| 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?

| Client-server architecture |
| --- |

1. What are the parts of an HTTP request?

| Request line, request header, whitespace |
| --- |

1. Which part of an HTTP request is optional?

| Request body |
| --- |

1. What are the three parts of an HTTP response?

| Status line, response header, response body |
| --- |

1. Which number class of status codes represents errors?

| 400 codes |
| --- |

1. What are the two most common request methods a security professional encounters?

| GET and POST |
| --- |

1. Which type of HTTP request method is used to send data?

| POST request |
| --- |

1. Which part of an HTTP request contains the data being sent to the server?

| Request body |
| --- |

1. In which part of an HTTP response does the browser receive the web code to generate and style a webpage?

| Response body |
| --- |

### Using curl

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

| Using curl examining HTTP requests can be automated and even make adjustments, whereas in the browser it’s not always possible to examine HTTP requests. |
| --- |

1. Which curl option changes the request method?

| -X |
| --- |

1. Which curl option sets request headers?

| -H |
| --- |

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

| Curl --head |
| --- |

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

| options |
| --- |

### 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  This response header sends a cookie to the client. |
| --- |

1. Which request header will continue the client's session?

| GET /cart HTTP/1.1  Host: www.example.org  Cookie: cart=Bob  This request header will continue the client’s session. |
| --- |

### 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?

| POST |
| --- |

1. Which header expresses the client's preference for an encrypted response?

| Upgrade-Insecure-Requests |
| --- |

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

| no |
| --- |

1. What kind of data is being sent from this request body?

| Username and password |
| --- |

**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?

| 200 |
| --- |

1. What web server is handling this HTTP response?

| Apache |
| --- |

1. Does this response have a user session associated with it?

| yes |
| --- |

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

| HTML file |
| --- |

1. If your class covered security headers, what security request headers have been included?

| Strict-Transport-Security |
| --- |

### Monoliths and Microservices

1. What are the individual components of microservices called?

| Front-end server, back-end server, database |
| --- |

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

| APIs |
| --- |

1. What type of underlying technology allows for microservices to become scalable and have redundancy?

| containers |
| --- |

### Deploy and Test a Container Set

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

| docker compose |
| --- |

1. What kind of file format is required to deploy a container set?

| .yml |
| --- |

### Databases

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

| SQL Select statement |
| --- |

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 statement |
| --- |

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

| All data will be deleted because where is not defined |
| --- |

### Bonus Activity: The Cookie Jar

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

| No |
| --- |

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

| 3 |
| --- |

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

| Yes |
| --- |

**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.

| Y |
| --- |

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

| 404 not found |
| --- |

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