**LAMP Installation**

**Linux**

1. Using a desktop with Windows 10 Pro Version 1809, enable the Windows subsystem for Linux:
   1. Open a PowerShell as Administrator and run:
   2. Enable-WindowsOptionalFeature -Online -FeatureName Microsoft-Windows-Subsystem-Linux
2. Open the Microsoft Store and choose a Linux distribution. Ubuntu was selected.
3. Open the Ubuntu terminal app after installation. Current build is Ubuntu 18.04.2 LTS with kernel 4.4.0-17763-Microsoft.
4. Upgrade the Operating system with the following commands:
   1. sudo apt update -y
   2. sudo apt upgrade -y
5. Install baseline set of developer tools with the following commands (Optional, depends on needs):
   1. sudo apt install build-essential valgrind -y
   2. sudo apt install openjdk-11-jdk -y
   3. sudo apt install haskell-platform -y
   4. cd /tmp
   5. curl -O <https://repo.anaconda.com/archive/Anaconda3-5.2.0-Linux-x86_64.sh>
   6. bash Anaconda3-5.2.0-Linux-x86\_64.sh

**Apache**

1. Open the Ubuntu terminal app and install Apache using the following commands:
   1. sudo apt install apache2 apache2-utils ssl-cert -y
   2. sudo apt install libapache2-mod-wsgi-py3 -y (For Python integration)
   3. sudo apt install libapache2-mod-php -y (For PHP integration)
2. Start the Apache Web Server.
   1. sudo service apache2 start
   2. Note: WSL requires different syntax than a regular Ubuntu installation
3. Fix error in WSL for warning on failure to enable APR\_TCP\_DEFER\_ACCEPT
   1. Add the following to /etc/apache2/apache2.conf

#

# fix error in WSL (Protocol not available: AH00076: Failed to enable APR\_TCP\_DEFER\_ACCEPT)

# https://github.com/Microsoft/WSL/issues/1953#issuecomment-295370994

#

AcceptFilter http none

AcceptFilter https none

1. Enable apache modules and restart Apache server.
   1. sudo a2enmod wsgi
   2. sudo a2enmod rewrite
   3. sudo service apache2 restart
2. Test basic web page access using the URL <http://localhost>

**MySQL**

1. Install MySQL server
   1. sudo apt install mysql-server
   2. Note: Install fails to prompt for root password as indicated
2. Change the mysql user folder and start the mysql server
   1. sudo usermod -d /var/lib/mysql mysql
   2. sudo service mysql start

**PHP**

1. Install PHP and additional libraries
   1. sudo apt install libapache2-mod-php php php-curl php-gd php-mbstring php-mcrypt php-mysql php-xml php-zip -y