# How Web Works Exercise

## Part One: Solidify Terminology

In your own terms, define the following terms:

- What is HTTP?
    - HTTP is an agreement on a method of transmission of information on the internet between client and servers. Client issues HTTP requests and servers issue HTTP responses.
- What is a URL?
    - The Uniform Resource Location (URL) defines the location of website, page, file, etc. on the internet. The URL must conform to specifications to accurately describe the proper location of the resource.
- What is DNS?
    - The Domain Name System (DNS) is a distributed name system for resources connected to the internet. DNS associate's human readable domain names with numerical IP addresses that are used as identifiers for specific resources. It also provides a means to discover the relationships of the domain names to the IP addresses.
- What is a query string?
    - A query string is part of the URL that defines parameters sent along with the URL in an HTP request. The query string is in the form of key – value pairs.
- What are two HTTP verbs and how are they different?
    - GET – HTTP request w/o side effects, arguments are passed by query string, produced by entering URL in brower, click on a lick, some form submissions.
    - POST- http request with side effects such as emails and credit card transactions, produced by some form submissions, arguments sent as part of request body.
- What is an HTTP request?

    - AN HTTP request is an HTTP method that requests a server provide information be supplied to the client (for example an HTTP GET request).
- What is an HTTP response?
    - The HTTP response is the server's information response to the client's request. Part of the supplied information includes status code, content type, cookies, etc.
- What is an HTTP header? Give a couple examples of request and response headers you have seen.
    - HTTP headers are part of the information sent by HTTP methods. This information described the nature of the request and response. Information contained in the headers include hostname requested, data, language, cookies, content type, time, caching information, etc.
- What are the processes that happen when you type "http://somesite.com/some/page.html" into a browser?
    - The browser(client) generates an HTTP request and sends it to the hostname address (server)
    - The DNS system determines the hostname from the URL and returns the IP address of the hostname.
    - After passing through redundant node network as specified by the internet routers, the information is received by the server.
    - The server determines what processing is required and what information as specified by the URL should be returned to the client.
    - The server sends the HTTP response back through the internet.
    - The client receives the information and renders it on the display.

# Part Two: Practice Tools

1. Using ***curl***, make a ***GET*** request to the *icanhazdadjoke.com* API to find all jokes involving the word "pirate"

```
C:\Program Files\cmder
λ curl -G https://icanhazdadjoke.com/search?term=pirate
```

What does a pirate pay for his corn? A buccaneer!
What did the pirate say on his 80th birthday? Aye Matey!
Why couldn't the kid see the pirate movie? Because it was rated arrr!
Why do pirates not know the alphabet? They always get stuck at "C".
Why are pirates called pirates? Because they arrr!
C:\Program Files\cmder

2. Use dig to find what the IP address is for icanhazdadjoke.com

```
λ dig icanhazdadjoke.com
; <<>> DiG 9.16.9 <<>> icanhazdadjoke.com
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 29022
;; flags: qr rd ra; QUERY: 1, ANSWER: 3, AUTHORITY: 0, ADDITIONAL: 1
;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 512
;; QUESTION SECTION:
;icanhazdadjoke.com.          IN      A
;; ANSWER SECTION:
icanhazdadjoke.com.     300     IN      A       104.27.179.173
icanhazdadjoke.com.     300     IN      A       172.67.181.69
icanhazdadjoke.com.     300     IN      A       104.27.178.173
;; Query time: 23 msec
;; SERVER: 192.168.1.1#53(192.168.1.1)
;; WHEN: Wed Nov 25 21:12:47 Eastern Standard Time 2020
;; MSG SIZE  rcvd: 95
```

3. Make a simple web page and serve it using ***python3 -m http.server***. Visit the page in a browser.

Completed

# 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.

Completed

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.

Completed

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?

No

Explore in Chrome how you can view the request and response headers, as well as the form data.

Completed

## Part Four: Explore the URL API

At times, it's useful for your JavaScript to look at the URL of the browser window and change how the script works depending on parts of that (particularly the query string).

Read about the URL API

Completed

Try some of the code examples in the Chrome Console so that you can get comfortable with the basic methods and properties for instances of the URL class.

## Solution

You can view our solution