**Group Research Challenge**

Server-Side Technology

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**1) LAMP**

* What is “open source”?

"Open source" refers to a type of software whose source code is available to the public, meaning that anyone can view and modify the code. This is in contrast to proprietary software, where the source code is typically owned by the company that created it and is not available for others to view or modify. Open-source software is often developed by a community of volunteers who collaborate on improving the code, and it can be freely distributed and modified by users. The open-source model has the potential to foster collaboration and innovation in the software industry, and it is often more cost-effective than proprietary software.

* What does the LAMP acronym stand for in terms of a tech stack?

The LAMP acronym stands for Linux, Apache, MySQL, and PHP. These are all open-source software tools commonly used to build web applications.

* What other variants of this tech stack for hosting PHP with the database?

Many variations of the LAMP stack (Linux, Apache, MySQL, PHP) can be used to host PHP with a database. Here are a few examples:

* WAMP (Windows, Apache, MySQL, PHP): This stack is like LAMP, but it uses the Windows operating system instead of Linux.
* MAMP (MacOS, Apache, MySQL, PHP): This stack is like LAMP but uses the macOS operating system instead of Linux.
* LAPP (Linux, Apache, PostgreSQL, PHP): This stack uses the PostgreSQL database management system instead of MySQL. PostgreSQL is a powerful and feature-rich DBMS often used in enterprise environments.

Many other variations of these stacks use different combinations of operating systems, web servers, database management systems, and programming languages. The stack choice will depend on the specific needs and requirements of the web application being developed.

**2) Apache**

* What is an HTTP server? What is another name for an “HTTP Server”?

An HTTP server is a software program designed to accept and fulfill client requests over the HTTP protocol. HTTP servers host websites and web applications, typically on computers connected to the internet. Another name for an "HTTP Server" is a "web server."

* How popular is Apache? Cite the URL(s) of stats that support your answer.

Apache is the most prevalent web server software in the world, according to the [Netcraft Web Server Survey](https://news.netcraft.com/archives/category/web-server-survey/) . As of Dec 2022, Apache is used by 20.93% of all websites.

* What are three popular alternative HTTP servers?
  + Nginx: A high-performance web server is known for its low resource usage and ability to handle many concurrent connections.
  + Microsoft IIS is a web server software bundled with the Windows operating system.
  + Lighttpd: A lightweight web server designed to be fast and efficient.

**3) MySql**

* What is MySQL?

*MySQL is a relational database system; it was developed by Oracle, and that is a*

*Based on the structure query language, currently, this is one of the most popular database engines, this technology was gaining popularity because is open-source and has good stability.*

*It is compatible with many kinds of systems like Windows, Unix, Linux, and Mac, among others.*

* What is the difference between MySQL Community Server and MySQL Enterprise?

*-Community edition:* *Use General Public License (GML), which means the user can modify the source code; in addition to this, there is another kind of license named cluster edition, which allows architecture scalability across multiple systems to ensure fault tolerance.*

*-Enterprise Edition:* *This version has more advantages than the previous.* *Support: It has 7/24 support by oracle, allowing the users to have help if they have any issues during production time.*

*MySQL Workbench: The enterprise edition supports this tool that allows users to*

*implement server monitoring, data backup, and enterprise security.*

*These kinds of tools are focused on scalability and increase the system availability.*

*The enterprise edition has an annual cost.*

* What company is the creator and owner of MySQL?

MySQL AB is the creator and owner of MySQL. MySQL AB was acquired by Sun Microsystems in 2008, and Oracle Corporation subsequently acquired Sun Microsystems in 2010.

* Who are some prominent users of MySQL?

Some prominent users of MySQL include Facebook, Twitter, and YouTube.

* What is MariaDB?

*MariaDB is an open-source relational database; the developer is led by one of the original MySQL Creators; this database is under a General Public License (GPL).*

**4) PHP**

* What does PHP stand for? What is strange about this?

PHP stands for "PHP: Hypertext Preprocessor." Strangely, the acronym for PHP does not match the full name of the language.

* Name some major websites that use PHP as their web scripting language.

Some major websites that use PHP as their web scripting language include Facebook, Wikipedia, and WordPress.

* Where does PHP rank in terms of programming language popularity? Cite your sources and ensure they are up to date.

According to the TIOBE Index for 2022 (https://www.tiobe.com/tiobe-index/), PHP is the 10th most popular programming language.

According to the RedMonk Programming Language Rankings for October 2022 (https://redmonk.com/sogrady/2022/10/20/language-rankings-6-22/#comment-183632), PHP is ranked as the 4th most popular language.

* What is the most recent stable version of PHP?

PHP 8.2 is planned to release on November 24, 2022, with the most recent stable version being PHP 8.1. 5. PHP 8.2 is built to renew and bring ease to development and fix bugs found in the older PHP versions.

**6) Internet Acronyms**

Define the following acronyms in a sentence or two.

* HTTP

HTTP (Hypertext Transfer Protocol) is a set of rules that govern how data is transferred over the internet. It transmits data between a client (such as a web browser) and a server (such as a web server).

* HTML

HTML (Hypertext Markup Language) is a markup language used to structure and format content on the web. It is used to create web pages and to specify how web browsers should display the content of those pages.

* URI

URI (Uniform Resource Identifier) is a string of characters that is used to identify a name or a resource on the internet. URIs can be either URLs (Uniform Resource Locators) or URNs (Uniform Resource Names).

* User Agent

A user agent is a software program that is used to access the internet. Examples of user agents include web browsers, search engine crawlers, and automated testing tools.

* Origin Server

An origin server is a server where a resource (such as a webpage) is stored and maintained. When a client (such as a web browser) requests help from an origin server, the origin server sends a copy of the resource back to the client.

* RFC

RFC (Request for Comments) is a document series published by the Internet Engineering Task Force (IETF) that contains technical and organizational notes about the internet. RFCs document internet standards, best practices, and technical specifications.

* W3C

W3C (World Wide Web Consortium) is an international organization that develops standards for the World Wide Web. It is responsible for creating and maintaining standards such as HTML, CSS, and XML.

* IETF

IETF (Internet Engineering Task Force) is a global community of network designers, operators, vendors, and researchers responsible for developing and maintaining internet standards. The IETF publishes the RFC (Request for Comments) series of documents containing technical and organizational notes about the internet.

**5) HTTP**

* When was HTTP developed, and for what purpose?

HTTP was developed in the late 1980s, with the first version (HTTP/0.9) released in 1991. It was created to transfer hypertext documents over the internet and was designed to be simple and easy to implement.

* Who invented and developed HTTP?

HTTP was invented and developed by Tim Berners-Lee, the creator of the World Wide Web.

* What is an HTTP resource?

An HTTP resource is a data entity that can be accessed via the HTTP protocol. Examples of HTTP resources include web pages, images, and other files hosted on a web server.

* What is an HTTP status code?

An HTTP status code is a three-digit numerical code used to communicate the status of a request made over the HTTP protocol. Status codes indicate whether a request was successful and provide information about any errors or issues that may have occurred.

* Outline the available HTTP status categories.

There are five categories of HTTP status codes:

* 1xx (Informational): These codes indicate that the request has been received and is being processed.
* 2xx (Success): These codes indicate that the request was successful.
* 3xx (Redirection): These codes indicate that the client needs to take additional action to complete the request.
* 4xx (Client Error): These codes indicate an error with the request made by the client.
* 5xx (Server Error): These codes indicate an error on the server while processing the request.