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Connecting to a MySQL Database – Resource Pack

This short guide will provide you with the fundamentals in connecting to a MySQL database and setting up a MySQL database from a SQL script. The guide will cover how to connect and manipulate a database using several development environments. **Please only follow the section that relates to the programming language and development framework that you choose to use towards this hackathon.**

Before you begin, please download the SQL script containing the archive data, using the following link: halley-35303431330a_2024-03-18.sql. We also recommend you see the following tutorial on MySQL commands to help you manipulate the data once you have got set up: MySQL SQL (w3schools.com). You may also wish to download the MYSQL workbench to test out SQL statements without code: MySQL :: Download MySQL Workbench

PHP and XAMPP

Before you begin, you need to make sure you have downloaded and installed XAMPP. You can do that by using the following link: Download XAMPP (apachefriends.org). XAMPP packages together the PHP language, an Apache server and phpMyAdmin, allowing you to get set up quickly. We recommend you look at the following further resources to set up your database and import a SQL file to it:

- https://www.ionos.co.uk/digitalguide/server/tools/xampp-tutorial-create-your-own-local-test-server/
- https://simplebackups.com/blog/how-to-import-sql-file-in-mysql/#import-an-sql-file-using-xampp-and-phpmyadmin

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Once you have your database set up in phpMyAdmin, open up an editor (IDE) of your choice and use the following tutorial to get you started:

- PHP MySQL Connect to database (w3schools.com)

NodeJS and JavaScript

Please make sure you have downloaded and installed NodeJS before you begin. You can do that by using the following link: Node.js — Download Node.js® (nodejs.org). NodeJS will provide you with a server set up that supports the JavaScript language; however, you will need to install additional modules before you can import the archive. Please use the following tutorial to help you install the required module and connect to a database. Please note, at this stage we have not set up the database:

- Node.js MySQL (w3schools.com)

You can create a database using the same JavaScript script you create in the previous linked tutorial, and using the following code:

- Node.js MySQL Create Database (w3schools.com)

C# and .Net

You should make sure your system has the .Net framework before you begin. There are a couple of ways to get this set up. You can download .Net using the following link: Introduction to C# - interactive tutorials - C# | Microsoft Learn or you could get the development environment set up in Visual Studio Code by using the following link: Get started with web development using Visual Studio Code - Training | Microsoft Learn. You should still download either the NodeJS server (see above) or the XAMPP server (see above) to create the database and import the archive SQL file. After that, you can use the C# language to manipulate the data.

Python

You should install Python on your machine before you begin. You can download and install python either using the following link: Download Python | Python.org or by setting up Python directly in Visual Studio Code by using the following tutorial: Python in Visual Studio Code. To connect to a MySQL database in Python, see the following tutorial:

- Python MySQL (w3schools.com)

You should still download either the NodeJS server (see above) or the XAMPP server (see above) to create the database and import the archive SQL file. After that, you can use the C# language to manipulate the data.

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Java and Eclipse

You can get setup with Eclipse and Java by downloading and installing the software and following the tutorial found here: Eclipse IDE | The Eclipse Foundation. Getting set up with MySQL is a little involved, and does require you to download a connector and follow several steps. The following video tutorial does a great job at going over the specific steps:

- How to Connect MySQL Database in Java Using Eclipse IDE | Connect | Insert | Update | Delete (youtube.com)

Unity and C#

Before you begin, you need to make sure you have downloaded the Unity game engine, using the following link: Start Your Creative Projects and Download the Unity Hub | Unity. As Unity is a game engine, you do not have a server that accompanies the editor. You should still download either the NodeJS server (see above) or the XAMPP server (see above) to create the database and import the archive SQL file. After that, you can use the C# language to manipulate the data. Use the following tutorial see how to connect to a database from Unity. Please note, you will still need to create PHP scripts that act as the middleware, helping you communicate between a server and the game engine. The following tutorial focuses on PHP, but you could do something similar with JavaScript and NodeJS:

- Using MySQL with Unity - Simple Talk (red-gate.com)
- Unity - Scripting API: UnityWebRequest (unity3d.com)

Conclusion

At this stage, you should have the ability to connect, read and write to the archive database. From here, you should use the themes of the hackathon to help you decide on how you wish to use the data you have access to.