

BootCamp #9

Databases -Day2

Timings

- 9:30 – Start
- 10:30 – Morning break 1(10 mins)
- 11:30 – Morning break 2(10 mins)
- 12:30 – Lunch (1 hour)
- 14:30 – Afternoon break 1(10 mins)
- 15:30 – Afternoon break 2(10 mins)
- 16:30 – Finish

Exercise #9

CHALLENGE - Plan and build a website that has some of the event/meetup functionality. i.e. Creating events, listing them, signing up to them. Start simple and see how much you can add in!

- We recommend that you spend some time upfront looking at what data you might need to store and planning out the tables before you start.
- Each group has their own schema to build as many tables as they like

Connecting to Database Server

- You'll need a database driver - a piece of software that your application will use to talk to the database. Java typically uses JDBC drivers. For dotnet there will be plenty of nuget packages for each database type
- <https://www.nuget.org/packages/MySql.Data/>
- <https://www.mysql.com/products/connector/>
- <https://dev.mysql.com/doc/apis-php/en/apis-php-mysqlinfo.api.choosing.html>

Connection String Format

```
Server=myServerAddress;Port=3306;Database=myDataBase;Uid=myUs  
ername;  
Pwd=myPassword;
```

<https://www.connectionstrings.com/mysql/>

.Net Code Snippet

- <https://dev.mysql.com/doc/connector-net/en/connector-net-tutorials-connection.html>

```
1  string connStr = "server=localhost;user=root;database=world;port=3306;password=*****";
2  MySqlConnection conn = new MySqlConnection(connStr);
3  try
4  {
5      Console.WriteLine("Connecting to MySQL...");
6      conn.Open();
7
8      string sql = "SELECT Name, HeadOfState FROM Country WHERE Continent='Oceania'";
9      MySqlCommand cmd = new MySqlCommand(sql, conn);
10     MySqlDataReader rdr = cmd.ExecuteReader();
11
12     while (rdr.Read())
13     {
14         Console.WriteLine(rdr[0]+" -- "+rdr[1]);
15     }
16     rdr.Close();
17 }
18 catch (Exception ex)
19 {
20     Console.WriteLine(ex.ToString());
21 }
22 conn.Close();
```

Java Code Snippet

- <https://dev.mysql.com/doc/connector-j/5.1/en/connector-j-usagenotes-connect-drivermanager.html>

```
1 import java.sql.Connection;
2 import java.sql.DriverManager;
3 import java.sql.SQLException;
4
5 // Notice, do not import com.mysql.jdbc.*
6 // or you will have problems!
7
8 public class LoadDriver {
9     public static void main(String[] args) {
10         try {
11             // The newInstance() call is a work around for some
12             // broken Java implementations
13
14             Class.forName("com.mysql.jdbc.Driver").newInstance();
15             //After the driver has been registered with the DriverManager,
16             //you can obtain a Connection instance that is connected to a particular d
17             conn =
18                 DriverManager.getConnection("jdbc:mysql://localhost/test?" +
19                                             "user=minty&password=greatsqldb");
20             stmt = conn.createStatement();
21             rs = stmt.executeQuery("SELECT foo FROM bar");
```

ORM'S

- Dapper - Light weight micro ORM for .NET that simplifies the data access
<https://dapper-tutorial.net/query>
- Sql2o - Sql2o is a small Java library, that makes it easy to execute sql statements against your JDBC compliant database.
<https://www.sql2o.org/>

Follow On Tasks

Set up MySQL on your computer so that you can run the website you built today (the database from this week won't be up forever!). You can use the MySQL workbench to export tables and import them on your computer.

Ask your mentor to talk you through a system that uses a database at your company. Find out about the structure and what methods are used to interact with it. Produce diagrams for your portfolios to show how the system fits together.