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)
Your computer asks a server through a HTTP/HTTPS request if it has the DNS you're looking for, if it does not, it contacts the server it thinks may have that IP and directs you there. Once it finds the IP it sends you the HTTP/HTTPS response that loads the webpage.

1.2 Explain what is meant by a Universal Interface in a REST API. (5 points)
What is meany by a Universal/Uniform Interface is the set of communication procedures between the client and the server. They have Identification of resources, self-descriptive messages, and HATEOAS. The client should be able to use the API just through the HTTP response. For example if a recourse has already been created, send a 405 and allow GET, PUT, and DELETE.

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)
Multiple rules can apply, but if there are two contradicting ones like "flex-direction: column" on the parent class, and "flex-direction: row" on the child, then it will pick then more specific one (row), hence the cascade. In the case where two rules can apply, like when you put two "flex-directions" in the same CSS segment, it will choose the latter one.

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)
sudo chown callab5:callab5 /var/www/html

Part 3 (15 points)
Choose one of the attacks you learned about in the Google Gruyere activity and walk me through how and why that attack works, and what you can do in order to mitigate such an attack in your term project, explaining the mitigation and why it works to prevent the attack. You may use code snippets or pseudo-code to help explain things.

One of the attacks we talked about in the activity is a Cross Site Scripting, XSS, attack. The way the attack works is when the attacker tries to put code into the webpage through an input feild. If a web page is not properly secured, then the attacker can steal information like login credentials of users or personal data. The way to properly secure the website you're creating is to use input validation. The way this works is after every input the user enters, the website can validate the input to make sure there is no special characters or code that could harm your website.

Extra Credit (+5 points)

1. What anniversary is ITWS celebrating this year?

25TH!