question 2 inserted immediately after Question 2, and the answer for Question 3 inserted immediately after Question 3. You may insert a front page containing your name and date if you do not wish to or cannot electronically add that information to the first page of this homework sheet.

Collaboration is expected and encouraged; however, each student must hand in their own homework assignment. To the greatest extent possible, answers should not be copied but, instead, should be written in your own words. Copying answers from anywhere is plagiarism, this includes copying text directly from the textbook. Do not copy answers. Always use your own words and your own code. Directly under each question list all persons with whom you collaborated and list all resources used in arriving at your answer. Resources include but are not limited to the textbook used for this course, papers read on the topic, and Google search results. Don't forget to place your name on the first page of the pdf document.

## MySQL Database

Question 1 : Download and install the MySQL Community Server database program on your computer.

MySQL Community Server is a free download from <https://www.mysql.com>. If you are running a Microsoft operating system, you may download and install MySQL Workbench as well. If you are using a Mac, you may download the free app Sequel Pro from <http://www.sequelpro.com>. Both MySQL Workbench and Sequel Pro are visualization applications for accessing MySQL databases.

Once you have installed MySQL, be sure to set the password for your user account on the MySQL database. And, be sure to give your account the privileges needed to create and modify databases. The MySQL reference manual, available from <https://www.mysql.com>, provides in-depth instructions on how to install and configure your MySQL software.

Once you have installed and configured MySQL, select the mysql database by executing the "USE mysql" command. Then, run the query "SELECT User, Host, Password FROM mysql.user;" from the command line.

Capture the resulting output as a screen capture or grab and turn in the resulting pdf showing both the query and the results.

Collaborators: Andrew Abbott

Resources:



Navigator

## MANAGEMENT

- Server Status
- Client Connections
- Users and Privileges
- Status and System Variables
- Data Export
- Data Import/Restore

## INSTANCE

- Startup / Shutdown
- Server Logs
- Options File

## PERFORMANCE

- Dashboard
- Performance Reports
- Performance Schema Setup

## SCHEMAS

Filter objects

- ▶ sakila
- ▶ sys
- ▶ world

Information

No object selected

Query 1 x

Administration - Users and Privil...

Limit to 1000 rows

```
1 SELECT USER, HOST, authentication_string
2 from mysql.user
```

Result Grid Filter Rows: Export: Wrap Cell Content:

	USER	HOST	authentication_string
▶	root	localhost	*987A2014B65EF7F40224B70A76956FBFADCE4A6B
	mysql.sys	localhost	*987A2014B65EF7F40224B70A76956FBFADCE4A6B
	aabbott	%	*987A2014B65EF7F40224B70A76956FBFADCE4A6B

## Question 2 :

The file `baseball_salaries_2003.txt` contains salary information for certain professional baseball players from the year 2003. Write a SQL script that processes this file to determine, for each position, the average salary of the players in that position. Note that the seven player positions that can occur in the input file are "Catcher", "First Baseman", "Outfielder", "Pitcher", "Second Baseman", "Shortstop" and "Third Baseman".

Your script should create an appropriate table in your database (you may want to create a new database just for this problem) and populate it using the data in the input file. It should then execute a single SQL query whose output has the schema (position, avgSal). The output should appear sorted in descending order of average salary.

Capture the resulting output as a screen capture or grab. Turn in a pdf of your script and the results.

Collaborators: Andrew Abbott

Resources:

MySQL Workbench

Local instance MySQL56 x

File Edit View Query Database Server Tools Scripting Help

Navigator: Query 1 MiniProject2 x MiniProject2

MANAGEMENT

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SCHEMAS

Filter objects

baseball\_salaries

- Tables
  - avgsalaries
  - playerinfo
- Views
- Stored Procedures
- Functions

sakila

sys

university

world

Information

Schema: baseball\_salaries

```

2
3 use baseball_salaries;
4
5 create table PlayerInfo
6   (Team_name varchar(30),
7    Player_Name varchar(30),
8    Salary numeric(12,2),
9    Position varchar(20)
10  );
11
12 LOAD DATA LOCAL INFILE 'C:/Users/Abbott/Desktop/baseball_salaries_2003_2_2_2.txt'
13 INTO TABLE PlayerInfo
14 FIELDS TERMINATED BY ';'
15 LINES TERMINATED BY '\n'
16 IGNORE 3
17 LINES(Team_Name,Player_Name,Salary,Position);
18
19 create table AvgSalaries
20   (Position varchar(30),
21    AvgSalary numeric (12,2)
22  );
23
24 Insert into AvgSalaries(
25   select Position,
26   avg(Salary) as AvgSalary
27   from playerinfo
28   group by Position)
29

```

Result Grid

Position	AvgSalary
Outfielder	4050024.41
First Baseman	3591402.63
Shortstop	2953382.23
Third Baseman	2461333.33
Pitcher	2135130.19
Second Baseman	1307750.00
Catcher	1172669.44

NAME:

### Question 3 :

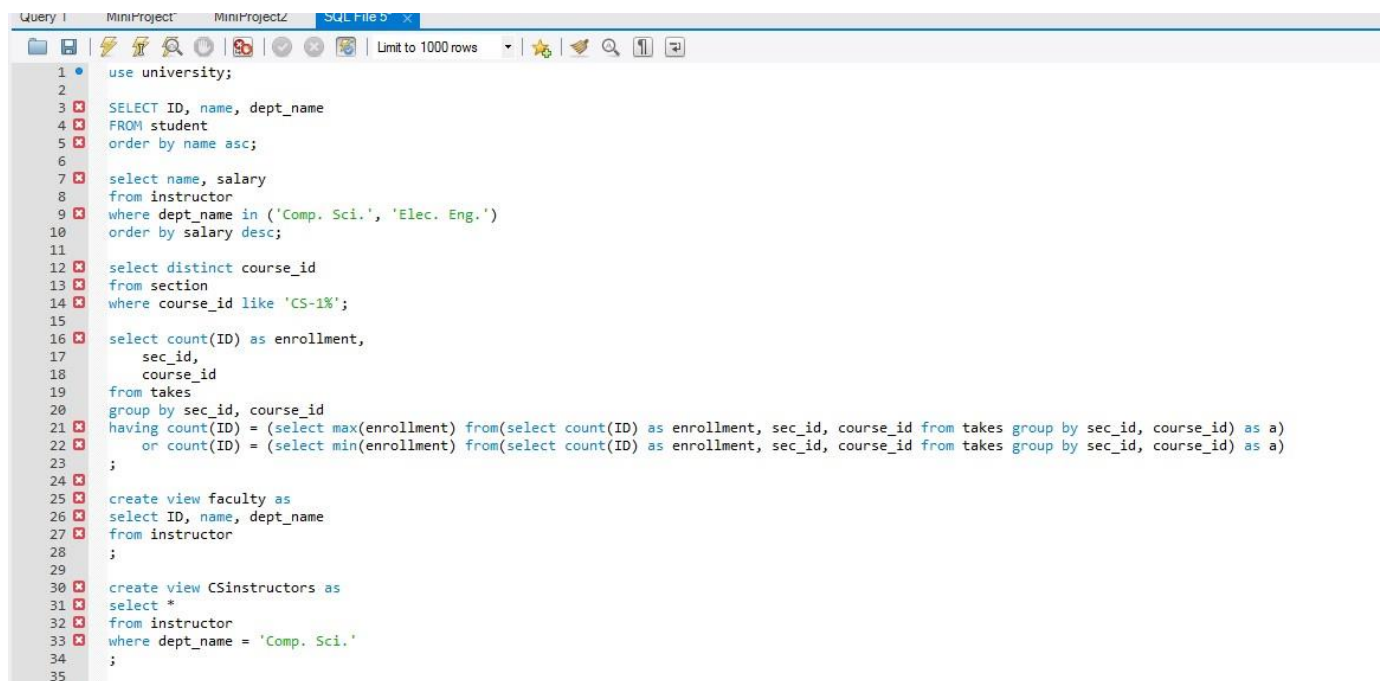
Create a database called “University”. Load the textbook relations into your *University* database. Access these relations and obtain answers for the following queries:

- 1) Produce a list of all the students in the student relation, including their ID, name and department name, sorted into ascending order by their name.
- 2) Produce a list of the names and salaries of professors in the Comp. Sci. and Elec. Eng. departments ordered by decreasing salary.
- 3) Find all courses whose identifier starts with the string “CS-1”
- 4) Find the maximum and minimum enrollment across all sections, considering only sections that had some enrollment, don’t worry about those that had no students taking that section
- 5) Create a view faculty showing only the ID, name, and department of instructors.
- 6) Create a view CSinstructors, showing all information about instructors from the Comp. Sci. department.

Capture the sequence of queries and resulting output thereby demonstrating your database in operation. Turn in a pdf of your database in operation.

Collaborators: Andrew Abbott

Resources:



```
1 use university;
2
3 SELECT ID, name, dept_name
4 FROM student
5 order by name asc;
6
7 select name, salary
8 from instructor
9 where dept_name in ('Comp. Sci.', 'Elec. Eng.')
10 order by salary desc;
11
12 select distinct course_id
13 from section
14 where course_id like 'CS-1%';
15
16 select count(ID) as enrollment,
17        sec_id,
18        course_id
19 from takes
20 group by sec_id, course_id
21 having count(ID) = (select max(enrollment) from (select count(ID) as enrollment, sec_id, course_id from takes group by sec_id, course_id) as a)
22        or count(ID) = (select min(enrollment) from (select count(ID) as enrollment, sec_id, course_id from takes group by sec_id, course_id) as a)
23 ;
24
25 create view faculty as
26 select ID, name, dept_name
27 from instructor
28 ;
29
30 create view CSinstructors as
31 select *
32 from instructor
33 where dept_name = 'Comp. Sci.'
34 ;
35
```

Result Grid			
Filter Rows:			
	ID	name	dept_name
▶	76653	Aoi	Elec. Eng.
	98765	Bourikas	Elec. Eng.
	19991	Brandt	History
	76543	Brown	Comp. Sci.
	23121	Chavez	Finance
	45678	Levy	Physics
	44553	Peltier	Physics
	55739	Sanchez	Music
	12345	Shankar	Comp. Sci.
	70557	Snow	Physics
	98988	Tanaka	Biology
	54321	Williams	Comp. Sci.
	00128	Zhang	Comp. Sci.
★	NULL	NULL	NULL

Result Grid		
Filter Rows:		
	name	salary
▶	Brandt	92000.00
	Kim	80000.00
	Katz	75000.00
	Srinivasan	65000.00

Result Grid	
Filter Rows:	
	course_id
▶	CS-101
	CS-190

Result Grid			
Filter Rows:			
	enrollment	sec_id	course_id
▶	1	1	BIO-101
	1	1	BIO-301
	7	1	CS-101
	1	1	CS-319
	1	1	EE-181
	1	1	FIN-201
	1	1	HIS-351
	1	1	MU-199
	1	1	PHY-101
	1	2	CS-319