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Spring 2016

## Java Auto Grader

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# **Abstract**

The aim of the project is to develop a “Java Automatic Grader” for java project assignment. It ensures that every assignment or work given to the students is done in the right way. The student should get automatic evaluation after submitting the assignment. We are implementing each test case in such a way that student should only get marks for satisfying all the requirements of the project assignment in fruitful manner i.e. If the student submits the assignment by reaching all the requirements and the expected result is achieved in the right way, then only the student will get full marks.

# Table of Content

<b>1</b>	<b>feature description</b>	<b>1</b>
1.1	Competitive Information	1
1.2	Relationship to other application	1
1.3	Assumptions and Dependencies	1
1.4	Future Enhancements	1
1.5	Definitions and Acronyms	1
<b>2</b>	<b>Technical Description</b>	<b>2</b>
2.1	Application Architecture	2
2.2	Application Information flows	2
2.3	Interactions with other Projects	2
2.4	Interactions with other Applications	2
2.5	Capabilities	3
2.6	Risk Assessment and Management	3
<b>3</b>	<b>Project Requirements</b>	<b>3</b>
3.1	Identification of Requirements	3
3.2	Operations, Administration, Maintenance and Provisioning (OAM&P)	26
3.3	Security and Fraud Prevention	27
3.4	Release and Transition Plan	27
<b>4</b>	<b>Project Design Description</b>	<b>28</b>
<b>5</b>	<b>Internal/external Interface Impacts and Specification</b>	<b>28</b>
<b>6</b>	<b>Project Design Units Impacts</b>	<b>28</b>
6.1	Functional Area A	28
6.1.1	Functional Overview	28
6.1.2	Impacts	28
6.1.3	Requirements	28
6.2	Functional Area B	28
6.2.1	Functional overview	29
6.2.2	Impacts	29
6.2.3	Requirements	29
<b>7</b>	<b>Open Issues</b>	<b>29</b>
<b>8</b>	<b>Acknowledgements</b>	<b>29</b>
<b>9</b>	<b>References</b>	<b>29</b>

## **1 feature description**

In this project we are developing a website with the help of moodle, which will help the teachers and professors in grading student's assignments automatically when they submit the assignment. This will have done based on the test cases written by the professor for each assignment he/she posted on the website.

### **1.1 Competitive Information**

**SWAD** (Shared Workspace at Distance) is the competitor for moodle. But moodle is more user friendly compared to SWAD

### **1.2 Relationship to other application**

This project does not relate any other projects

### **1.3 Assumptions and Dependencies**

Moodle is an open source software, so anyone can make changes to the functionalities of the website and make it better to use.

### **1.4 Future Enhancements**

As of now we are concentrating only on auto grading of the assignments, apart from this the moodle software can offer so many features like a complete blackboard software

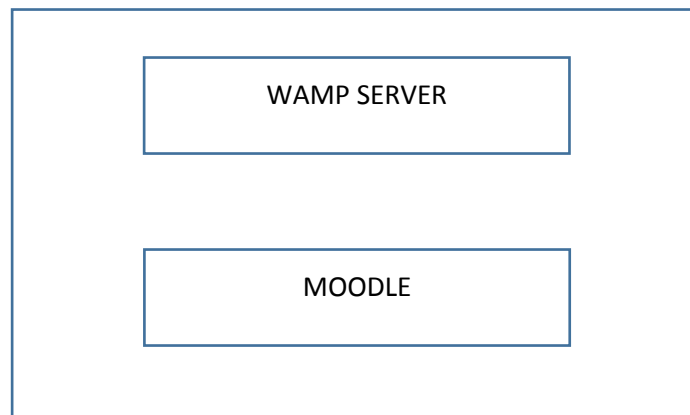
### **1.5 Definitions and Acronyms**

We did not use any acronyms in this project

## 2 Technical Description

### 2.1 Application Architecture

In order to work the moodle software we need WAMP server and moodle server to be installed in the system.



### 2.2 Application Information flows

When the professor posts the assignment then the student must submit it within the deadline by logging through his account, also student can access the resources that are available under the course in which he/she enrolled.

### 2.3 Interactions with other Projects

This project does not interact with any other projects

### 2.4 Interactions with other Applications

This project does not interact with any other applications

## **2.5 Capabilities**

All the plugins must work properly i.e. VPL should be able to add any number of assignments and Junittest plugin must test the programs correctly

## **2.6 Risk Assessment and Management**

The test cases should write in a proper way that any student must awarded with full points if and only if he/she submits the work by fulfilling all the requirements

## **3 Project Requirements**

### **3.1 Identification of Requirements**

This project requires following software to be installed

#### **Moodle Installation:**

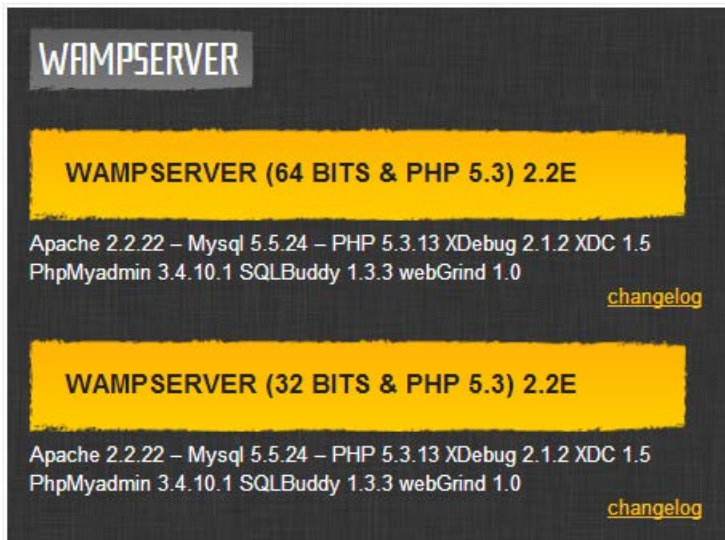
To install moodle we need three things

- 1) WAMP server
- 2) Moodle software
- 3) Visual C++

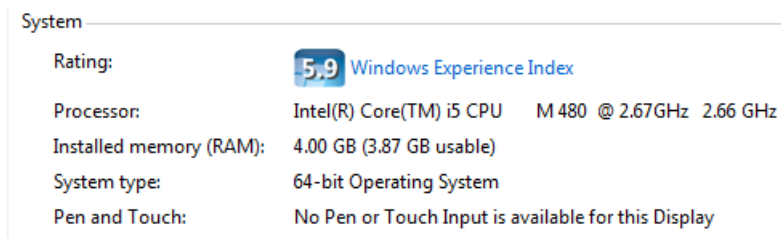
#### **WAMP server installation**

- Downloading WAMP server

Download the installer file for the latest version of WampServer from <http://www.wampserver.com/en/#download-wrapper> , and save the file to your computer



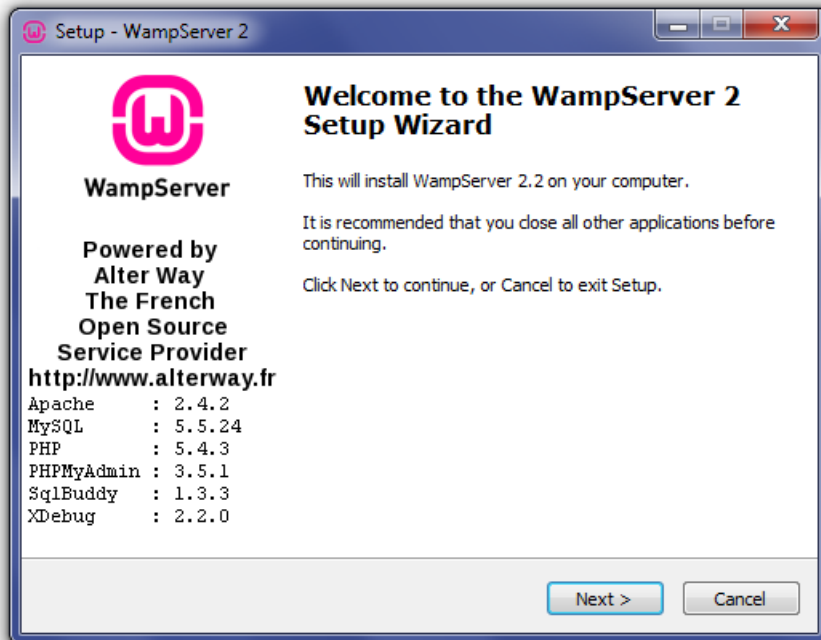
Make sure you select the correct installer file for your version of Windows. If you don't know if your system is 32-bit or 64-bit, **right-click on My Computer**, and then **click Properties**.



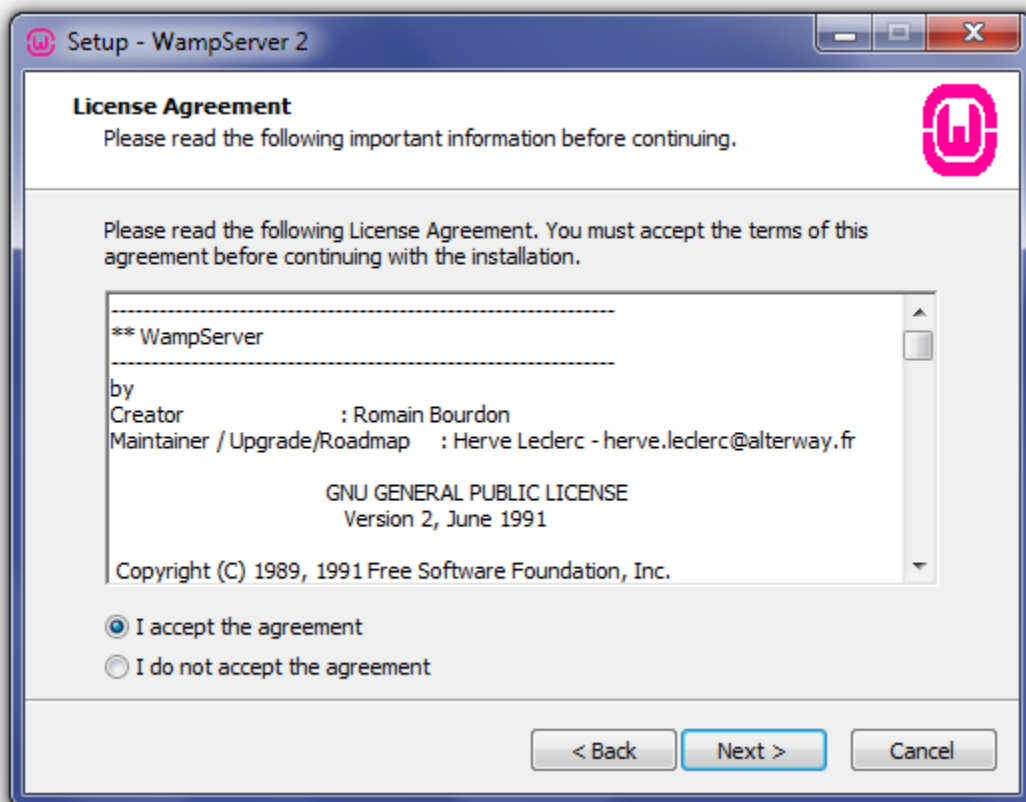
- **Installing WAMP server**

To start the installation process, you need to open the folder where you saved the file, and **double-click the installer file**. A security warning window will open, asking if you are sure you want to run this file. **Click Run** to start the installation process.

Next you will see the Welcome to The WampServer Setup Wizard screen. **Click Next** to continue the installation.

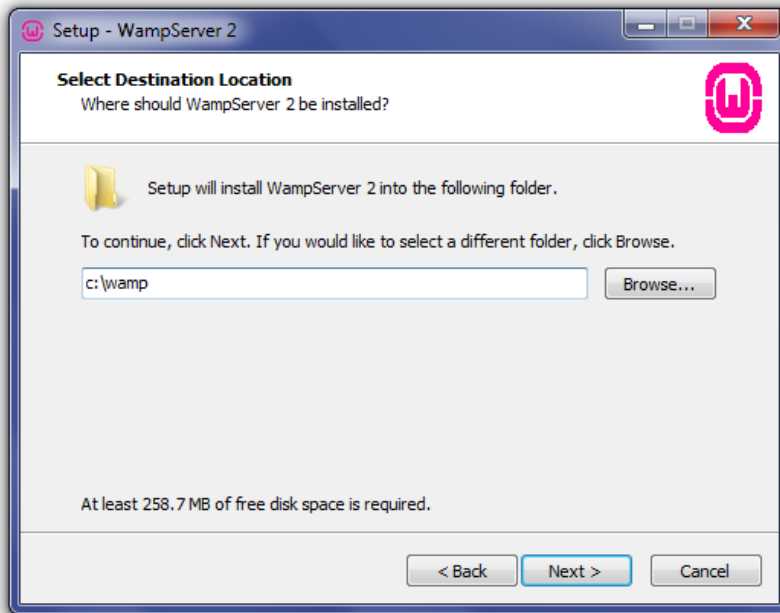


The next screen you are presented with is the License Agreement. Read the agreement, check the radio button next to **I accept the agreement**, then **click Next** to continue the installation.

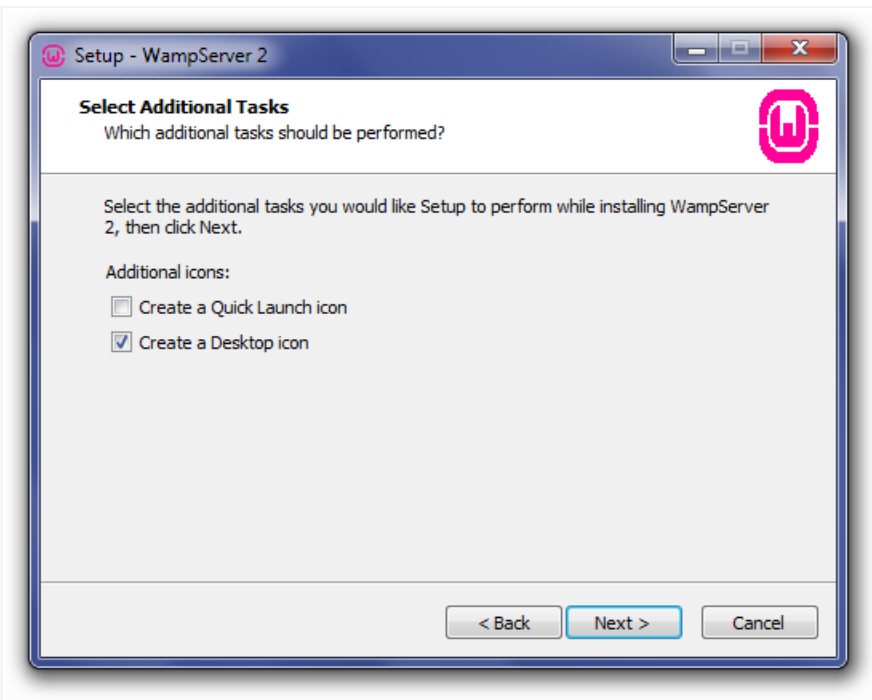




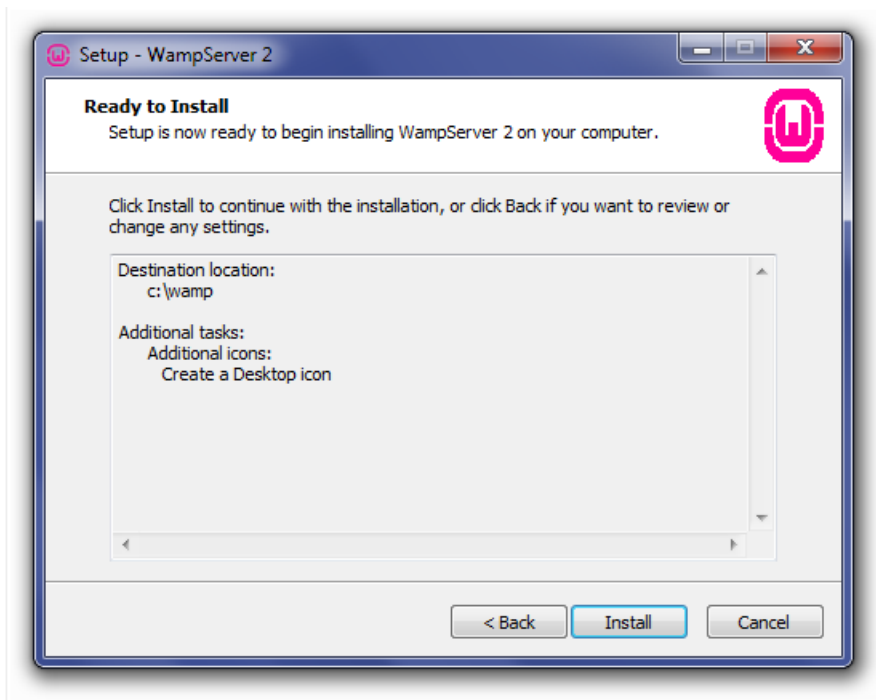
Next you will see the Select Destination Location screen. Unless you would like to install WampServer on another drive, you should not need to change anything. **Click Next** to continue.



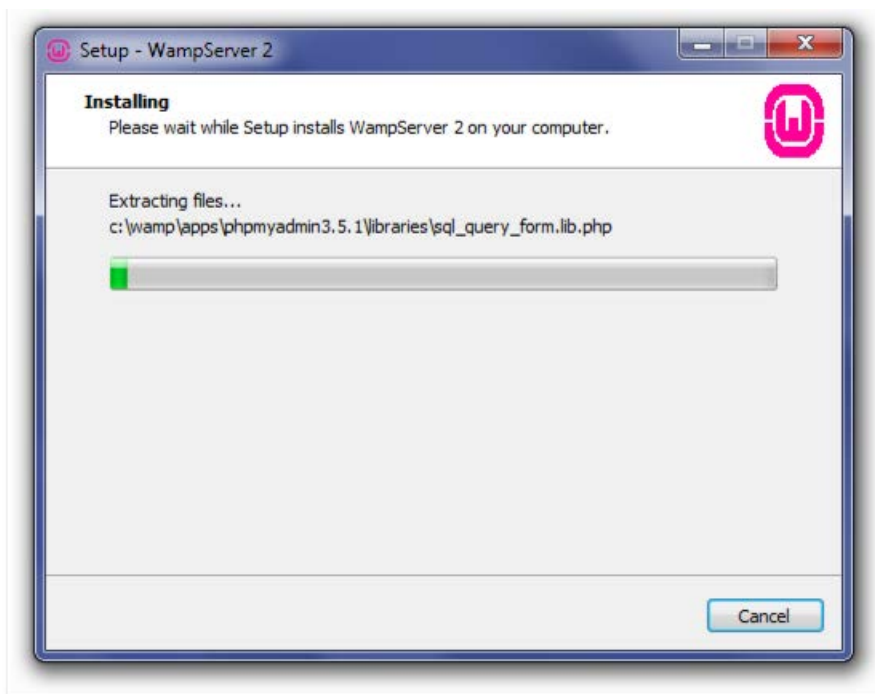
The next screen you are presented with is the Select Additional Tasks screen. You will be able to select whether you would like a Quick Launch icon added to the taskbar or a Desktop icon created once installation is complete. Make your selections, then **click Next** to continue.



Next you will see the Ready to Install screen. You can review your setup choices, and change any of them by **clicking Back** to the appropriate screen, if you choose to. Once you have reviewed your choices, **click Install** to continue.



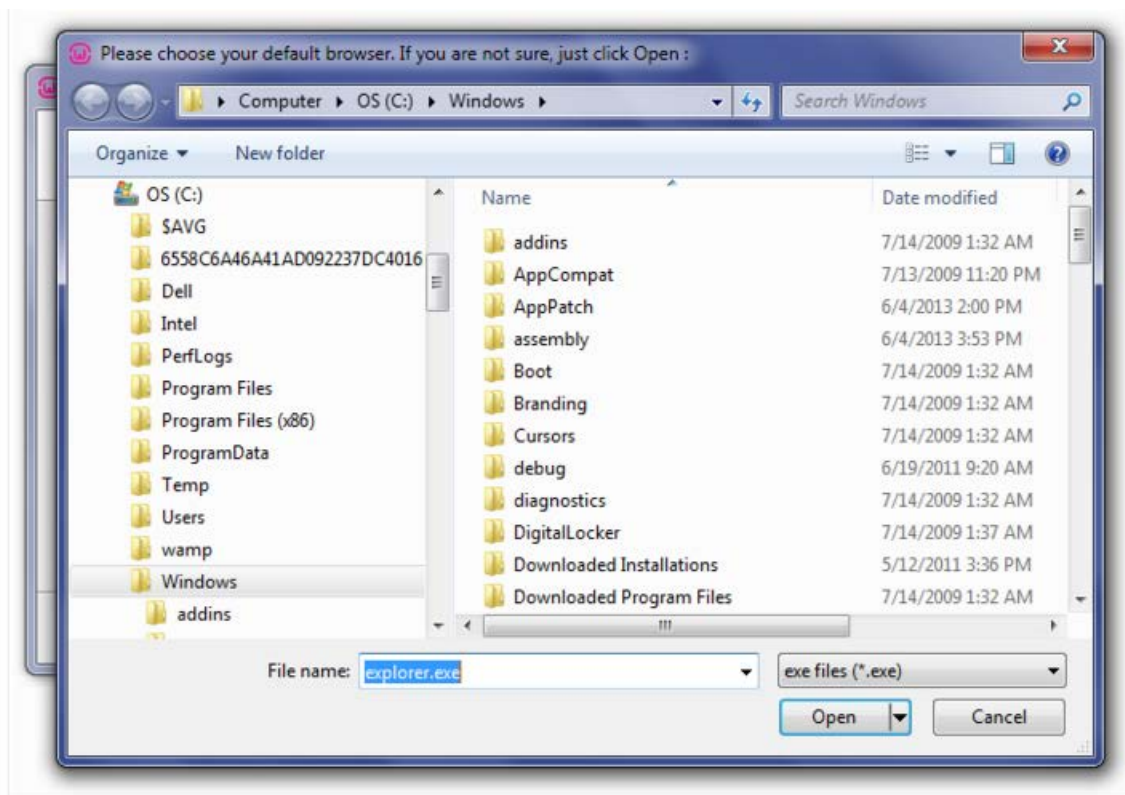
WampServer will begin extracting files to the location you selected.



Once the files are extracted, you will be asked to select your default browser. WampServer defaults to Internet Explorer upon opening the local file browser window. If your default browser isn't IE, then look in the following locations for the corresponding .exe file:

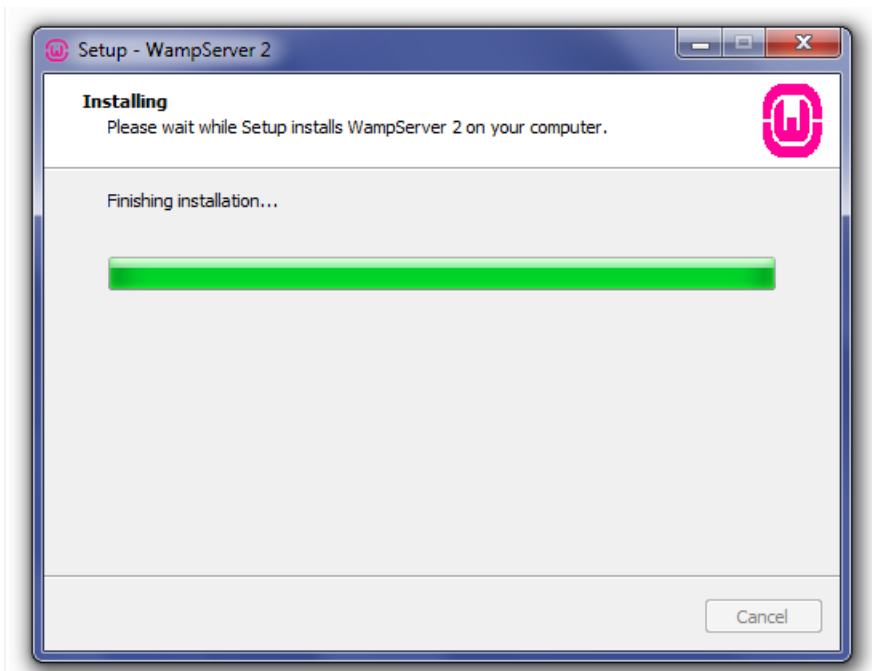
- **Opera:** C:\Program Files (x86)\Opera\opera.exe
- **Firefox:** C:\Program Files (x86)\Mozilla Firefox\firefox.exe
- **Safari:** C:\Program Files (x86)\Safari\safari.exe
- **Chrome:** C:\Users\xxxxx\AppData\Local\Google\Chrome\Application\chrome.exe

Select your default browser's .exe file, then **click Open** to continue.

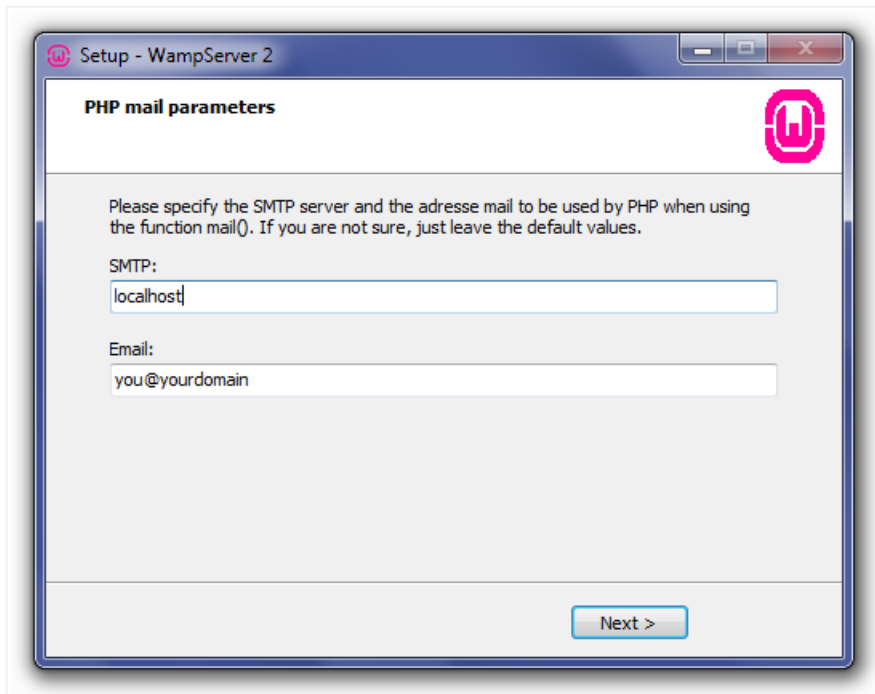


A Windows Security Alert window will open, saying that Windows Firewall has blocked some features of the program. Check whether you want to allow Apache HTTP Server to communicate on a private or public network, then **click Allow Access**.

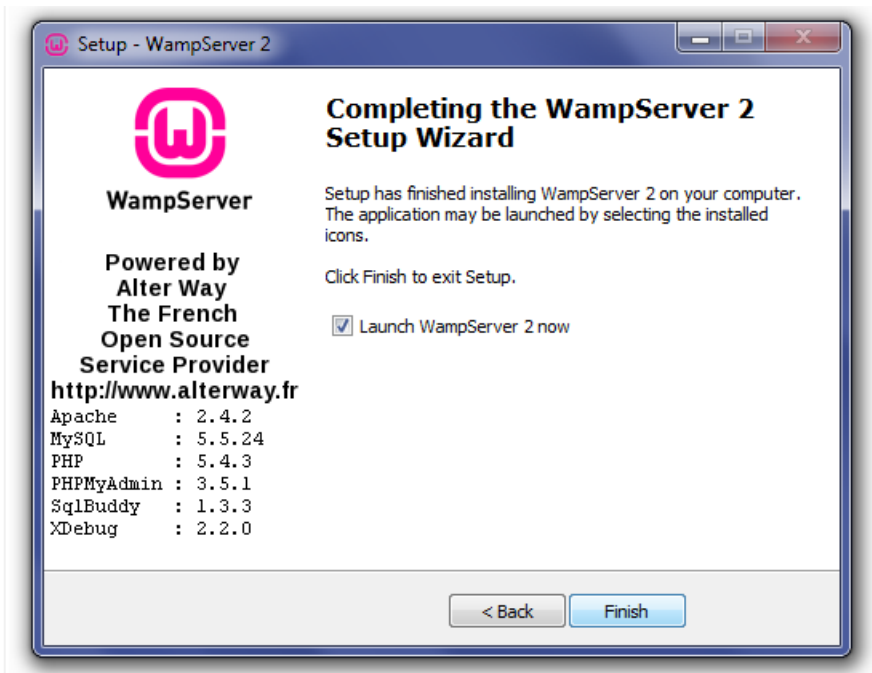
The Setup screen will appear next, showing you the status of the installation process.



Once the progress bar is completely green, the PHP Mail Parameters screen will appear. Leave the SMTP server as **localhost**, and change the email address to one of your choosing. **Click Next** to continue.



The Installation Complete screen will now appear. **Check the Launch WampServer Now** box, then **click Finish** to complete the installation.





## Downloading Microsoft visual C++ redistributable file

Go to <https://www.microsoft.com/en-us/download/details.aspx?id=30679> and download visual C++

### Visual C++ Redistributable for Visual Studio 2012 Update 4

Select Language:  ▼ [Download](#)

The Visual C++ Redistributable Packages install runtime components that are required to run C++ applications built with Visual Studio 2012.

- [+ Details](#)
- [+ System Requirements](#)
- [+ Install Instructions](#)
- [+ Additional Information](#)
- [+ Related Resources](#)

Select the windows version and click on download

Choose the download you want ⊗

<input type="checkbox"/> File Name	Size
<input type="checkbox"/> VSU_4\vc redistrib_x64.exe	6.9 MB
<input type="checkbox"/> VSU_4\vc redistrib_x86.exe	6.3 MB
<input type="checkbox"/> VSU4\vc redistrib_arm.exe	1.4 MB

Download Summary:

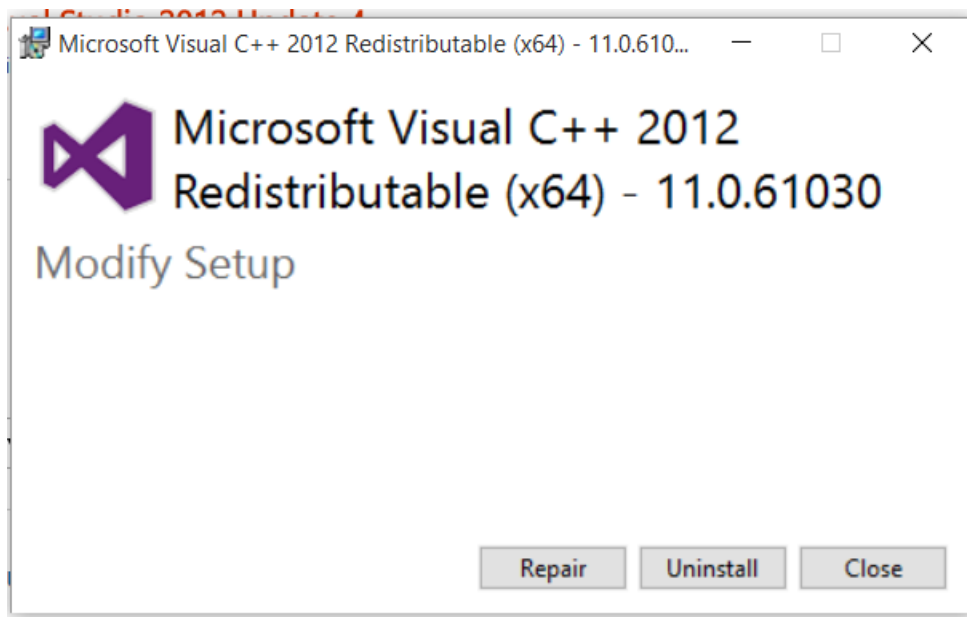
You have not selected any file(s) to download.

---

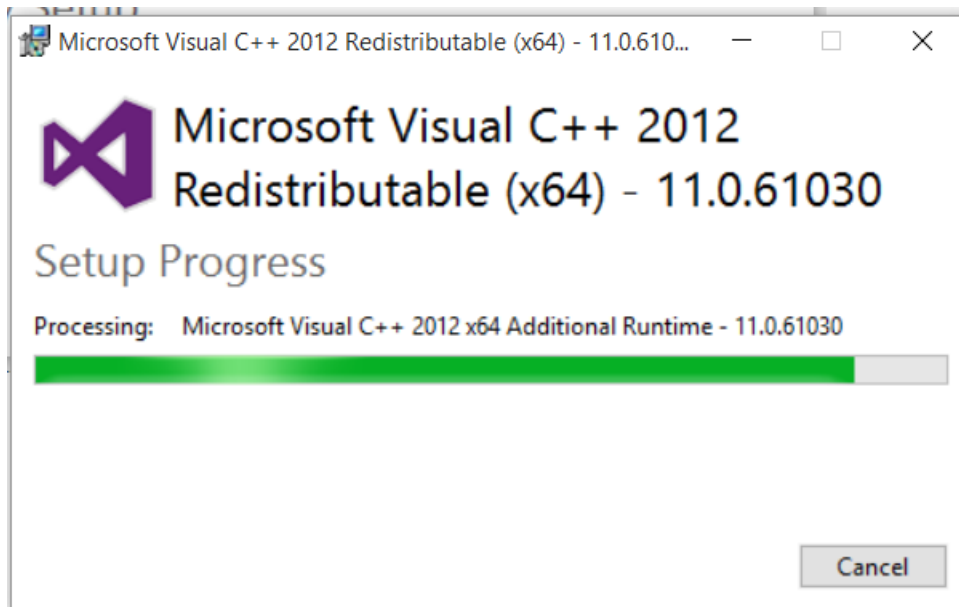
Total Size: 0

Next

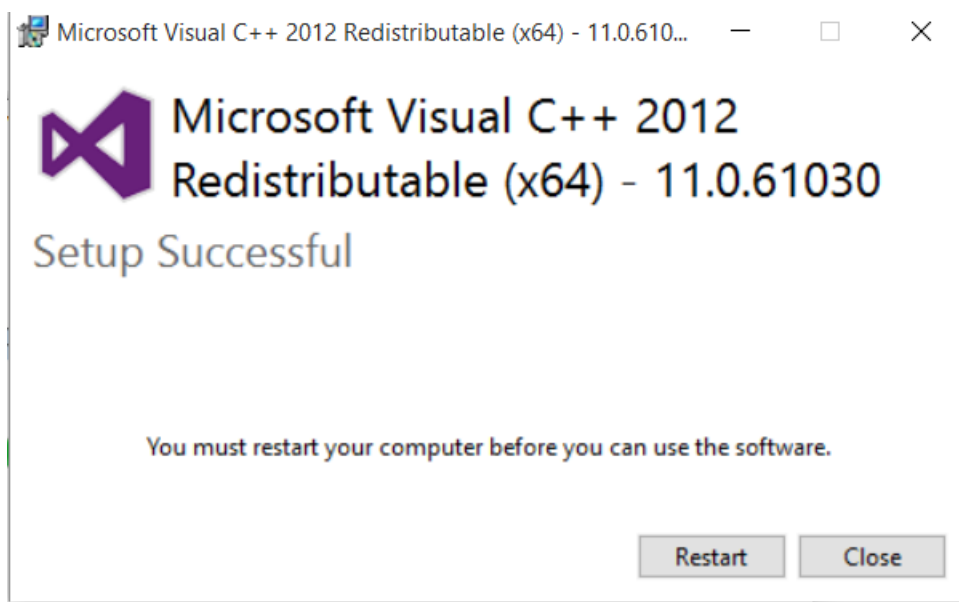
Click on Repair if you already installed it otherwise click install



Installer will begin installing the software

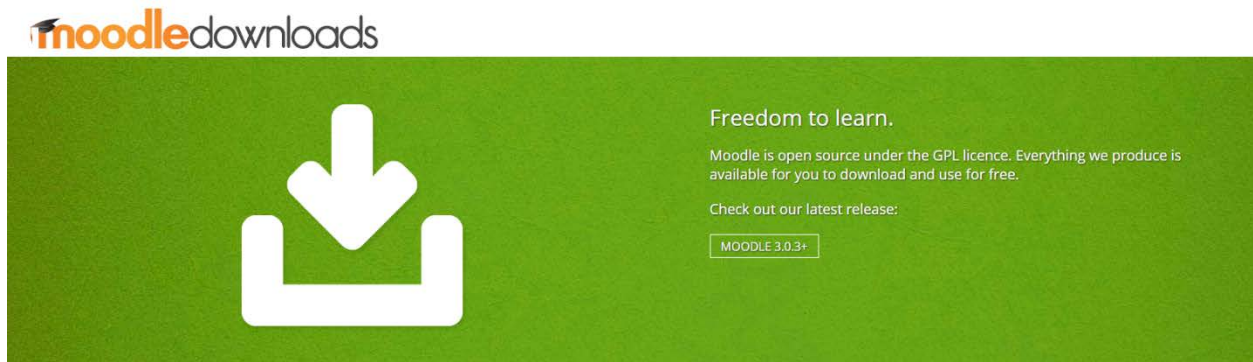


After the installation it will ask to restart the computer click on restart






- **Moodle installation**

Download moodle from [downloads.moodle.org](https://downloads.moodle.org)

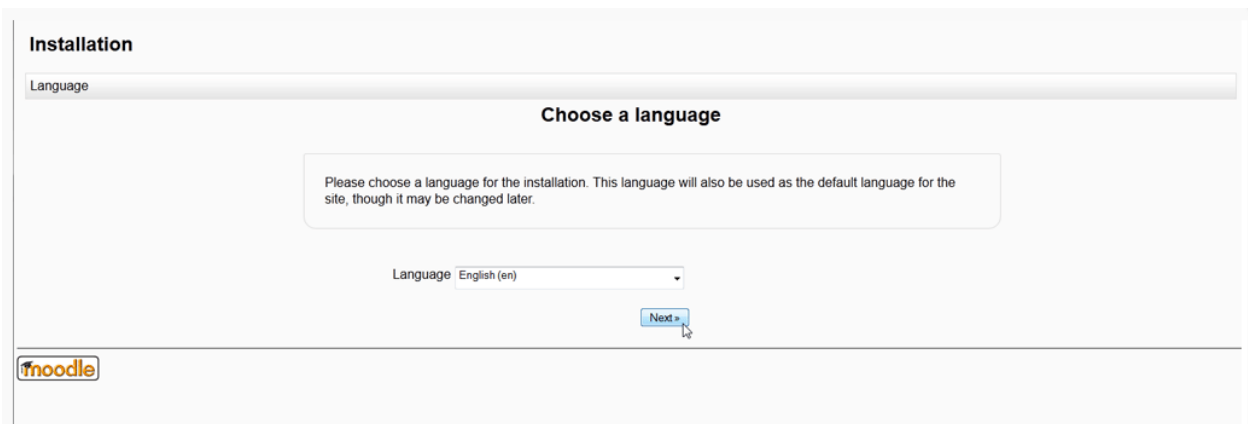


Extract the file and click start moodle

 README	4/16/2016 8:50 AM	Text Document	2 KB
 Start Moodle	4/16/2016 8:50 AM	Application	25 KB
 Stop Moodle	4/16/2016 8:50 AM	Application	16 KB

Enter localhost/moodle in the browser and follow the instructions to set up

Choose language as English



The screenshot shows the Moodle installation interface. At the top left, the word "Installation" is displayed in a bold font. Below it, a horizontal bar contains the word "Language". The main heading in the center is "Choose a language". A text box contains the instruction: "Please choose a language for the installation. This language will also be used as the default language for the site, though it may be changed later." Below this text box, there is a dropdown menu labeled "Language" with "English (en)" selected. To the right of the dropdown is a blue button labeled "Next >". In the bottom left corner, the Moodle logo is visible.

**Confirm paths**

The next screen will prompt you to Confirm the installation paths for the Moodle installation. The **Web Address** and the **Moodle directory** should be set by the install script by default. The **Data Directory** Will be set as well; except it can be changed if you want the installation in a different directory location on your server. Leave the default paths and click **Next**.

**Web address**  
Full web address where Moodle will be accessed. It's not possible to access Moodle using multiple addresses. If your site has multiple public addresses you must set up permanent redirects on all of them except this one. If your site is accessible both from Intranet and Internet use the public address here and set up DNS so that the Intranet users may use the public address too. If the address is not correct please change the URL in your browser to restart installation with a different value.

**Moodle directory**  
Full directory path to Moodle installation.

**Data directory**  
You need a place where Moodle can save uploaded files. This directory should be readable AND WRITEABLE by the web server user (usually 'nobody' or 'apache'), but it must not be accessible directly via the web. The installer will try to create it if doesn't exist.

Web address

Moodle directory

Data directory

## Database settings

Use the Database settings that were set on **step 3 Create the Database for the Installation**. Enter the database name, username, and password. Leave the table prefix as is as this is set for the database table names. Leave the **Unix Socket** setting unchecked and click **Next**.

**Installation**

Database

**Database settings**

**Improved MySQL (native/mysqli)**

Now you need to configure the database where most Moodle data will be stored. Database may be created if database user has needed permissions, username and password must already exist. Table prefix is optional.

Database host


Database name

Database user

Database password

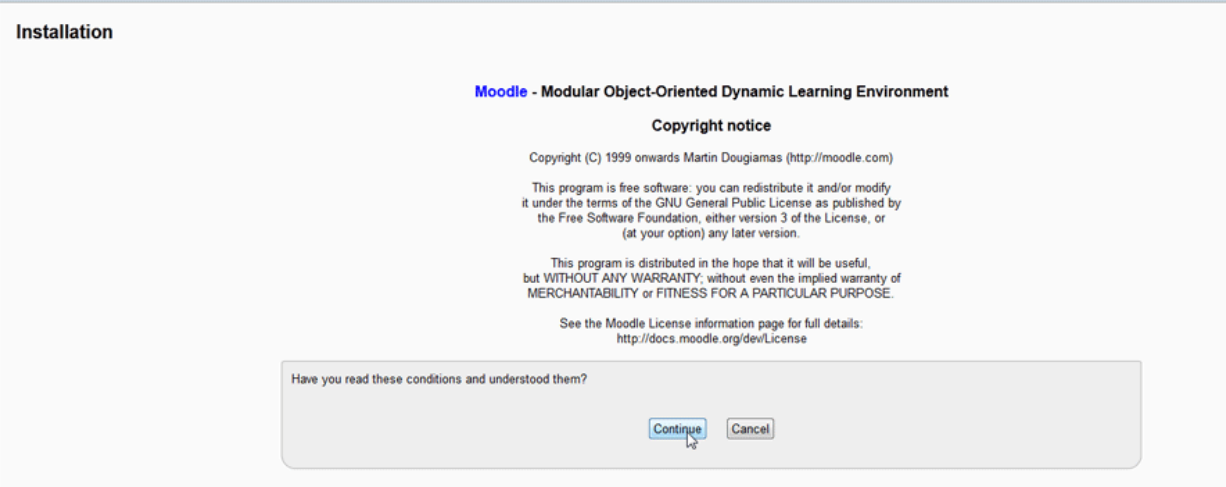
Tables prefix

Unix socket



**Copyright notice**

This page is for accepting the General Public License. Select **Continue** to go to the next install screen.



The screenshot shows a web-based installation window titled "Installation". The main heading is "Moodle - Modular Object-Oriented Dynamic Learning Environment". Below this is a "Copyright notice" section. The text includes copyright information for Martin Dougiamas, a statement that the software is free and distributed under the GNU General Public License, and a disclaimer of warranty. At the bottom, there is a question: "Have you read these conditions and understood them?". Two buttons, "Continue" and "Cancel", are positioned below the question. A mouse cursor is hovering over the "Continue" button.

**Installation**

**Moodle - Modular Object-Oriented Dynamic Learning Environment**

**Copyright notice**

Copyright (C) 1999 onwards Martin Dougiamas (<http://moodle.com>)

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This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.

See the Moodle License information page for full details:  
<http://docs.moodle.org/dev/License>

Have you read these conditions and understood them?

## Server checks

It checks for the required settings



For information about this version of Moodle, please see the online [Release Notes](#)

### Server checks

Name	Information	Report	Status
php_extension	mbstring	<p>① should be installed and enabled for best results</p> <p>Installing the optional MBSTRING library is highly recommended in order to improve site performance, particularly if your site is supporting non-Latin languages.</p>	Check
php_extension	xmlrpc	<p>① should be installed and enabled for best results</p> <p>The xmlrpc extension is needed for hub communication, and useful for web services and Moodle networking</p>	Check
php_extension	intl	<p>① should be installed and enabled for best results</p> <p>the extension is used to improve internationalization support, such as locale aware sorting</p>	Check
unicode		<p>① must be installed and enabled</p>	OK
database	mysql	<p>① version 5.1.33 is required and you are running 5.1.63</p>	OK
php		<p>① version 5.3.2 is required and you are running 5.3.17</p>	OK
pcreunicode		<p>① should be installed and enabled for best results</p>	OK
php_extension	iconv	<p>① must be installed and enabled</p>	OK
php_extension	curl	<p>① must be installed and enabled</p>	OK
php_extension	openssl	<p>① should be installed and enabled for best results</p>	OK
php_extension	tokenizer	<p>① should be installed and enabled for best results</p>	OK
php_extension	soap	<p>① should be installed and enabled for best results</p>	OK
php_extension	ctype	<p>① must be installed and enabled</p>	OK
php_extension	zip	<p>① must be installed and enabled</p>	OK
php_extension	gd	<p>① should be installed and enabled for best results</p>	OK
php_extension	simplexml	<p>① must be installed and enabled</p>	OK
php_extension	spl	<p>① must be installed and enabled</p>	OK
php_extension	pcre	<p>① must be installed and enabled</p>	OK
php_extension	dom	<p>① must be installed and enabled</p>	OK
php_extension	xml	<p>① must be installed and enabled</p>	OK
php_extension	json	<p>① must be installed and enabled</p>	OK
php_extension	hash	<p>① must be installed and enabled</p>	OK
php_setting	memory_limit	<p>① recommended setting detected</p>	OK
php_setting	safe_mode	<p>① recommended setting detected</p>	OK
php_setting	file_uploads	<p>① recommended setting detected</p>	OK

Your server environment meets all minimum requirements.

[Continue](#)

## Server Installation

After the **Continue** button is clicked on the Server Checks Screen, the install script will show a list of tables that are set up for the database. Each should say **Success** in green font. When Finished Click **Continue**. The Administration set up screen will load for setting up the main administrator account. Once completed setting the administrator, click **Update Profile**.

**Installation** You are logged in as Admin User (Logout)

On this page you should configure your main administrator account which will have complete control over the site. Make sure you give it a secure username and password as well as a valid email address. You can create more admin accounts later on.

**General**

**Username\***

Choose an authentication method  Manual accounts

**New password\***   Unmask

**Force password change**

**First name\***

**Surname\***

**Email address\***

Email display

Email format

Email digest type

Forum auto-subscribe

When editing text

Screen reader

**City/town\***

**Select a country\***

Timezone

Preferred language

Description

Moodle auto-format

**Optional**

Web page

ICQ number

Skype ID

AIM ID

Yahoo ID

MSN ID

ID number

Institution

Department

Phone

Mobile phone

Address

There are required fields in this form marked \*.

## Finishing the installation

**My Moodle** You are logged in as Admin User (Logout)

---

**Navigation**

**Home**

- My home
- Site pages
- My profile
- Courses

**Settings**

▼ Front page settings

- Turn editing on
- Edit settings
- Users
- Filters
- Backup
- Restore
- Question bank


▸ My profile settings

▸ Site administration

**Available courses**

**No courses in this category**

You are logged in as Admin User (Logout)



**How to set up Moodle on my server.**

**Calendar**

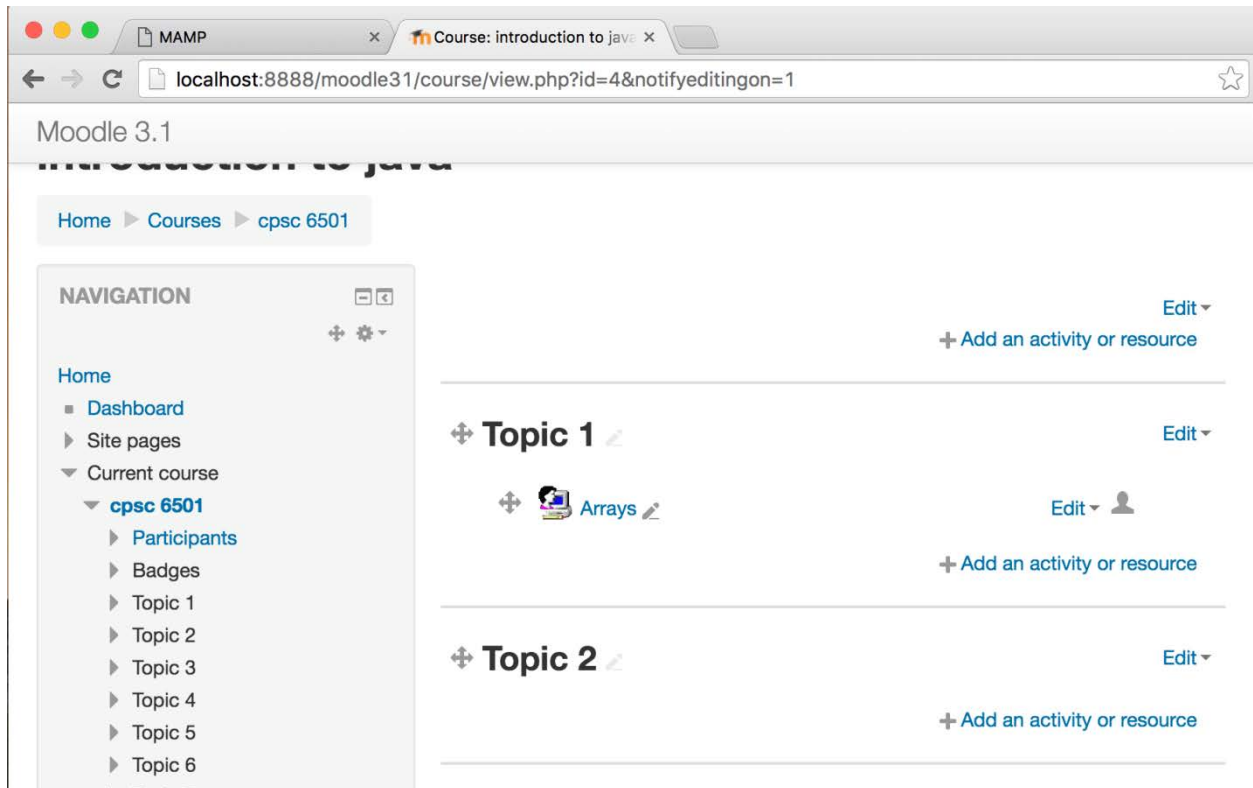
◀ October 2012 ▶

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

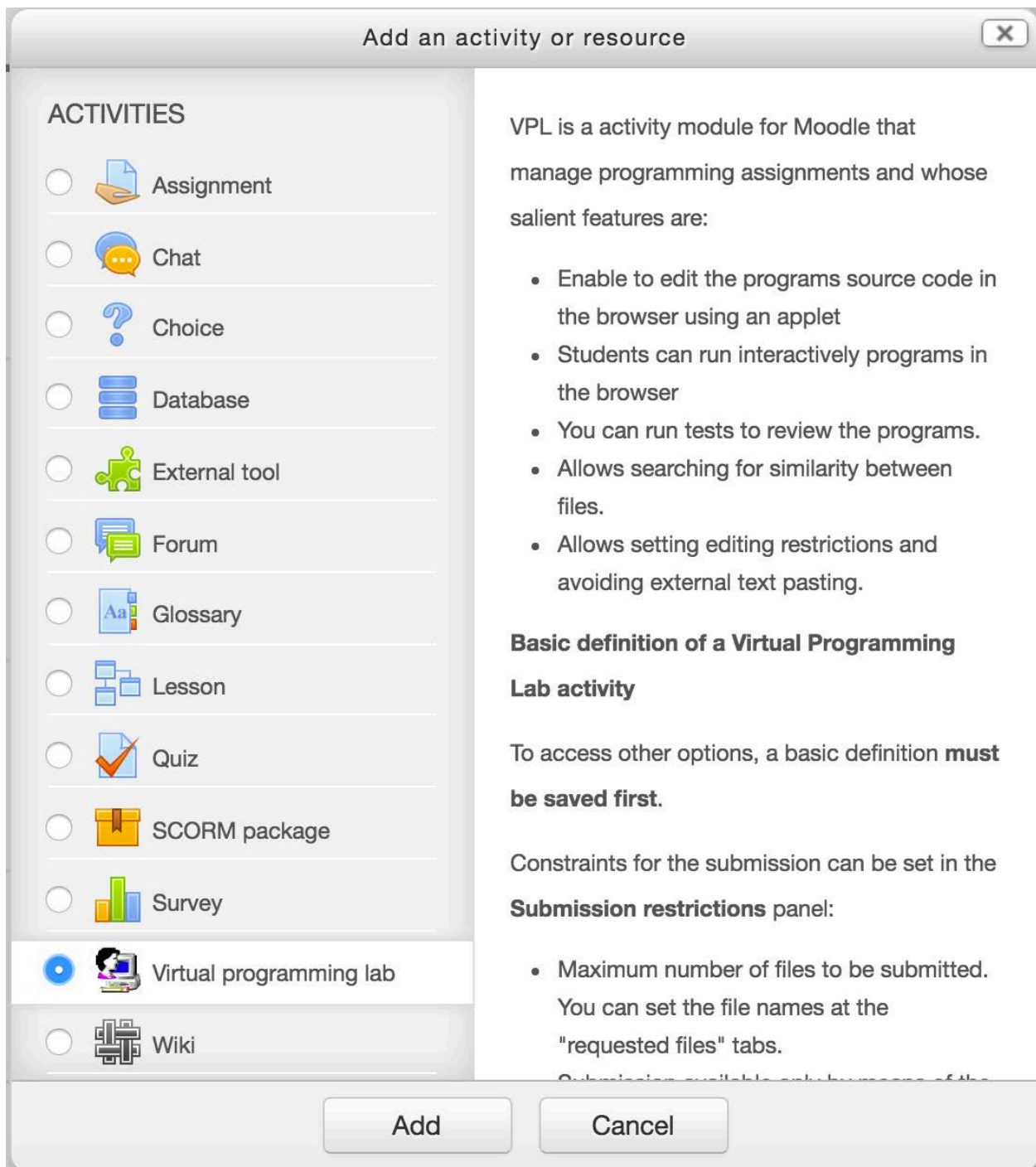
## Creating Assignment Using VPL

Select the course you want to add assignment and follow these steps

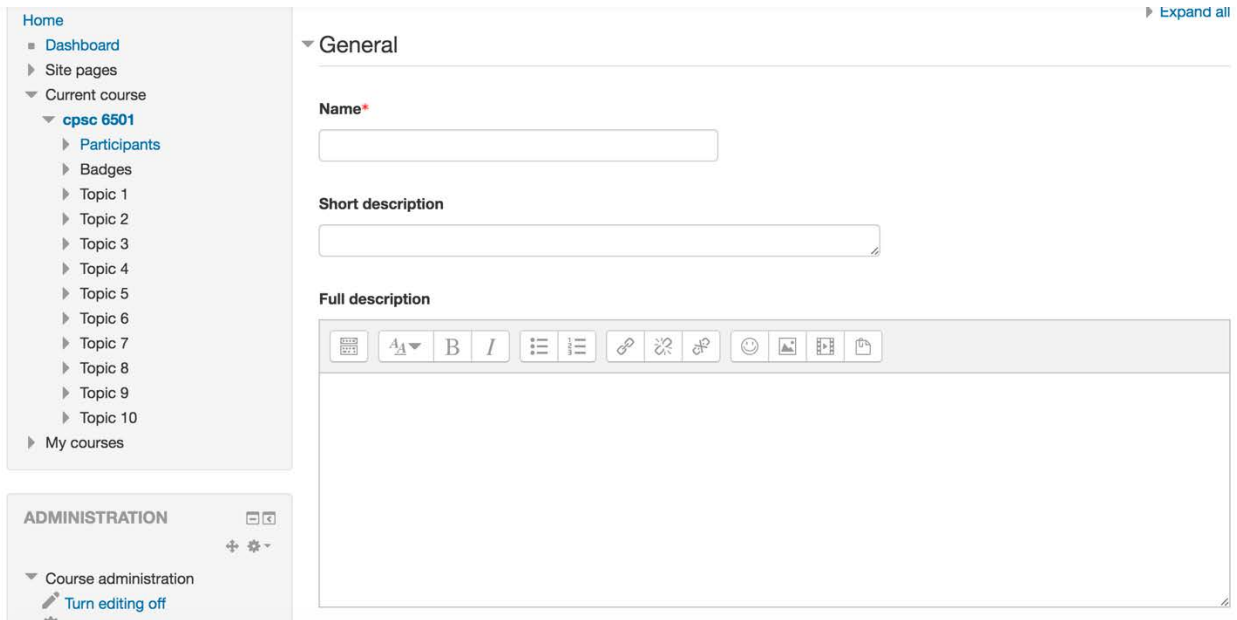
Click on add activity or resource



select virtual programming lab and click on add



enter the details of the activity like Name and Description



### 3.2 Operations, Administration, Maintenance and Provisioning (OAM&P)

Regular back up and maintenance is performed at regular intervals to ensure that the website is working in the desired mechanism

### 3.3 Security and Fraud Prevention

All the users must change their passwords at regular intervals to ensure that the account is secured and no other person is using it.

### 3.4 Release and Transition Plan

After the completion of the project the software has to be installed in the client machine and follow the procedure.

## **4 Project Design Description**

WAMP server acts as a localhost to your machine. In that WAMP server you need to add your moodle project by copying the moodle folder to the www folder of the WAMP server file folder.

## **5 Internal/external Interface Impacts and Specification**

we need to install two plugins to accomplish project requirement. VPL used to post assignments to the course and Junittest to test the java assignments. These two plugins are available in the moodle website.

## **6 Project Design Units Impacts**

### **6.1 Functional Area A**

#### **6.1.1 Functional Overview**

WAMP server acts as a source machine to the moodle which is nothing but a platform to the moodle

#### **6.1.2 Impacts**

we need to start WAMP server before opening moodle

#### **6.1.3 Requirements**

system must have 500 MB RAM and 50 GB hard disk space to install the WAMP server

### **6.2 Functional Area B**

### **6.2.1 Functional overview**

Moodle provides platform for online Learning Management System used in universities and educational institutes

### **6.2.2 Impacts**

provides useful software which is easy to navigate and user friendly

### **6.2.3 Requirements**

First we need to install WAMP server and then visual C++ redistributable file to work moodle

## **7 Open Issues**

The test cases must be written in a proper way so that any student cannot get full marks if he does not meet the requirement

## **8 Acknowledgements**

As moodle is open source software so many developers modified the code and made it simple to use

## **9 References**

Moodle (n.d.) Retrieved January 25<sup>th</sup>, 2016 from <http://www.moodle.org>

WAMP server (n.d.) Retrieved January 25<sup>th</sup>, 2016 from <http://www.wampserver.com>