| 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 within the client-server architecture |
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1. What are the parts of an HTTP request?

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

| The request body of an HTTP request is optional. |
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1. What are the three parts of an HTTP response?

| The parts of an HTTP response include: Headers, Status Line, and Body |
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1. Which number class of status codes represents errors?

| The 4xx and 5xx status codes represent errors. The 400 to 499 represent client errors while 500-599 represent server errors. |
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1. What are the two most common request methods a security professional encounters?

| The two most common request methods are GET and POST. |
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1. Which type of HTTP request method is used to send data?

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

| The part of the HTTP request that contains data 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 body of an HTTP response. |
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### Using curl

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

| Advantages of using Curl over the browser:  -flexibility and control over requests compared to browsers  -Curl allows for automation of HTTP requests  -Scripting support through its command-line interface |
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1. Which curl option changes the request method?

| curl -X |
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1. Which curl option sets request headers?

| curl -H |
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1. Which curl option is used to view the response header?

| Curl -I |
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1. Which request method might an attacker use to figure out what HTTP requests an HTTP server will accept?

| the OPTIONS method. By sending an OPTIONS request to a server, the attacker can determine which HTTP methods are accepted. |
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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  **Set-Cookie** sends a cookie to the client |
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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  **Cookie** will save/continue the client's session |
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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 |
| --- |

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?

| Upgrade-Insecure-Request: 1 |
| --- |

1. Does the request have a user session associated with it?

| No, there is nothing showing a user session with this request. |
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1. What kind of data is being sent from this request body?

| It appears to be sending login credential data. |
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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] |
| --- |

1. What is the response status code?

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

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

| Set-Cookie: SessionID=5 |
| --- |

1. What kind of content is likely to be in the [page content] response body?

| The content is likely detail of the page configuration |
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1. If your class covered security headers, what security request headers have been included?

| X-Content-Type: NoSniff |
| --- |

### Monoliths and Microservices

1. What are the individual components of microservices called?

| services or microservices |
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1. What is a service that writes to a database and communicates to other services?

| a backend service or a microservice. |
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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 is containerization and orchestration.Docker for containerization. |
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### Deploy and Test a Container Set

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

| You can use Docker to deploy multiple containers at once. |
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1. What kind of file format is required to deploy a container set?

| Docker uses YAML file (.yml) |
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### Databases

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

| SELECT \* FROM customers; |
| --- |

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.)

| INSERT INTO table\_name (column\_1, etc.) VALUES (value\_1, etc.); |
| --- |

1. Why would you never run DELETE FROM <table-name>; by itself?

| Running DELETE FROM <table-name>; by itself would delete all records from the table without any condition |
| --- |

### Optional Additional Challenge Activity: The Cookie Jar

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

| [Enter answer here] |
| --- |

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

| [Enter answer here] |
| --- |

**Question 3:** Is it obvious that you can access the dashboard? (Y/N)

| [Enter answer here] |
| --- |

**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.

| [Enter answer here] |
| --- |

**Question 5:** What happens this time?

| [Enter answer here] |
| --- |

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