**How Web Works Exercise**

**Part One: Solidify Terminology**

In your own terms, define the following terms:

* What is HTTP?
  + Hypertext Transfer Protocol, the standard set of rules for structuring requests for information to be sent across a network, specifically the World Wide Web/Internet. Requests are typically initiated by client, which is usually a web browser, and are sent to a web server. The server processes the request and sends a response.
* What is a URL?
  + Uniform Resource Locator, an address of a resource on the World Wide Web/Internet.
* What is DNS?
  + The Domain Name System, is the ‘phone book’ for the internet and is used to translate ‘human readable’ web addresses into IP addresses.
* What is a query string?
  + Part of a URL used to pass parameters to the server as part of an HTTP request.
* What are two HTTP verbs and how are they different?
  + GET and POST
  + GET is used for a request when there won’t be any side effects, nothing will be changed or deleted as a result of a GET request
  + POST is used when there will be side effects. Something will be changed of deleted.
* What is an HTTP request?
  + An HTTP request is sent using a URL by a client to a server to request information or access to something on the server.
* What is an HTTP response?
  + The HTTP response is sent by the server to the client who sent a request and if successful will include the file or resource requested by the client.
* What is an HTTP header? Give a couple examples of request and response headers you have seen.
  + The HTTP header includes information about the request or response and is sent as part of the request or response.
    - Request URL: https://www.google.com/images/branding/googlelogo/1x/googlelogo\_color\_272x92dp.png
    - Request Method: GET
    - Status Code: 200 (from disk cache)
    - Remote Address: 142.250.217.196:443
    - Referrer Policy: origin
* What are the processes that happen when you type “http://somesite.com/some/page.html” into a browser?
  + Malwarebytes stops anything from happening 😊
  + Otherwise the URL would be translated into an IP address and an HTTP Request would be sent.

**Part Two: Practice Tools**

* Using curl, make a GET request to the icanhazdadjoke.com API to find all jokes involving the word “pirate”
  + curl https://icanhazdadjoke.com/search?term=pirate
  + Why couldn't the kid see the pirate movie? Because it was rated arrr!
  + What does a pirate pay for his corn? A buccaneer!
  + What did the pirate say on his 80th birthday? Aye Matey!
  + Why are pirates called pirates? Because they arrr!
  + Why do pirates not know the alphabet? They always get stuck at "C".
* Use dig to find what the IP address is for icanhazdadjoke.com
  + dig https://icanhazdadjoke.com/
  + 172.28.144.1
* Make a simple web page and serve it using python3 -m http.server. Visit the page in a browser.
  + python3 -m http.server
  + <http://localhost:8000/>
  + <http://localhost:8000/index.html>
  + <h1>This is a simple web page!</h1>

**Part Three: Explore Dev Tools**

Build a very simple HTML form that uses the GET method (it can use the same page URL for the action) when the form is submitted.

<h1>This is a simple web page!</h1>

<form action="http://localhost:8000/index.html" method="GET">

<label for="firstName">First name</label>

<input type="text" id="firstName" name="firstName"><br><br>

<label for="lastName">Last name</label>

<input type="text" id="lastName" name="lastName"><br><br>

<input type="submit" value="Submit">

</form>

Add a field or two to the form and, after submitting it, explore in Chrome Developer tools how you can view the request and response headers.

<http://localhost:8000/index.html?firstName=Michael&lastName=Murphy>

Edit the page to change the form type to POST, refresh in the browser and re-submit. Do you still see the field in the query string? Explore in Chrome how you can view the request and response headers, as well as the form data.

<h1>This is a simple web page!</h1>

<form action="http://localhost:8000/index.html" method="POST">

<label for="firstName">First name</label>

<input type="text" id="firstName" name="firstName"><br><br>

<label for="lastName">Last name</label>

<input type="text" id="lastName" name="lastName"><br><br>

<input type="submit" value="Submit">

</form>

**Error response**

Error code: 501

Message: Unsupported method ('POST').

Error code explanation: HTTPStatus.NOT\_IMPLEMENTED - Server does not support this operation.