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ITWS exam 1
10/20/2023
Prof.Callahan

Part 1 (20 points)

Copy these four questions into a new Word document and answer them in **long-form**.

1.1 Describe in your own words how the web works! In as much detail as you can, describe **all** the sequences of events that take place from the time a user presses Enter on the keyboard after typing in www.rpi.edu into the address bar to when the webpage is finished rendering in the browser. Specifically, tell me in great detail the **two protocols** we discussed in class in action. (8 points)

After we enter on www.rpi.edu, the local host will send a request to the Caching Server, which can find IP(Internet protocol, which can identify each device connected to a network like PC, smartphone, server etc.) addresses from the root server, Top level server and authoritative server. Then DNS reads it as /edu/rpi/www and requests via https(Hypertext Transfer Protocol Secure, make the html file be a web page) with a browser like firefox or chrome on your local host.

1.2 Explain what is meant by a Universal Interface in a REST API. (5 points)

Uniform interface between Client and Servers

Identification of resources

Manipulation of resources through representations

Self-descriptive messages

Hypermedia as the engine of application state (HATEOAS)

Simplifies and decouples the architecture

Resource-based

Only the requested resource is returned, not the entire DB

Self-descriptive messages

All data necessary to understand request or response is included in the HTTP headers

We can also think of this as “Discoverability”

1.3 Explain how your browser chooses which CSS rule to apply to a tag in the case where there are multiple rules that could apply. (3 points)

When rules matching the same element with the same declaration conflict, the declaration's rule with the higher specificity will be used, like Inline styles, IDs, classes, elements and pseudo-elements.

Equal specificity: If the same rule is written twice into the external style sheet, then the lower rule in the style sheet is closer to the element to be styled, and therefore will be applied:

1.4 What command would you use to change the ownership of a file or directory on a Unix machine (such as your Azure VM)? Show me a complete command invocation to make a directory named `/var/www/html` be owned by a user named `callab5` and a group also named `callab5`. (4 points)

SSH to `callab5@vm`

```
$ sudo chown -R www-data:www-data /var/www/html
cd /var/www/html
sudo usermod -a -G www-data callab5
sudo usermod -a -G www-data callab5.
```

EXTRA credit:

RPI 200th Anniversary