



# Cybersecurity

## 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 based]

2. What are the parts of an HTTP request?

[Request line, headers and message body]

3. Which part of an HTTP request is optional?

[Message body]

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

[Start or status line, headers, message body]

5. Which number class of status codes represents errors?

[4th: client error  
5th: server error  
3rd: redirection]

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

[GET and POST]

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

[POST]

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

[Message body]

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

[Message body]

## Using curl

10. What are the advantages of using `curl` over the browser?

[curl can be automated, you can also do more with it, like look at headers and use it to send data]

11. Which `curl` option changes the request method?

[-X]

12. Which `curl` option sets request headers?

[-H]

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

[curl -v]

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

[Options]

## Sessions and Cookies

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

```
HTTP/1.1 200 OK
Content-type: text/html
Set-Cookie: cart=Bob
```

Set cookie http response header (Set-Cookies HTTP)

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

```
GET /cart HTTP/1.1
Host: www.example.org
Cookie: cart=Bob

'Connection: keep-alive'
```

## 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**

17. What is the request method?

[POST]

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

[**Upgrade-Insecure-Requests: 1**]

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

[No]

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

[Login info]

## 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**]

21. What is the response status code?

[200]

22. What web server is handling this HTTP response?

[Apache Webserver]

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

[Yes, SessionID=5]

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

[client requested resource or status info]

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

[Strict/Transport/Security]

## Monoliths and Microservices

26. What are the individual components of microservices called?

[Services]

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

[APIs]

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

[Containerization platforms]

## Deploy and Test a Container Set

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

```
[Docker]
```

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

```
[.yaml Yaml Format]
```

## Databases

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

```
[SELECT column_name FROM customers]
```

32. 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,column_2,coulmn_3) VALUES  
(value_1,value_2,value_3)]
```

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

```
[it will remove the table if there is no select statement]
```