

# *Assignments*

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## Introduction to Apache Web Server

Sr. No.
1. <b>Web World</b> is a famous Website development firm located in <b>New York</b> . They have organized a seminar on Web servers and invited students from different colleges and institutes to speak on the Web server of their choice. You, as a student of a renowned IT institute have participated in the seminar. Prepare a document for the seminar for the Apache Web Server with the following details: <ol style="list-style-type: none"><li>1. Explain Apache Web Server and its evolution.</li><li>2. List the features of Apache Web Server</li><li>3. Explain the architecture of Apache Web Server</li></ol>



## Installing Apache Web Server 2.2

Sr. No.	Assignment Question
1.	<p><b>Crocus Inc.</b> is a fashion garment manufacturing company in <b>Los Angeles</b>. They have recently developed a Website for promoting the products of their company. After a lot of research, they have come to a decision to host their Website on the Apache Web Server. You as a tech support have been asked to perform the following tasks:</p> <ol style="list-style-type: none"><li>1. Download the Apache Web Server setup from the Apache Website.</li><li>2. Install the server.</li><li>3. Open the httpd.config file and check the values of the various directives in the file.</li></ol>



## Configuring Apache Web Server

Sr. No.	Assignment Question
1.	<b>Quick Tech Solutions</b> is a computer hardware manufacturing firm located in <b>Chicago</b> . Their products are sold all over the country. Currently, they are hosting their Website on the Apache Web Server. They have been facing some issues during server startup. You, as the IT administrator have been asked to look into the issue. Modify port, file permissions, Location, and the default index page to test the server functioning.



## Apache Web Server Administration

Sr. No.	Assignment Question
1.	<b>Leo International</b> is a famous hotel in <b>New Jersey, USA</b> . They have created a Website and hosted it on Apache Web Server. However, when any issue occurs with the server, a system generated error message is displayed. The management wants to ensure that the users are not taken by surprise by such errors. To resolve this issue, the management has hired an IT firm. You, as a developer have been assigned the task to create a custom error page to display an appropriate message for the user when any page or resource requested by the user is not found.



## Security

Sr. No.	Assignment Question
1.	<p><b>Krocus Travels</b> is a well-known travel agency in <b>Morocco</b>. The agency has created a Website and hosted it on the Apache server. However, lately a lot of unwanted access to Website has been observed. You as a member of the development team have been assigned the following tasks:</p> <ul style="list-style-type: none"><li>• Point out the reasons why security needs to be implemented in the Web server.</li><li>• Explain the various directives that can be used to enable authentication in Apache Web server.</li><li>• Modify the configuration file to implement Basic Authentication.</li></ul>



## Secure Sockets Layer

Sr. No.	Assignment Question
1.	<p><b>Secure Sign</b> is a digital signature provider in <b>New York</b>. Currently, a request for digital signature creation has been received from a client. However, due the cost, the client is hesitant to get it created. You, as the security manager, have been assigned the following tasks:</p> <ul style="list-style-type: none"><li>• Explain the SSL protocol to the client.</li><li>• Explain the weaknesses of tradition authentication methods.</li><li>• Show the process of installing a private key and creating certificates.</li></ul>





## Dynamic Pages

Sr. No.	Assignment Question
1.	<b>Tragus Inc.</b> is a famous Web portal development agency in <b>California</b> . The company is currently working on new Web portal. However, with the portal, the company wishes to have a feedback form with two boxes, one for customer name and one for feedback. A Submit button will be used to submit the feedback. You, as a developer have been assigned the task to create the Web page using CGI script. Also, configure the Apache Web server for CGI scripting.



## Monitoring Apache Web Server

Sr. No.	Assignment Question
1.	<p><b>Net Technologies</b> is a famous Network training institute in <b>Chicago</b>. The institute has organized a free seminar on Apache Web Server. You, as one of the speakers, have been assigned the topic 'Improving Apache Performance'. Prepare a document with the following details:</p> <ul style="list-style-type: none"><li>• Explain performance tuning</li><li>• List the directives for improving processes in Apache</li><li>• List the directives for improving threads in Apache</li><li>• Explain cookie tracking in Apache</li></ul>



## Virtual Web Hosting

Sr. No.
1.

- |    |  |
|----|--|
| 1. | <p>Bravo Technologies have been into training network specialist since a decade. Currently a fresh batch for Apache Web Server has been started. The students of the batch wish to learn how to do Virtual Web Hosting. You, as a trainer need to explain the following:</p> <ol style="list-style-type: none"><li>1. Explain the concept of Virtual Web hosting.</li><li>2. List the types of virtual hosts.</li><li>3. Show the creation of IP-based virtual host.</li></ol> |
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~ End of Assignments ~

## Introducing New Features of Apache Web Server 2.4

### Assignment Question

**Steve**, a Network Administrator of an organization based in **California, USA**, handles UNIX environment of the organization. His duty is to build and install the extension modules for Apache Web Server and then loads them to the Apache Web Server at runtime.

To fulfill his responsibilities, **Steve** needs to perform the following tasks:

1. Use the Apache eXtension (apxs) tool to create the Dynamic Shared Objects (DSO) modules.
2. Use the LoadModule directive to create the run-time loadable Multi-Processing Modules (MPMs).
3. Build the module using the make command.
4. Activate the module and then update the httpd.conf file.

You have been assigned as a mentor to **Steve**. Help him complete the specified tasks.



## Adding New Modules in Apache Web Server 2.4

### Assignment Question

As a Network Administrator of an organization, the responsibility of **Steve** is to provide support for the sessions to retain login information of the user and make it available for all requests until the user logs out.

To fulfill his responsibility, **Steve** needs to perform the following tasks:

1. Create a session in the Web Server and provide the cookie-name to store session details.
2. Specify the HTTP response header in the apache configuration file to store session information.
3. Create a PHP file and insert the CGI script to store session details.
4. Execute the PHP file to read the session details.

Consider that you are working with **Steve** and implement these tasks.



## Implementing Enhancements in Existing Modules

### Assignment Question

1. **Patricia**, a Network Administrator of an organization based in **Texas, USA**, handles Linux environment of the organization. As a Network Administrator of an organization, the responsibility of **Patricia** is to restrict or allow access to an internal portal of the organization using the authorization logic. The access should be provided to users who belong to the following categories:

- User - admin
- Group - Employee
- LDAP group - Administrators

In addition, **Patricia** has to enhance the performance of the internal portal that is dependent on LDAP server for the backend connectivity. She also needs to validate users by checking their credentials.

To fulfill her responsibility, **Patricia** needs to perform the following tasks:

1. Use the Require directive with various authorization container directives, such as <RequireNone>, <RequireAny>, and <RequireAll> to specify the authorization logic.
2. Enable the connection pool and shared memory cache by using the mod\_ldap module to enhance the performance.
3. Use the mod\_authnz\_ldap module to validate users using the LDAP directory.

Consider that you are working with Patricia and implement these tasks.

2. **Tom**, a Network Administrator of an organization based in Alaska, USA, has been assigned a task of creating a proxy server for Apache Web Server with the support of numerous load balancing algorithms and several other modules. The central server should be placed between the client and the source server. He needs to configure the server so that the Internet usage is provided to the clients that are limited by a firewall.

To save the network consumption, **Tom** needs to configure the proxy server for implementing caching capability. He needs to keep in mind various protocols, such as File Transfer Protocol (FTP), Hypertext Transmission Protocol (HTTP), WebSocket, and Apache JServ Protocol (AJP13) are supported to perform load balancing.

To create a proxy server, **Tom** needs to perform the following tasks:

1. Load the required modules, such as mod\_proxy\_fcgi, mod\_proxy\_scgi, mod\_proxy\_wstunnel, and mod\_proxy\_http as Dynamic Shared Objects (DSO).
2. Configure Apache Server as a forward proxy.
3. Use the mod\_cache module for the caching capability.
4. Use the required modules, such as mod\_lbmethod\_bytraffic, mod\_lbmethod\_heartbeat, and mod\_lbmethod\_byrequests to perform load balancing.

Consider that you are working with **Tom** and implement these tasks.



## Implementing SSL Enhancements

### Assignment Question

As a Network Administrator of an organization, the responsibility of **John** is to implement cryptography in Apache Web Server 2.4. He has to take care that the confidential information should not be compromised during the online transactions. For this, he needs to use the SSL server and client authentication by creating a setup for the SSL client certificate to validate server's identity.

To fulfill his responsibility, **John** needs to perform the following tasks:

1. Use the `mod_ssl` to implement cryptography.
2. Use the environment variables of the `mod_ssl` module related to SSL clients.
3. Use the environment variables of the `mod_ssl` module related to SSL server.

Consider that you are working with **John** and implement these tasks.

