



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 architecture

2. What are the parts of an HTTP request?

Request line, request headers and request body

3. Which part of an HTTP request is optional?

The query parameters are optional (request body)

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

Status line, response header and response body

5. Which number class of status codes represents errors?

The 400s represent errors

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

GET and POST requests are most common

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?

Request body

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

Response body

Using curl

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

There is no need for any UI and this entire process can be automated

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?

-i

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: cart=Bob sends a cookie to the client

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

```
GET /cart HTTP/1.1
```

```
Host: www.example.org
```

```
Cookie: cart=Bob
```

The cookie: cart=Bob header will continue the clients 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

17. What is the request method?

POST

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

Upgrade-Insecure-Requests:1 indicates the preference for an encrypted response

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

The request does not have a user associated with it.

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

HTTP response

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?

The code is 200

22. What web server is handling this HTTP response?

Apache webserver

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

The user session is SessionID=5

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

The content that is likely to be in the response body is the detail of the page configuration HTML file

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

Strict-Transport-Security: max-age=31536000; includeSubDomains

Monoliths and Microservices

26. What are the individual components of microservices called?

API

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

Backend Server

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

Load balancer technology

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?

The query i would use is `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, column_3)
VALUES (value_1, value_2, value_3)
```

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

We wouldnt run this because it would delete the entire table since there is no select statement