COSC349 - Assignment 1 Report

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INTRODUCTION:

Our task was to use vagrant to build an application using multiple virtual machines which all interact.

The application should reside in a git repository so another developer can download/clone my repository and make their own personal changes.

The application I built has three virtual machines. A webserver, an adminserver and a dbserver.

DESIGN:

I chose to build an application that makes use of three virtual machines that communicate with one another.

The first virtual machine hosts a add papers form for user input, the second displays the papers code and name in a table, and the third runs a database.

Webserver: Allows user to view all papers in the database

↑ Retrieves from database

Databaseserver: Stores a list of paper code and name in a SQL database.

↑ Stores in database

Adminserver: Allows admin to add new papers to the database

The admin server and the webserver do not interact with one another. All VMs communicate via a private network created by the configuration in the Vagrantfile (the configuration file that is run when vagrant up is initialised). PHP is used for dynamic forms on web servers that interact with databases.

How to start application:

Instructions: To start you need to install Vagrant and VirtualBox. Remember to download the version applicable to your operating system.

Vagrant: https://www.vagrantup.com/downloads

VirtualBox: https://www.virtualbox.org/wiki/Downloads

Next you need to clone or download the git repository:

1. Clone from the Terminal Type 'git clone https://github.com/RWFoot/cosc349.git' into your terminal window this command
2. Download a .zip file
Copy and paste https://github.com/RWFoot/cosc349/archive/refs/heads/master.zip into your browser

Then in your terminal go to the directory you cloned/downloaded the repository to and enter the command: vagrant up

Click below to access the user website:

http://127.0.0.1:8080/

Click below for the database input:

http://127.0.0.1:8081/addpapers.php

Modifications:

The most likely modifications to this basic application would be to add more involvement from the user perspective like searching for papers in the database via their code or name. Users could create a profile, sign up and save papers to their list that would then be viewable for them only. Basically, any user improvements you can think of.

We could also eliminate the necessity for SSH connections to the database, an extension might include additional forms for more interaction with the database.

The other part I would like to change is not having to reload all my VMs when I make changes to the vagrant and shell files.

REFERENCES: David Eyers - vagrant-multivm https://altitude.otago.ac.nz/cosc349/vagrant-multivm