#### **HTTP Requests and Responses**

Answer the following questions about the HTTP request and response process.

1. What type of architecture does the HTTP request and response process occur in?

* The HTTP request and response process occurs in a client-server architecture.

1. What are the different parts of an HTTP request?

* Request-Line (made up of the following parts):
  + Method (e.g. GET, POST, etc.)
  + Request-URI
  + HTTP-Version of the request
* Headers
* Body

1. Which part of an HTTP request is optional?

* The Body is optional

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

* Status Code
* Headers
* Body

1. Which number class of status codes represents errors?

* The 400’s and 500s classes of status codes represent errors.

1. What are the two most common request methods that a security professional will encounter?

* GET and POST

1. Which type of HTTP request method is used for sending data?

* The POST HTTP method is used for sending data

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

* The body of the HTTP request contains data being sent to the server.

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

* The browser receives the web code to generate and style a web page in the body of the response.

**Using curl**

Answer the following questions about curl:

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

* Set any desired headers
* Spoof user-agent header
* Specify any desired request method
* View any and all headers on both the response and the request

1. Which curl option is used to change the request method?

* The [curl --request (-X)] can be used to change the request method.

1. Which curl option is used to set request headers?

* The [curl -H] can be used to set request headers.

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

* The [curl -I] can be used to view the response headers.

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

* To determine which HTTP request methods a server will accept, an attacker might issue a request using the OPTIONS method.

#### **Sessions and Cookies**

Recall that HTTP servers need to be able to recognize clients from one another. They do this through sessions and cookies.

Answer the following questions about sessions and cookies:

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

* The Set-Cookie header sends a cookie to the client.

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

* The Cookie request header will continue the client's session.

#### **Example HTTP Requests and Responses**

Look through the following example HTTP request and response and answer the following questions:

**HTTP Request Question**

1. What is the request method?

* It's a POST.

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

* The Upgrade-Insecure-Requests header expresses the client's preference for an encrypted response.

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

* The request does not have a user session associated with it.

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

* its [www-url-form-encoded]

**HTTP Response Question**

1. What is the response status code?

* status code of 200 OK.

1. What web server is handling this HTTP response?

* An Apache web server

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

* This response does have a user session associated

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

* HTML, CSS, and JavaScript.

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

* Did not cover

#### **Monoliths and Microservices**

Answer the following questions about monoliths and microservices:

1. What are the individual components of microservices called?

* The individual components of microservices are called services.

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

* A service that writes to a database and communicates to other services is known as an API

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

* containerization technology has enabled microservices to become scalable and redundant.

#### **Deploying and Testing a Container Set**

Answer the following questions about multi-container deployment:

1. What tool can be used to deploy multiple containers at once?

* [docker-compose]

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

* [docker-compose]

#### **Databases**

1. Which type of SQL query would we use to see all of the information within a table called customers?

* [SELECT \* FROM customers;]

1. Which type of SQL query would we 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 (firstname, lastname, email) VALUES ('John', 'Smith', 'jsmith@example.com');]

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

* It will delete the table itself, rather than associated data.