| Cybersecurity |
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| Module 12 Challenge Submission File |

## Web Development

Make a copy of this document to work in, and then respond to each question below the prompt. Save and submit this completed file as your Challenge deliverable.

### HTTP Requests and Responses

1. What type of architecture does the HTTP request and response process occur in?

| The HTTP request and response process occurs in the Client-Server architecture. |
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1. What are the parts of an HTTP request?

| The parts of an HTTP request are the Request Line, the Headers, and the Body. |
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1. Which part of an HTTP request is optional?

| The part of an HTTP request that is optional is the Request Body. |
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1. What are the three parts of an HTTP response?

| The three parts of an HTTP response are the Status line, the Headers, and the Response Body. |
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1. Which number class of status codes represents errors?

| The number class of status codes that represents errors includes number classes 400-499 that involve client errors and 500-599 that involve server errors. |
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1. What are the two most common request methods a security professional encounters?

| The 2 most common request methods a security professional encounters are the ‘Post’ and ‘Get’ methods. |
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1. Which type of HTTP request method is used to send data?

| The type of HTTP request method used to send data is the ‘Post’ method. |
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1. Which part of an HTTP request contains the data being sent to the server?

| The part of an HTTP request containing the data being sent to the server is the Body. |
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1. In which part of an HTTP response does the browser receive the web code to generate and style a webpage?

| The part of an HTTP response that the browser receives the web code to generate and style a webpage is the Response Body. |
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### Using curl

1. What are the advantages of using curl over the browser?

| A few advantages of using curl over a browser include:   * Curl can be automated to perform tasks * Curl can be used to send customized HTTP requests * Curl does not require a User Interface |
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1. Which curl option changes the request method?

| The curl option that changes the request method is -X. |
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1. Which curl option sets request headers?

| The curl option that sets request headers is -H. |
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1. Which curl option is used to view the response header?

| The curl option that is used to view the response header is -l. |
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1. Which request method might an attacker use to figure out what HTTP requests an HTTP server will accept?

| The request method that an attacker might use to figure out what HTTP requests an HTTP server will accept are Options. |
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### Sessions and Cookies

1. Which response header sends a cookie to the client?

| HTTP/1.1 200 OK  Content-type: text/html  Set-Cookie: cart=Bob  The correct answer is: Set-Cookie: cart=Bob |
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1. Which request header will continue the client's session?

| GET /cart HTTP/1.1  Host: www.example.org  Cookie: cart=Bob  The correct answer is: GET /cart HTTP/1.1 |
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### Example HTTP Requests and Responses

Use the following sample HTTP request and response to answer the questions in this section:

**HTTP Request**

| POST /login.php HTTP/1.1  Host: example.com  Accept-Encoding: gzip, deflate, br  Connection: keep-alive  Content-Type: application/x-www-form-urlencoded  Content-Length: 34  Upgrade-Insecure-Requests: 1  User-Agent: Mozilla/5.0 (Linux; Android 6.0; Nexus 5 Build/MRA58N) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/80.0.3987.132 Mobile Safari/537.36  username=Barbara&password=password |
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1. What is the request method?

| The request method is ‘Post’. |
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1. Which header expresses the client's preference for an encrypted response?

| The Header that expresses the client’s preference for an encrypted response is Upgrade-Insecure-Requests, which in this case has a value of ‘1’. |
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1. Does the request have a user session associated with it?

| No, the request does not have a user session associated with it. |
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1. What kind of data is being sent from this request body?

| The data that is being sent from this request body is the Username (Barbara) and the Password (password). |
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**HTTP Response**

| HTTP/1.1 200 OK  Date: Mon, 16 Mar 2020 17:05:43 GMT  Last-Modified: Sat, 01 Feb 2020 00:00:00 GMT  Content-Encoding: gzip  Expires: Fri, 01 May 2020 00:00:00 GMT  Server: Apache  Set-Cookie: SessionID=5  Content-Type: text/html; charset=UTF-8  Strict-Transport-Security: max-age=31536000; includeSubDomains  X-Content-Type: NoSniff  X-Frame-Options: DENY  X-XSS-Protection: 1; mode=block  [page content] |
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1. What is the response status code?

| The response status is 200 OK. |
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1. What web server is handling this HTTP response?

| The web server handling this HTTP response is Apache. |
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1. Does this response have a user session associated with it?

| This response has the user session ‘SessionID=5’. |
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1. What kind of content is likely to be in the [page content] response body?

| The content that is likely to be in the [page content] response body is ‘text/HTML; charset=UF-8’, indicating a HTML file. |
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1. If your class covered security headers, what security request headers have been included?

| The security request headers that have been included involve the ‘Strict-Transport-Security’ header. |
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### Monoliths and Microservices

1. What are the individual components of microservices called?

| The individual components of microservices are called Services, APIs, Databases, Schedulers, and other smaller components including containers, service mesh, API gateways, and service discovery. |
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1. What is a service that writes to a database and communicates to other services?

| The service that writes to a database and communicates to other services is called the API gateway. |
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1. What type of underlying technology allows for microservices to become scalable and have redundancy?

| The type of underlying technology that allows for microservices to become scalable and have redundancy are Containers. |
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### Deploy and Test a Container Set

1. What tool can you use to deploy multiple containers at once?

| The tool that you can deploy multiple containers at once is called Docker Compose. |
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1. What kind of file format is required to deploy a container set?

| The file format required to deploy a container set is YAML file format. |
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### Databases

1. Which type of SQL query would you use to view all the information in a table called customers?

| The type of SQL query used to view all of the information in a table called ‘customers’ is:  SELECT \* FROM customers |
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1. Which type of SQL query would you use to enter new data into a table? (You don't need a full query, just the first part of the statement.)

| The type of SQL query used to enter new data into a table is:  INSERT INTO table\_name |
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1. Why would you never run DELETE FROM <table-name>; by itself?

| You would never run DELETE FROM <table-name> by itself because all of the records would be deleted, losing the whole table. |
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### Optional Additional Challenge Activity: The Cookie Jar

**Question 1:** Did you see any obvious confirmation of a login? (Y/N)

| Yes |
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**Question 2:** How many items exist in this file?

| Three items exist in this file. |
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**Question 3:** Is it obvious that you can access the dashboard? (Y/N)

| Yes |
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**Question 4:** Look through the output where Dashboard is highlighted. Does any of the wording on this page seem familiar? (Y/N) If so, you should be successfully logged in to your Editor's dashboard.

| Yes. |
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**Question 5:** What happens this time?

| I am able to gain access. |
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