



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 Header and Request Body

3. Which part of an HTTP request is optional?

Request Body

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

Header, Status Line and Body

5. Which number class of status codes represents errors?

The fourth class (400 client errors)

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?

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?

Can use it via the terminal so no access to a GUI/browser is needed, making it very lightweight

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

`Curl -X`

12. Which `curl` option sets request headers?

`Curl -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: cart=Bob
```

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

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

Cookie: cart=Bob
```

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?

User Login Credentials

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

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

SessionID=5

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

HTML File

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

max-age=31536000

Monoliths and Microservices

26. What are the individual components of microservices called?

Microservices/Services, Databases and User Interface

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

API Services

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

Containerization

Deploy and Test a Container Set

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

Docker Compose

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

YAML

Databases

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

SELECT * 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

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

It will delete the entire table

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]