TASKS

For this worksheet you are to set up your own development environment and begin to gain familiarity with the tools you need to use for the module.

CONTEXT

It is important that you familiarise yourself with the tools and techniques that are required to be successful not only in the module but also as a graduate. Containerisation is increasingly in use and use of Docker is a highly prized graduate skill. Throughout this module we will be making use of containers and getting set up in the first week is important to ensure you do not delay learning the concepts you need to pass the assessment.

INSTRUCTIONS

In this worksheet we will be using the following:

- Docker
- DockerHub
- GitHub Classroom
- Azure Data Studio

Ensure Docker is running. Start up the Desktop client.

Open a terminal window and type in the following

```
docker run -e 'ACCEPT_EULA=1' -e 'MSSQL_SA_PASSWORD=C0mp2001!'
-p 1433:1433 --name COMP2001sqlserv -d
mcr.microsoft.com/azure-sql-edge
```

For some students, to run this successfully (if linked using CMD or PowerShell or GitBash prompt):

```
docker run -e "ACCEPT_EULA=Y" -e "MSSQL_SA_PASSWORD=C0mp2001!"
-p 1433:1433 --name COMP2001sqlserv -d
mcr.microsoft.com/azure-sql-edge
```

Depending on your network connection this may take a little while. In the meantime – make sure you have a DockerHub account - here https://hub.docker.com/

Sign up to the module GitHub Classroom here.
https://classroom.github.com/a/pmU9U0SU

HINT
If you cannot remember how to use Git please return to COMP1000, especially the Lab Zero instructions and remind yourself.

CODE EXPLANATION
The code you are running in the terminal looks on the local machine to determine whether there is already a copy of the image (*mcr.microsoft.com/azure-sql-edge*) and if not it will go out to Docker Hub to obtain it. The image is using Azure SQL Express – the free version of SQL Server which can run on multiple machines.

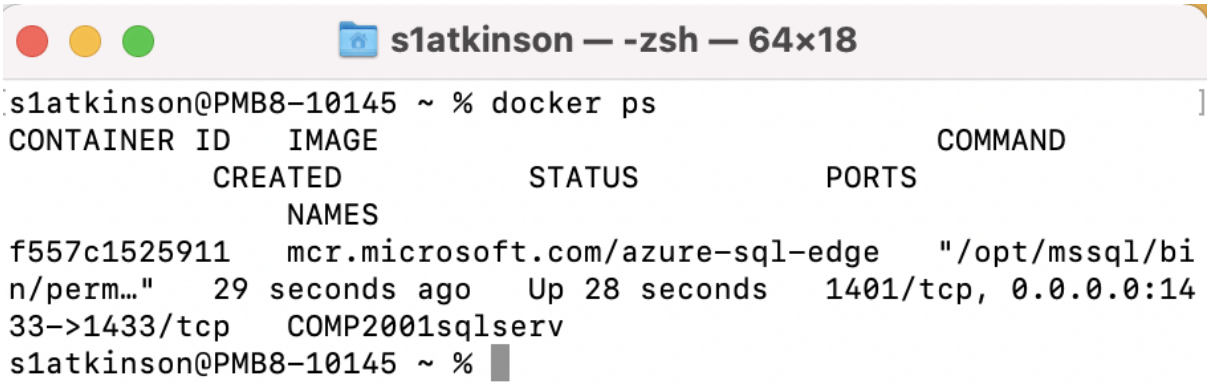
With SQL Server the EULA has to be accepted and the admin password has to be set before it can run. These are passed in as parameters.

The command is mapping the port of the machine to the port of the container. 1433 is the expected port for SQL Server.

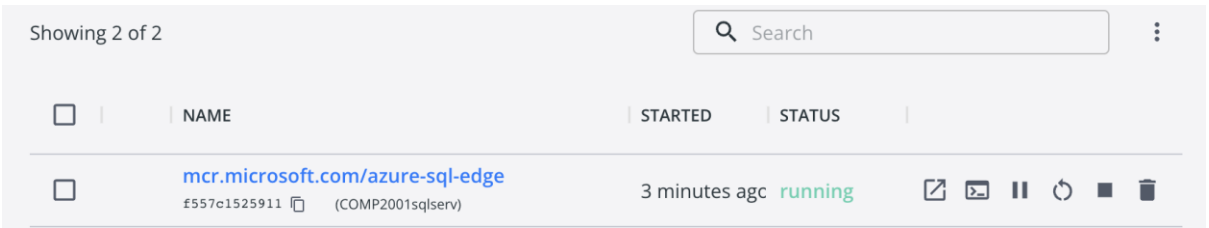
Once the docker image has downloaded, check it is running by using the following command in the terminal.

```
docker ps
```

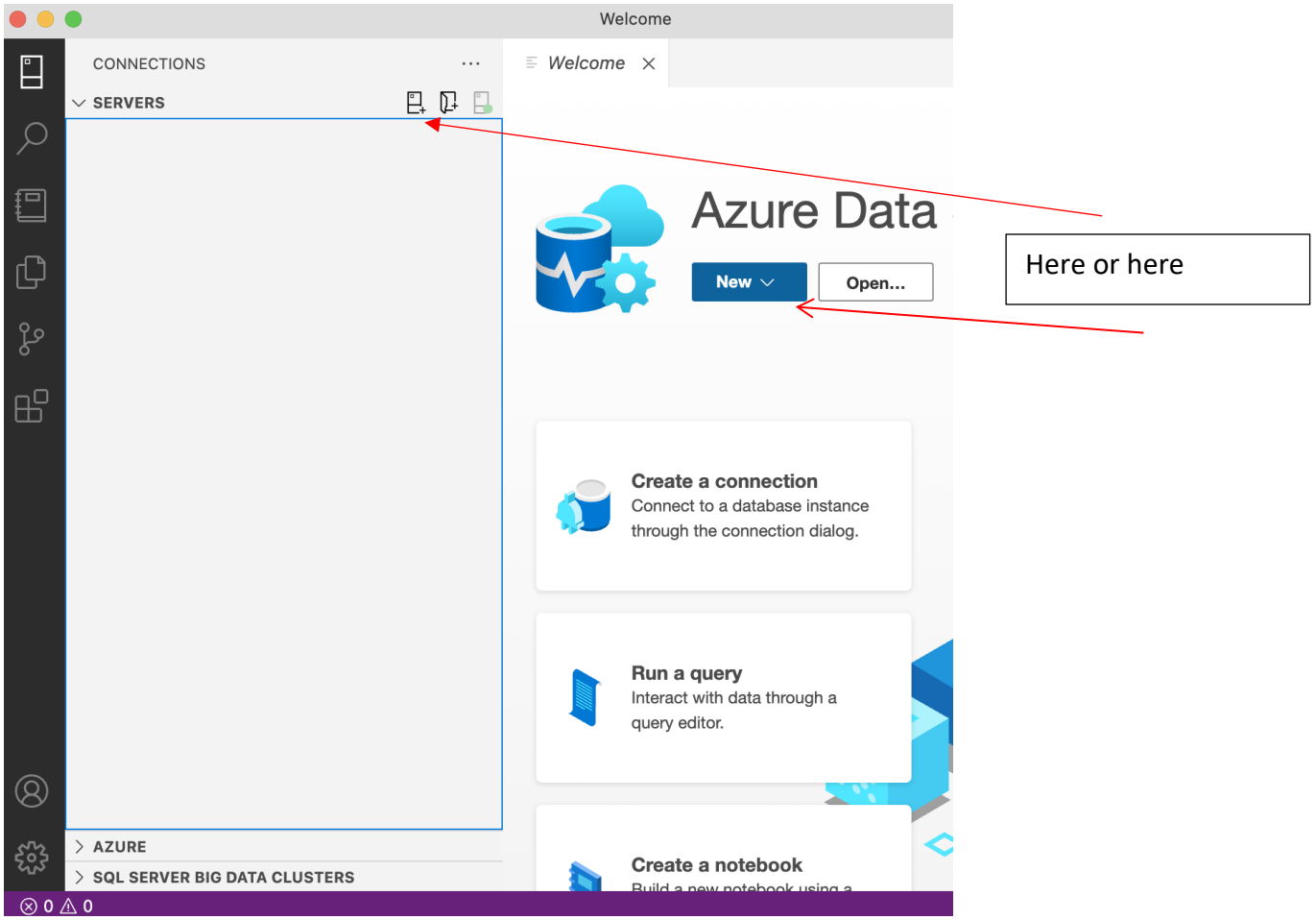
This should give you something similar to the following output.



You can also open up Docker desktop and look on the dashboard. You should see it running under Containers.



Next open up Azure Data Studio. Click the Connections icon at the top of the screen and create a new connection.



Enter the following details

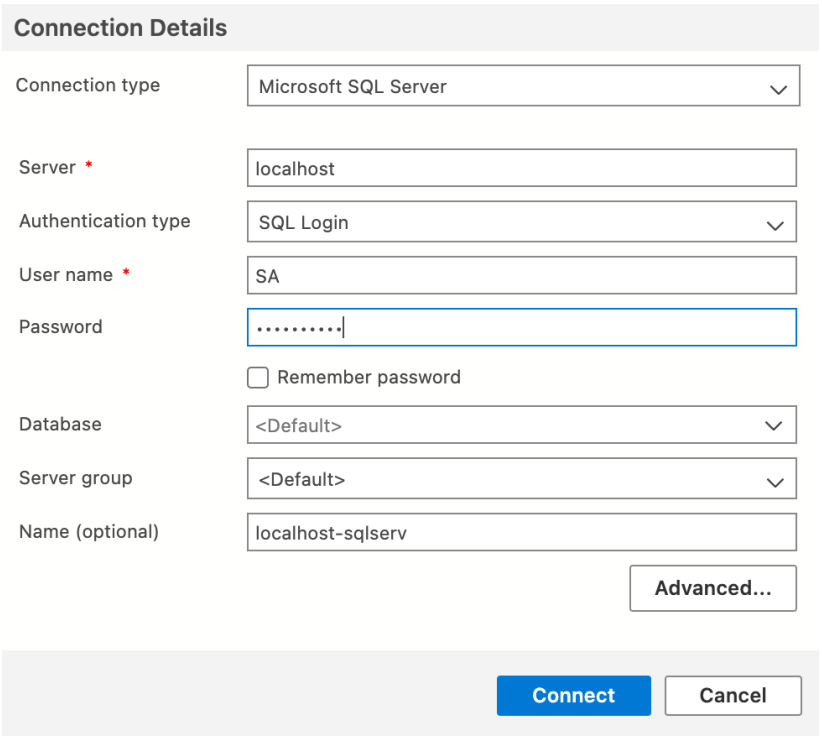
Server : localhost

Authentication type : SQL Login

User name : SA

Password : C0mp2001!
(given in code above)

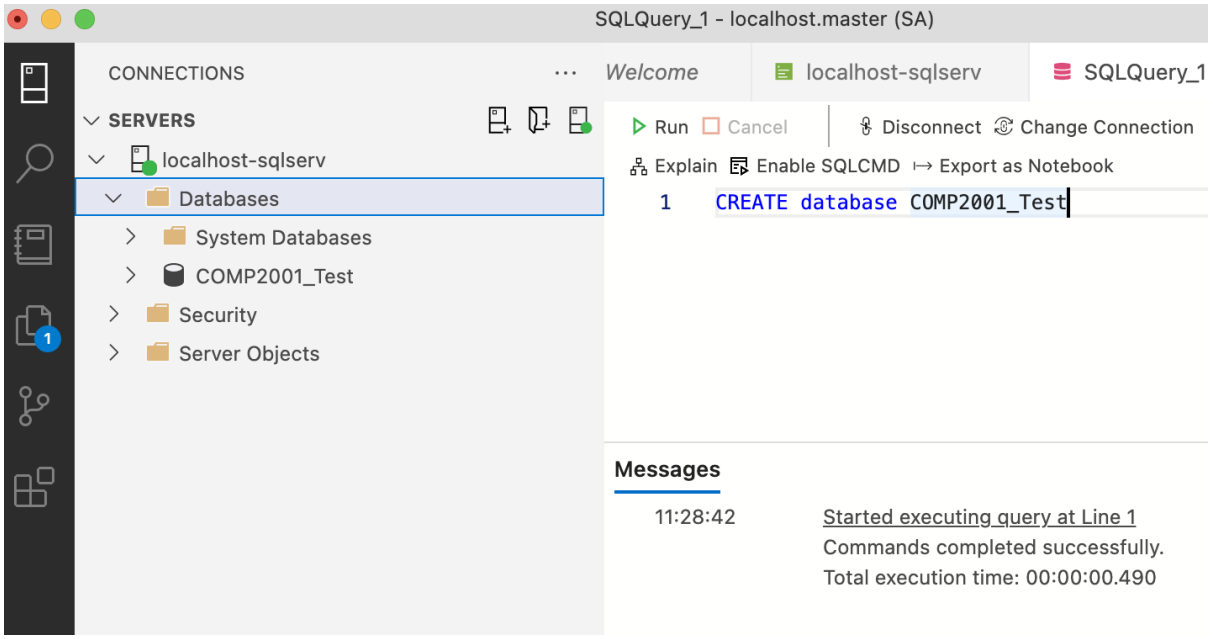
Name : localhost-sqlserv



On successfully connecting, open up a new query window and use the following command to create a test database.

```
CREATE database COMP2001_Test
```

Open up the folders at the side and check to see this has been created.



NOTE

YOU CAN CREATE A DATABASE ON A DATABASE SERVER WHERE YOU HAVE FULL ADMIN RIGHTS. RUNNING SQL EXPRESS IN THIS CONTAINER GIVES YOU THOSE RIGHTS.

LATER ON YOU WILL BE CREATING TABLES ETC ON A REMOTE, FULL EDITION MICROSOFT SQL SERVER WHERE YOU WILL NOT HAVE ADMIN RIGHTS. YOU WILL ONLY HAVE RIGHTS WITHIN A DATABASE ITSELF. YOU WILL NOT BE ABLE TO CREATE DATABASES – BUT YOU WILL BE ABLE TO CREATE ELEMENTS WITHIN THE DATABASES.

REFLECTIONS

Having gone through these exercises you will now have experienced your working environment for the next exercises. You should have successfully used Docker to pull an established SQL Server image, setting the environment variables as you did so to accept the EULA and set the administrator password. Having done that you should have been able to open up Azure Data Studio, the tool for managing the database, and connected to your local instance to create a test database.

If you have hit problems please do chat to Richard Hoskin, the technician who looks after the labs. He can be found in SMB106.