

## ASSIGNMENT 1

### 1 - Downloading MariaDB for Rocky Linux

I already had a Rocky Linux VM on my computer beforehand, with a host user and password and such. After checking for updates, all I had to do was download MariaDB onto my VM system -

```
[jopolka@localhost ~]$ sudo systemctl start mariadb
[sudo] password for jopolka:
[jopolka@localhost ~]$ sudo mysql_secure_installation
```

It started asking various preference-related questions, then exited the program. Then to open the program back up, all it took was the second to last line of code (sudo mysql -u root -p).

```
Remove anonymous users? [Y/n] Y
... Success!

Normally, root should only be allowed to connect from 'localhost'. This
ensures that someone cannot guess at the root password from the network.

Disallow root login remotely? [Y/n] Y
... Success!

By default, MariaDB comes with a database named 'test' that anyone can
access. This is also intended only for testing, and should be removed
before moving into a production environment.

Remove test database and access to it? [Y/n] Y
- Dropping test database...
... Success!
- Removing privileges on test database...
... Success!

Reloading the privilege tables will ensure that all changes made so far
will take effect immediately.

Reload privilege tables now? [Y/n] Y
... Success!

Cleaning up...

All done! If you've completed all of the above steps, your MariaDB
installation should now be secure.

Thanks for using MariaDB!
[jopolka@localhost ~]$ sudo mysql -u root -p
[sudo] password for jopolka: _
```

Next I could create the database and a table within it with a handful of example elements, then exit the program.

```
Server version: 10.5.22-MariaDB MariaDB Server

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

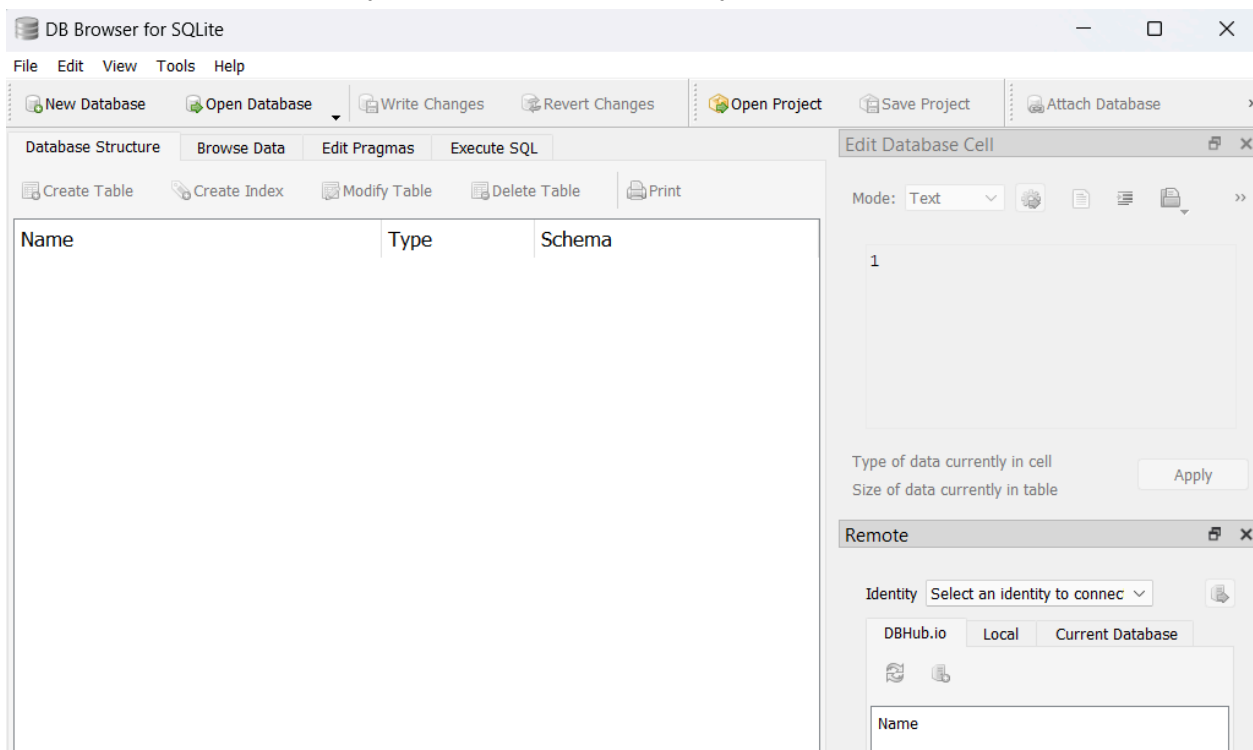
MariaDB [(none)]> CREATE DATABASE w1_database;
Query OK, 1 row affected (0.000 sec)

MariaDB [(none)]> USE w1_database;
Database changed
MariaDB [w1_database]> CREATE TABLE w1_table (
  -> id INT PRIMARY KEY,
  -> birth_year INT(4) NOT NULL,
  -> age INT NOT NULL
  -> );
Query OK, 0 rows affected (0.029 sec)

MariaDB [w1_database]> EXIT;
Bye
[jopolka@localhost ~]$
```

## 2 - Create a graphic editing environment (DB Browser)


DB Browser had also already been downloaded onto my laptop prior



### 3 - Create Azure account / Database

At first Azure was a tad bit tricky to figure out, but after some research online, I started figuring it out.

[Home](#) >

**Microsoft.SQLDatabase.newDatabaseNewServer\_a6e0b61a48da4c2c9ecd1** | Overview

Deployment

Search

«

Delete

Cancel

Redeploy

Download

Refresh

Overview

Inputs

Outputs

Template

Deployment is in progress

Deployment name : Microsoft.SQLDatabase.newDatabaseNewServer\_a6e0b61a48da4c2c9ecd1





Subscription : [Azure for Students](#)

Resource group : [CIS-215-A](#)

Start time : 1/23/2024, 11:45:16 PM


Correlation ID : 2f8b987b-917e-40fc-9199-a3acc9fa56ee

Deployment details

Resource	Type	Status	Operation details
 opolkaj/CIS-215-A	SQL database	Accepted	<a href="#">Operation details</a>
 opolkaj/Default	Microsoft.Sql/servers/connection	OK	<a href="#">Operation details</a>
 opolkaj	SQL server	OK	<a href="#">Operation details</a>
 opolkaj	SQL server	Created	<a href="#">Operation details</a>

Give feedback

[Tell us about your experience with deployment](#)

**opolkaj**

SQL server

Search

«

Create database

New elastic pool

New dedicated SQL pool (formerly SQL DW)

Import database

Reset password

Move

Delete

Feedback

Overview

Activity log

Access control (IAM)

Tags

Quick start

Diagnose and solve problems

Settings

Essentials

Resource group (move) : [CIS-215-A](#)

Status : Available

Location : East US

Subscription (move) : [Azure for Students](#)

Subscription ID : a6110507-7d5f-47b6-b868-660aaf2f3ea2

Tags (edit) : [Add tags](#)

Notifications (0)

Features (6)

Server admin : opolkaj

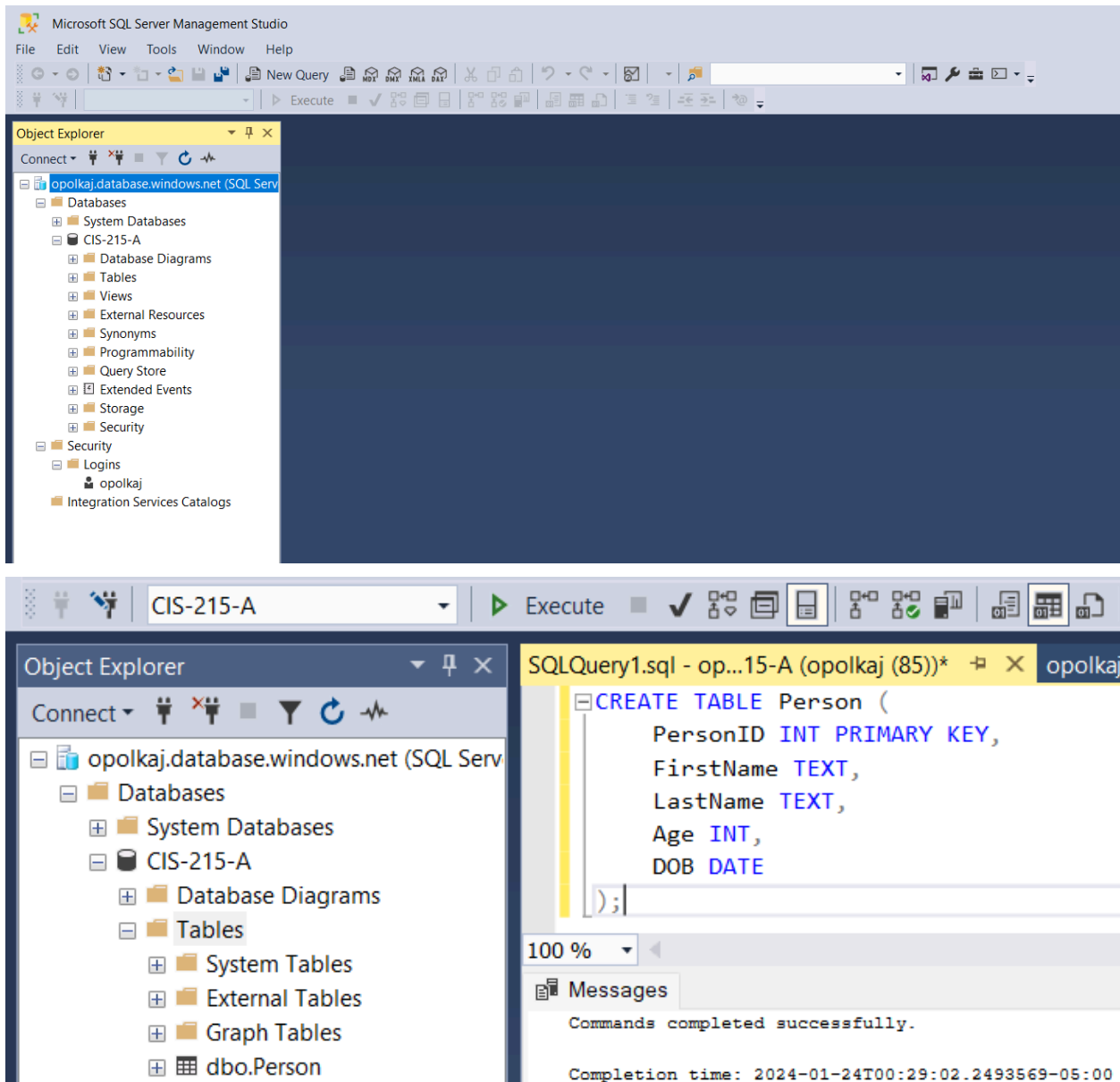
Networking : [Show networking settings](#)

Microsoft Entra admin : [opolkaj@ncmich.edu](#)

Server name : opolkaj.database.windows.net

After creating the account, database, and looking around for where to create a table, it turns out in order to do so, alternate programs were needed in order to add tables and other elements to Azure databases. Programs like Microsoft's SQL Server Management Studio.

After specifying the database and adding credentials, I can add tables to my pre existing database



#### 4 - Create a Database with DB Browser (3 tables, relations, normalization, data types)

Three tables decided on were tables for the players, their games, and each players stats per game -

Edit table definition

Table: **Players**

Advanced

Fields Constraints

Add Remove Move to top Move up Move down Move to bottom

Name	Type	NN	PK	AI	U	Default	Ch
PlayerID	INTEGER	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
FirstName	TEXT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
LastName	TEXT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Position	TEXT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
DOB	DATE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

```

1 CREATE TABLE "Players" (
2     "PlayerID" INTEGER,
3     "FirstName" TEXT,
4     "LastName" TEXT,
5     "Position" TEXT,
6     "DOB" DATE,
7     PRIMARY KEY ("PlayerID")
8 );

```

OK Cancel

Including the PlayerID, First and last name, and DOB, as well as their position on the team

Edit table definition

Table: **Games**

Advanced

Fields Constraints

Add Remove Move to top Move up Move down Move to bottom

Name	Type	NN	PK	AI	U	Default	Ch
GameID	INTEGER	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Date	DATE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Opponent	TEXT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Street Address	TEXT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
City	TEXT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
State	TEXT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Win/Lose Status	TEXT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

```

1 CREATE TABLE "Games" (
2     "GameID" INTEGER,
3     "Date" DATE,
4     "Opponent" TEXT,
5     "Street Address" TEXT,
6     "City" TEXT,
7     "State" TEXT,
8     "Win/Lose Status" TEXT,
9     PRIMARY KEY ("GameID")
10 );

```

OK Cancel

Each game including its unique ID, as well as the date and location of the event, and the opponent. It also stores whether the team won or lost against the opponent

The screenshot shows a 'Table' definition window for a table named 'Stats'. The 'Fields' tab is active, displaying a list of fields: StatID, PlayerID, GameID, Hits, Runs, and RBIs. All fields are of type 'INTEGER'. StatID is marked as the primary key (PK) and is not nullable (NN). The other fields are nullable. The 'Constraints' tab is also visible, showing foreign key relationships for PlayerID and GameID, and a primary key for StatID.

Name	Type	NN	PK	AI	U	Default	Ch
StatID	INTEGER	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
PlayerID	INTEGER	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
GameID	INTEGER	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Hits	INTEGER	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Runs	INTEGER	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
RBIs	INTEGER	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

```

1 CREATE TABLE "Stats" (
2     "StatID"    INTEGER,
3     "PlayerID"  INTEGER,
4     "GameID"    INTEGER,
5     "Hits"      INTEGER,
6     "Runs"      INTEGER,
7     "RBIs"      INTEGER,
8     FOREIGN KEY ("PlayerID") REFERENCES "Players" ("PlayerID"),
9     FOREIGN KEY ("GameID") REFERENCES "Games" ("GameID"),
10    PRIMARY KEY ("StatID")
11 );
  
```

The stats table is set up so that any players stats from any game they played can be stored. For this reason, the ID of both the Players and Games table are needed as foreign keys. After that, the amount of hits, runs and RBIs can be stored as well.

Table: Stats							Filter in any column						
	StatID	PlayerID	GameID	Hits	Runs	RBIs							
	Filter	Filter	Filter	Filter	Filter	Filter							
1	1	1	2	3	5	4							
2	2	6	1	4	6893	1							
3	3	6	3	0	13	23							

Table: Games							Filter in any column						
	GameID	Date	Opponent	Street Address	City	State	Win/Lose Status						
	Filter	Filter	Filter	Filter	Filter	Filter	Filter						
1	1	01-08-2003	Detroit Lions	123 Sesame Street	New York City	New York	Lost						
2	2	12-12-2012	Pickford Panthers	125 Howard Street	Petoskey	Michigan	Won						
3	3	10-31-1998	Transylvania State	666 StayInYour Lane	Durant	Oklahoma	Lost						

Table: Players							Filter in any column						
	PlayerID	FirstName	LastName	Position	DOB								
	Filter	Filter	Filter	Filter	Filter								
1	1	Tom	Brady	Pitcher	08-03-1977								
2	2	Ernest	Hemingway	Defense	07-21-1899								
3	3	Frank	Sinatra	First Base	12-12-1915								
4	4	Milton	Brady	Defense	11-08-1836								
5	5	Tom	Hanks	Quarterback	07-09-1956								
6	6	Chef	Boyardee	Water Boy	10-22-1897								

Now we can test our database with queries -

SQL 1 <span>✕</span>	
1	SELECT Runs FROM Stats
2	WHERE PlayerID = 6 AND GameID = 1;
Runs	
1	6893

SQL 1

```
1 SELECT FirstName, LastName FROM Players
2 WHERE FirstName = 'Tom';
```

	FirstName	LastName
1	Tom	Brady
2	Tom	Hanks