Terna Engineering College
Computer Engineering Department

Program: Sem V

Course: Web Technology Laboratory (CSL504)

Faculty: Mrs Reshma Koli

LAB Manual

PART A

(PART A: TO BE REFERRED BY STUDENTS)

Experiment No.06

A.1 Aim:

- Web Server Installation
- Installation and Setting of XAMPP/WAMPP

A.2 Prerequisite:

1. Knowledge of the World Wide Web (WWW).
2. Knowledge of core concepts of web technology.
3. Knowledge of XML and XSL.
4. Concept of Web Client and Server.

A.3 Outcome:

After successful completion of this experiment students will be able to

- Understand installation of web servers available.

A.4 Theory:

Definition:

- Web server is a computer where the web content is stored. Basically a web server is used to host the web sites but there exists other web servers also such as gaming, storage, FTP, email etc.
- Web site is a collection of web pages while a web server is software that responds to the request for web resources.

Web Server Working

- Web server respond to the client request in either of the following two ways:
  - ➔ Sending the file to the client associated with the requested URL.
  - ➔ Generating response by invoking a script and communicating with the database.
- When a client sends a request for a web page, the web server searches for the requested page. If the requested page is found then it will send it to the client with an HTTP response.
- If the requested web page is not found, the web server will then send an HTTP response: Error 404 Not found.
- If a client has requested for some other resources then the web server will contact the application server and data store to construct the HTTP response.

Architecture

- Web Server Architecture follows the following two approaches:
  - ➔ Concurrent Approach
  - ➔ Single-Process-Event-Driven Approach

Concurrent Approach

- Concurrent approach allows the web server to handle multiple client requests at the same time. It can be achieved by following methods:
  - ➔ Multi-process
  - ➔ Multi-threaded
  - ➔ Hybrid method.
  - ➔ Multi-processing

- **Multi-process**
  - ➔ In this a single process (parent process) initiates several single-threaded child processes and distributes incoming requests to these child processes. Each of the child processes is responsible for handling single requests.
  - ➔ It is the responsibility of the parent process to monitor the load and decide if processes should be killed or forked.

- **Multi-threaded**
  ➔ Unlike Multi-process, it creates multiple single-threaded processes.
- **Hybrid**
  ➔ It is a combination of the above two approaches. In this approach multiple processes are created and each process initiates multiple threads. Each of the threads handles one connection. Using multiple threads in a single process results in fewer loads on system resources.

Examples

Following table describes the most leading web servers available today:

S.N.	Web Server Description
1	Apache HTTP Server This is the most popular web server in the world developed by the Apache Software Foundation. Apache web server is an open source software and can be installed on almost all operating systems including Linux, UNIX, Windows, FreeBSD, Mac OS X and more. About 60% of the web server machines run the Apache Web Server.
2.	Internet Information Services (IIS) The Internet Information Server (IIS) is a high performance Web Server from Microsoft. This web server runs on Windows NT/2000 and 2003 platforms (and may be on the upcoming new Windows version also). IIS comes bundled with Windows NT/2000 and 2003; Because IIS is tightly integrated with the operating system so it is relatively easy to administer it.
3.	Lighttpd The lighttpd, pronounced lighty, is also a free web server that is distributed with the FreeBSD operating system. This open source web server is fast, secure and consumes much less CPU power. Lighttpd can also run on Windows, Mac OS X, Linux and Solaris operating systems.
4.	Sun Java System Web Server This web server from Sun Microsystems is suited for medium and large web sites. Though the server is free it is not open source. It however, runs on Windows, Linux and UNIX platforms. The Sun Java System web server supports various languages, scripts and technologies required for Web 2.0 such as JSP, Java Servlets, PHP, Perl, Python, and Ruby on Rails, ASP and Coldfusion etc.

5.	Jigsaw Server Jigsaw (W3C's Server) comes from the World Wide Web Consortium. It is open source and free and can run on various platforms like Linux, UNIX, Windows, and Mac OS X Free BSD etc. Jigsaw has been written in Java and can run CGI scripts and PHP programs.

XAMPP Server:

- XAMPP stands for Cross-Platform (X), Apache (A), MySQL (M), PHP (P) and Perl (P). It is a simple, lightweight Apache distribution that makes it extremely easy for developers to create a local web server for testing purposes. Everything you need to set up a web server – server application (Apache), database (MySQL), and scripting language (PHP) – is included in a simple extractable file. XAMPP is also cross-platform, which means it works equally well on Linux, Mac and Windows. Since most actual web server deployments use the same components as XAMPP, it makes transitioning from a local test server to a live server extremely easy as well.
- XAMPP has four primary components. These are:
    1. **Apache:** Apache is the actual web server application that processes and delivers web content to a computer. Apache is the most popular web server online, powering nearly 54% of all websites.
    2. **MySQL:** Every web application, however simple or complicated, requires a database for storing collected data. MySQL, which is open source, is the world's most popular database management system. It powers everything from hobbyist websites to professional platforms like WordPress.
    3. **PHP:** PHP stands for Hypertext Preprocessor. It is a server-side scripting language that powers some of the most popular websites in the world, including WordPress and Facebook. It is open source, relatively easy to learn, and works perfectly with MySQL, making it a popular choice for web developers.
    4. **Perl:** Perl is a high-level, dynamic programming language used extensively in network programming, system admin, etc. Although less popular for web development purposes, Perl has a lot of niche applications.
- Different versions of XAMPP may have additional components such as phpMyAdmin, OpenSSL, etc. to create full-fledged web servers.

Wamp Server

Introduction

- WAMP is a Windows OS based program that installs and configures Apache web server, MySQL database server, PHP scripting language, phpMyAdmin (to manage MySQL database), and SQLiteManager (to manage SQLite database). WAMP is designed to offer an easy way to install Apache, PHP and MySQL packages with an easy to use installation program instead of having to install and configure everything yourself. WAMP is so easy because once it is installed it is ready to go. You don't have to do any additional configuring or tweaking of any configuration files to get it running.

Wamp Server Contains

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1. **PHP Admin**

Allows you to change or add users and for making a new database phpMyAdmin is a free software tool written in PHP, intended to handle the administration of MySQLover the World Wide Web. phpMyAdmin supports a wide range of operations with MySQL. The most frequently used operations are supported by the user interface (managing databases, tables, fields, relations, indexes, users, permissions, etc), while you still have the ability to directly execute any SQL statement.

2. **Apache**

Apache Server deals with Server Side Includes, usually called simply SSI. In this article, I'll talk about configuring your server to permit SSI, and introduce some basic SSI techniques for adding dynamic content to your existing HTML pages.

3. **SQL Server and Database System**

SQL Server is a relational database management system from Microsoft that's designed for the enterprise environment. SQL Server runs on T-SQL (Transact -SQL), a set of programming extensions from Sybase and Microsoft that add several features to standard SQL, including transaction control, exception and error handling, row processing, and declared variables.

- PHP And XAMPP Server(Local Web Server)

➔ PHP is a server-side scripting language for producing dynamic Web pages.
➔ PHP was originally created by Rasmus Lerdorf in 1995.
➔ The full-form of PHP is a recursive name i.e. PHP Hypertext Preprocessor.
➔ PHP programs can be run under various themes like WAMP, XAMPP etc.

- **WAMP Server:** this server is a web development platform which helps in creating dynamic web applications.
- **XAMPP Server:** It is a free open source cross-platform web server package.

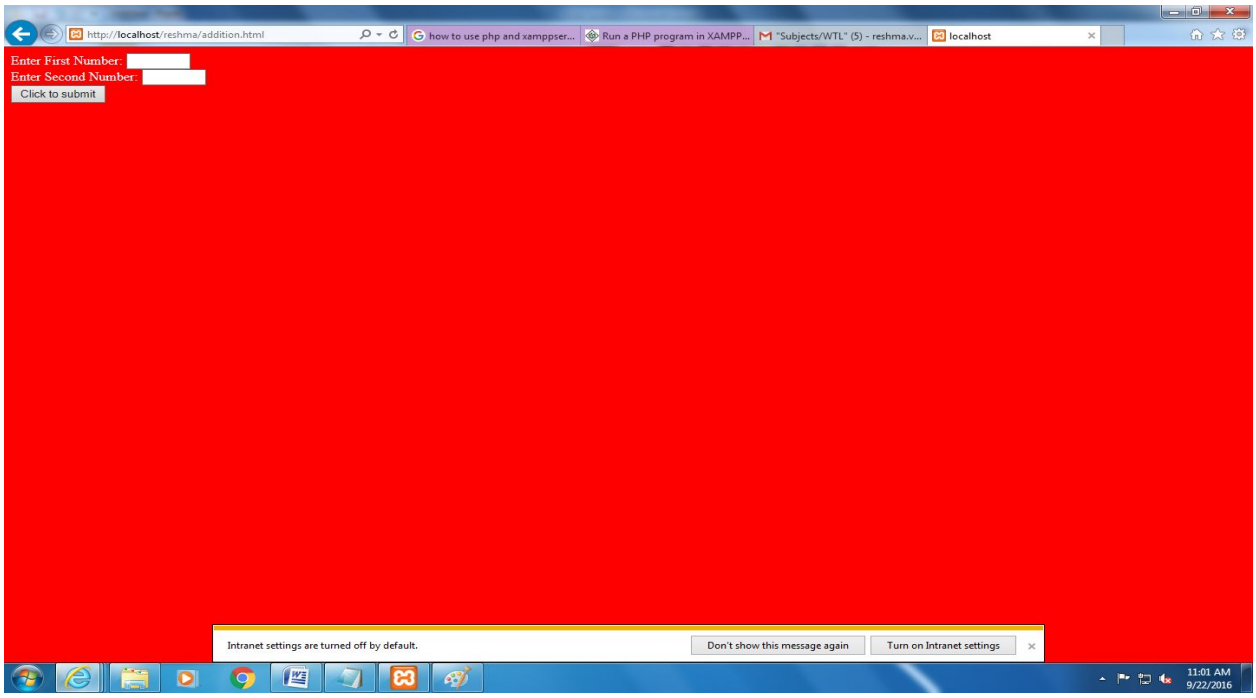
Here we are using XamppServer to run my program, you can download it from

The following link
http://www.apachefriends.org/en/xampp-windows.html
after downloading, just follow the following step to start xampp server:

- **Step1**
  - ➔ Install XAMPP.
- **Step2**
  - ➔ Assume you installed xampp in C Drive.
    Go to: C:\xampp\htdocs
  - ➔ Create your own folder; name it for example as tutorials point.
- **Step3**
  - ➔ Now create your first php program in xampp and name it as “add.php”:

```
<html>
<head><title>Addition php</title></head>
<body>

<?php
        # operator
        print "<h2>php program to add two numbers...</h2><br />";
              $val1 = 20;
              $val2 = 20;
              $sum = $val2 + $val2;    /* Assignment operator */
              echo "Result(SUM): $sum";
?>

</body>
</html>
```

OR **Addition.html**

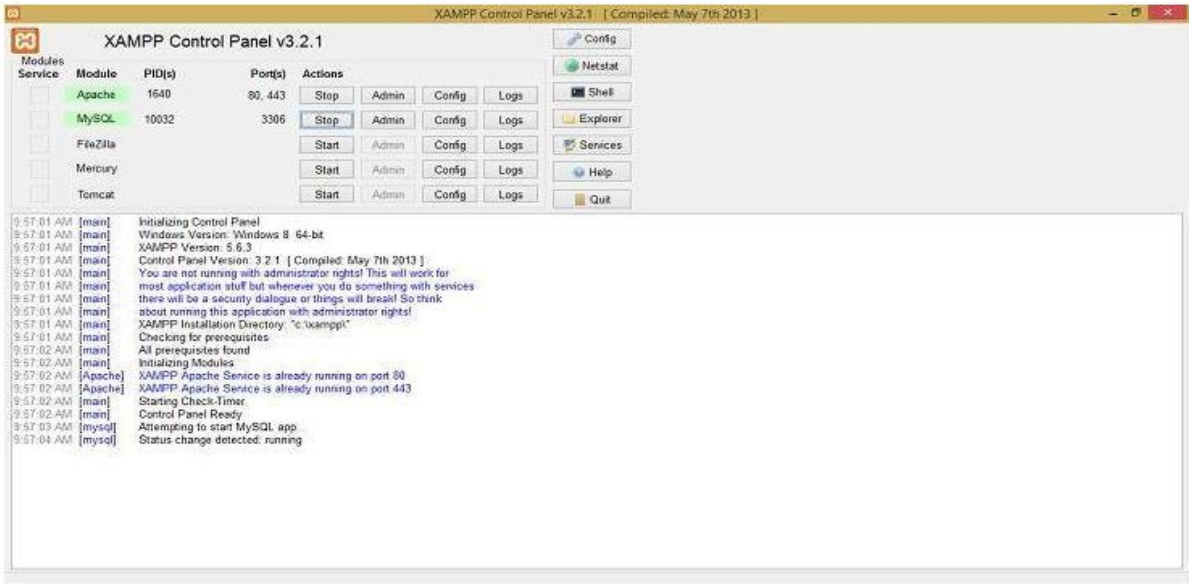


- **Addition.php**

```
<html>

<head></title></head>

<body  bgcolor="red"  text="white">

<?php

$n1=$_POST['number1'];

$n2=$_POST['number2'];

print "<h2>php program to add two numbers...</h2><br />";

$sum = $n1 + $n2;   /* Assignment operator */

echo "Addition of two number (SUM): $sum";

?>

</body>

</html>
```

Step4

Now double click on "**XAAMP CONTROL PANEL**" on desktop and START "**Apache**" (icon also appears on the bottom)

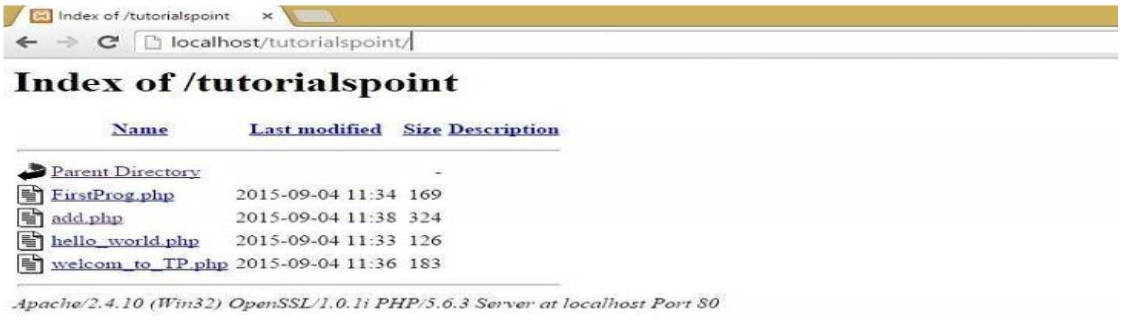


Step5

Type **localhost** on your browser and press enter:
It will show the following:

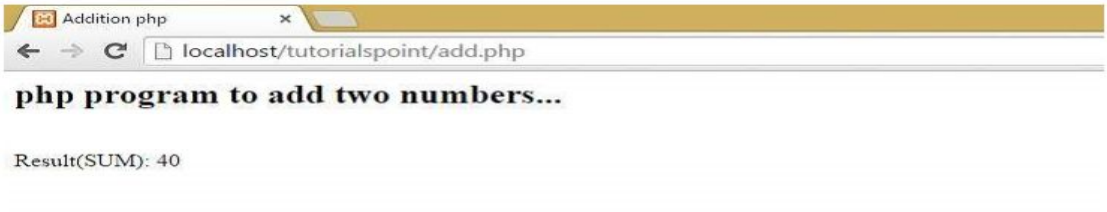
Step6

Now type the following on browser:
http://localhost/tutorialspoint/
Below screenshot shows php files created under folder "tutorialspoint"



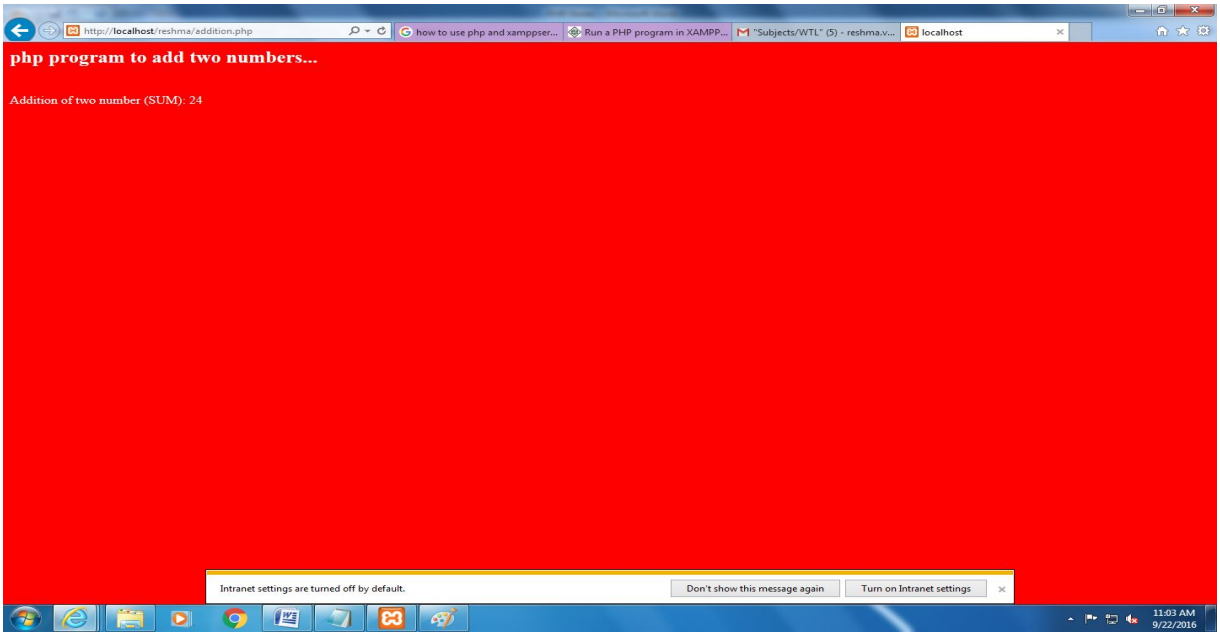
Step7

Click on "**add.php**" and it will show the following:



The RESULT is 40 by adding both the values.
This way you can run your php program in XAMPP server...

Output:



PART B

(PART B: TO BE COMPLETED BY STUDENTS)

(Students must submit the soft copy as per following segments within two hours of the practical. The soft copy must be uploaded on the Blackboard or emailed to the concerned lab in charge faculties at the end of the practical in case the there is no Blackboard access available)

Roll No. 50	Name: Amey Thakur
Class: TE-Comps B	Batch: B3
Date of Experiment: 21/08/2020	Date of Submission: 21/08/2020
Grade :	

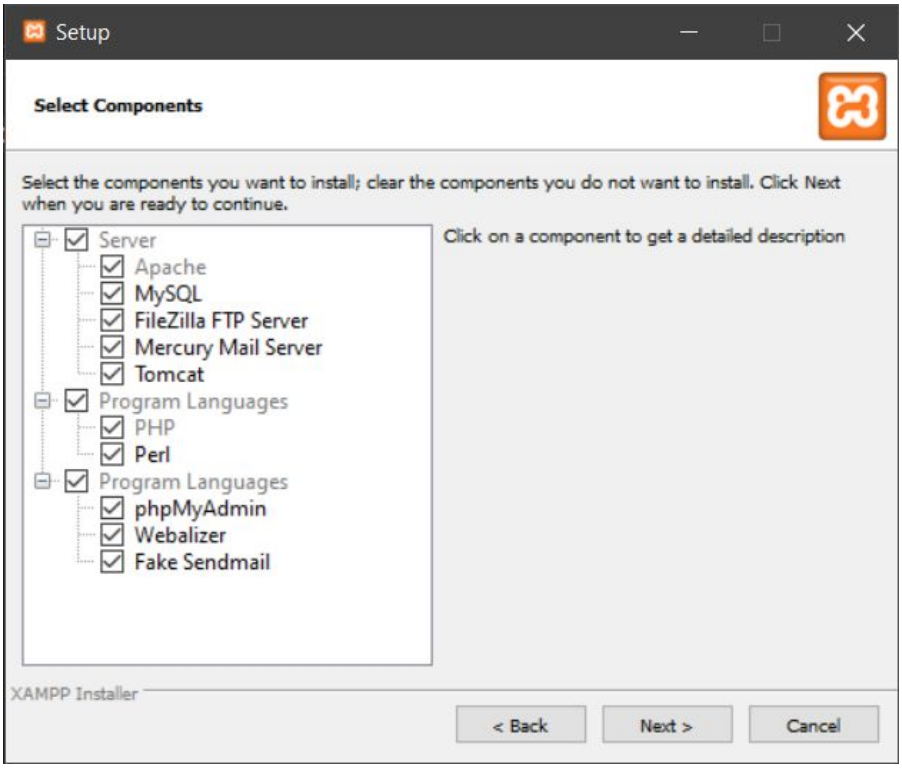
B.1 Web page Snapshot:

(Add all snapshots of output.)

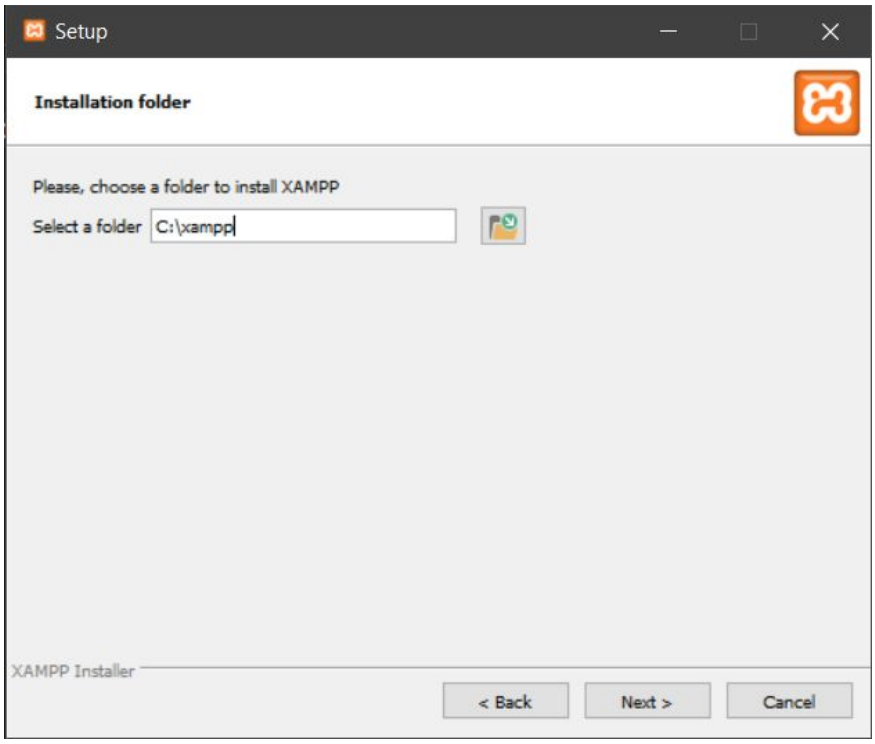
- Step 1: Download XAMPP from https://www.apachefriends.org/index.html

- Step 2: Install Setup > Next

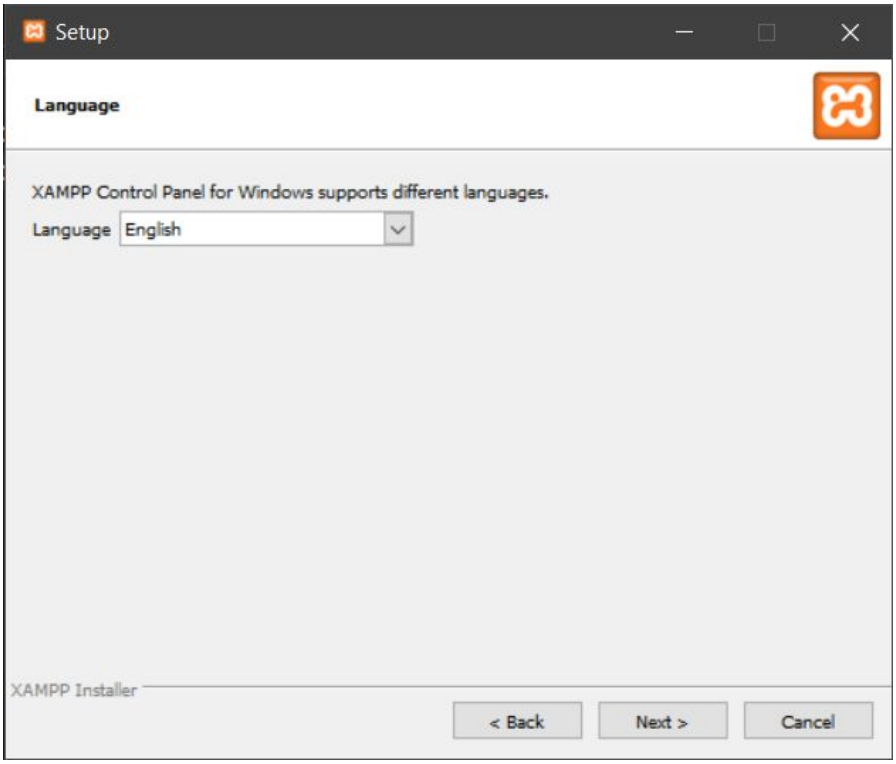
- Step 3: Select Components > Next



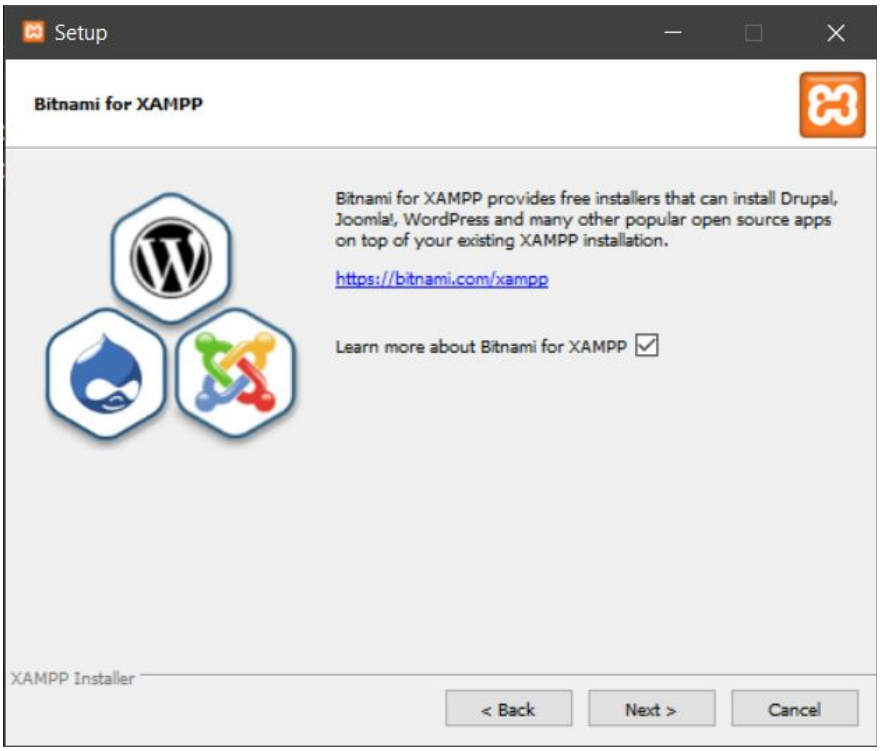
- Step 4: Select Installation Folder > Next



- Step 5: Select Language > Next

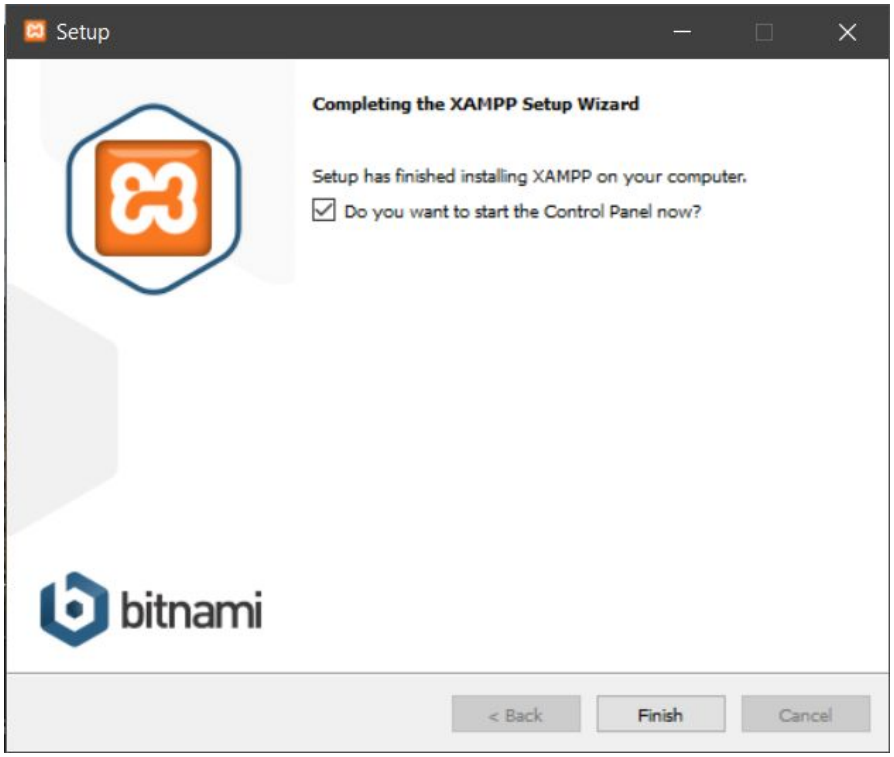


- Step 6: Bitnami for XAMPP > Next



- Step 7: Setup will Install in the chosen folder > Next

- Step 8: Setup Installed > Finish



B.2 Question of Curiosity:

1. What are the Web Servers?

Ans:

Web Server -

1. A web server is software and hardware that uses HTTP (Hypertext Transfer Protocol) and other protocols to respond to client requests made over the World Wide Web. The main job of a web server is to display website content through storing, processing and delivering web pages to users. Besides HTTP, web servers also support SMTP (Simple Mail Transfer Protocol) and FTP (File Transfer Protocol), used for email, file transfer and storage.
2. Web server hardware is connected to the internet and allows data to be exchanged with other connected devices, while web server software controls how a user accesses hosted files. The web server process is an example of the client/server model. All computers that host websites must have web server software.
3. Web servers are used in web hosting, or the hosting of data for websites and web-based applications -- or web applications.

2. Differentiate between Xampp and Wamp.

Ans:

1. Wamp and Xampp are local servers that are used while developing PHP sites. Using these servers, programmers can test a website locally before they upload it to the main server. This ensures that the new website doesn't have any bugs or errors.
2. The primary differentiator between Wamp, Lamp, Mamp and Xampp is the operating system (OS):

XAMPP -

1. The full form of Xampp is x-os, apache, mysql, php, perl.
2. Xampp is an open-source platform.
3. Includes X-OS because it can be used for all major OS such as Windows, Mac and Linux.
4. Xampp also includes extra features like supporting perl, filezilla, mercury mail and some other scripts.

WAMP -

1. The full form of Wamp is Windows, Apache, MySQL and PHP as it combines all four.
2. Wamp is an open-source platform.
3. It works on the Windows OS.
4. Uses the Apache web server.
5. Uses the Mysql relational database management system.
6. PHP is the object-oriented scripting language.

3. Explain the Phpmyadmin section of Xampp Server.

Ans:

Phpmyadmin -

1. phpMyAdmin is a costless and open source software that provides the functionality of operating and managing MySQL over the internet.
2. It provides an ease to the user to control and supervise the database with the help of a graphic user interface known as phpMyAdmin.
3. This GUI is written in the PHP programming language.
4. Over time it has gained a lot of trust and demand for the purpose of finding a web-based MySQL administration solution.
5. The user can operate upon MySQL via phpMyAdmin user interface while still directly executing SQL queries.
6. The GUI allows the host to carry a number of manipulation operations on the database, such as editing, creating, dropping, amending, alteration of fields, tables, indexes, etc.
7. It can also be used to manage access control over the data by giving privileges and permissions.
8. phpMyAdmin has thus a vital role to play in handling and creating a database.

B.3 Conclusion:

- XAMPP stack of software is an open-source localhost server providing a number of functionalities through the package of software it contains.
- The software, which is part of XAMPP, is started/stopped using the XAMPP Control Panel.
- It is used for testing the projects and modifications offline before launching it on the global web.
- One such very important functionality provided by XAMPP is the creation of the MySQL database. This is done by using phpMyAdmin.