**1. First of all please do the following steps:**

**Installing Linux Ubuntu 16.04.4 with LAMP**

Installation file: ubuntu-16.04.4-desktop-amd64.iso

Please make sure you follow this sequence:

Start VMWare and create a new virtual machine with the iso file.

When installation is complete, start a terminal command window.

Update repositories: sudo apt-get update

Install apache web server: sudo apt-get install apache2

Start apache and check if it works: sudo service apache2 restart (now go to the web browser and type 127.0.0.1 you should get the apache page)

Install php: sudo apt-get install php

Install php apache module: sudo apt-get install libapache2-mod-php7.0

Install mysql server: sudo apt-get install mysql-server (please make sure you provide “root” as user-id and “root” as password when it asks)

 Install phpmyadmin: sudo apt-get install phpmyadmin (again use “root” as password when it asks)

 Enable apache2 configuration file with php: sudo a2enconf php7.0-fpm

 Activate the new apache configuration: sudo service apache2 reload

 Create a symbolic link from phpmyadmin to the web directory where apache can see it:

sudo ln –s /usr/share/phpmyadmin /var/www/html/

I need to check everything works fine on the web browser:

Test apache: localhost OR 127.0.0.1

Test phpmyadmin: localhost/phpmyadmin OR [127.0.0.1/phpmyadmin](http://127.0.0.1/phpmyadmin)

**2. Secondly the main project:**

**Web Enabled Database**

You are given the task of designing a web enabled database system for a company that sells books online. Item scan be purchased either in paper format or in electronic format through download. To simulate purchase in electronic format, you must either create some dummy files that can be downloaded or obtain open access documents over the Internet. Note that it is your responsibility that you don’t use any copyrighted materials in your database that cannot be obtained freely on the Internet. Furthermore, the source of such materials must be acknowledged alongside with the title of the book/article/document visible to the buyer. A simple link to the source for downloading is not acceptable as it is expected that you include the item in your database.

Each product in the database has a number of attributes and these can include for instance, title, author, year of publication, price, numbers in stock, product description and any other information you may deem necessary or desirable such as reviews. You should research current online bookstores to get some design ideas, but be careful not to copy their design, as this will constitute plagiarism. See note on plagiarism below.

You are required to use the LAMP (Linux, Apache, MySQL and PHP) platform to develop your web enabled database solution. Your solution should consist of a standard customer web interface.

The administrator interface could be provided by phpMyAdmin with standard operations such as:

1. Insert and remove database entries

2. Query the database according to any chosen attribute

3. Perform other database operations such as including and updating offers

4. View statistics (e.g. items for which stock numbers are below predefined limits, popular items, etc.)

5. Advanced: perform other operation(s) specified by the designer, such as customer statistics and customer preferences, and others you may identify in your research

The customer web interface should allow customers to:

1. Search the database under various attributes

2. Place an order for a product

3. Simulate payment and receive feedback

4. Review the product and/or purchasing experience

5. Advanced: perform advanced transactions such as full simulated payment with fictitious credit card, include offers or advanced options such as “if you like that, you would like this”, and so on. You are expected to analyse the problem, identifying the functions that a standard web interface should provide to the customer and administrator, the attribute tables that are required for the database and the database functions to perform operations required by both customers and administrator. This is an open project, so remember that you are playing the customer and the system’s developer at the same time, so you are in full control over deciding what to deliver in terms of functionality.

**3. Deliverables: Report plus a Working System**

**A. The main project**

• VM: the Linux virtual machine files. Please make sure that all relevant files are there such that your virtual machine can be run and your database for Part B can be tested.

• DOCUMENTS: Include a README text file specifying the Linux user-id and password to login onto your virtual machine. Concerning the MySql server, if you have set a different user name and password (other than “root” and “root”) please also state that in the README file. You should also include your report part B either in Word, PDF or ODT format.

**B. Report**

You should produce a report that provides documentary evidence of the work done and critically evaluate the choices made to solve this assignment. Also, the quality of the report as a technical document will be evaluated and poorly written reports and/or lack of precision will lose marks. When considering the requirements and design of your system you will be acting at the same time as customer and system developer, so please have a look at software engineering techniques (on analysis, design, implementation and testing) to guide you during the process and on writing a report that clearly identifies and justifies the decisions made. As guidance, your report could be structured as follows:

• Introduction: statement of purpose

• Requirements analysis

• Design considerations

• Implementation and testing

• Evaluation and conclusion with critical appraisal

• References

• Appendix: Source Code

Guidance: around 3,000 words. You can include any number of pictures and diagrams as required. You are free to consult with your colleagues to exchange ideas and promote a deeper understanding of the problem and possible solutions, but beware of plagiarizing their work! See note below.

**Important Note on Plagiarism**

Plagiarism either from your fellow students or directly from the Internet is strictly prohibited. If material from the web is used, you are expected to reference it clearly identifying this in the body of the text and listing it in the “References” section at the end of your report. However merely referencing the item does not grant you the right to plagiarise whole paragraphs. Bulk copying of text, although referenced, will be treated as plagiarism. Any blatant or obvious copying or submission of other students’ work will not be tolerated and will be fully investigated. Appropriate penalties will be imposed subject to the regulations of the University. Remember also that the University regards any student who allows their work to be copied, to be just as guilty as the student who copies it. Copying assignments could result in both parties being discharged from the course.