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 Model

2. What are the parts of an HTTP request?

GET Requests data from a server. Requests using GET should only retrieve data.

HEAD Identical to GET except that the server does not send the response body.

POST Sends data to the specific target, attempting to change or update the server.

PUT: Replaces or modifies resources with the request payload.

DELETE: Removes the specific file or item from the server

CONNECT: Establishes a tunnel to the server.

OPTION: Method details the message options for the specified resource. 3. Which part of an HTTP request is optional?

Request Body

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

Status Line: The response status code of the result.

Header: Additional information about the response, similar to the header. White Space: Separates header with the following response body. Response Body: Contains the information requested from the end user.

5. Which status-code number class represents errors?

400 for client errors and 500 for server errors.

6. What are the two most common request methods for a security professional to encounter?

Get and Post requests.

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

HTTP Request Post method.

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

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

The response body.

**Using cURL**

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

You are able to transfer data between a server using supported protocols without UI.

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

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?

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

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

Sensitive data, a 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]

21. What is the response status code?

200 OK

22. What web server is handling this HTTP response?

Apache

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

Set-Cookie: SessionID=5

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

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

HTTP Strict Transport Security (HSTS)

Content Security Policy (CSP)

HTTP Public Key Pinning (HPKP)

Don’t quite remember this topic need to touch up on it, used google.

**Monoliths and Microservices**

26.What are the individual components of microservices called?

Clients, Databases, API gateways, Identity providers, Management, and Messaging Formats

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

Application programming interface.

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

Docker Containers

**Deploying and Testing 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 files

**Databases**

31.Which type of SQL query would you use to view all of the information within 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 customers( First, Last, email) VALUES (‘Aaron’, ‘Gee’, ‘g@gmail.com’);

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

Because it will delete everything within the table.

g)