Part 1 (20 points)

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

1.1 Explain in detail (at least one paragraph of at least 5 sentences) what is meant by a Universal Interface in a REST API. (7 points)

A UI in the context of a REST API refers to a standardized, uniform way of interacting with resources, regardless of the type of client or server involved. This method ensures that the techniques/commands used to communicate with the API are consistent and predictable, which allows for easy coupling between clients and servers. The key element of this is the use of HTTP methods (such as GET, POST, etc). Additionally, resources are typically identified by URIs (Uniform Resource Identifiers), and data is exchanged in standard formats such as JSON or XML. The goal of the Universal Interface is to abstract the implementation details so that clients do not need to know how resources are stored or manipulated behind the scenes, making the system more scalable and adaptable. By enforcing a uniform interface, REST systems promote scalability, extensibility, and the ability to evolve independently without breaking interactions.

1.2 Explain in detail (at least one paragraph of at least 5 sentences) the three primary roles of Scrum and what each's responsibilities are. Which role(s) are you, and why? Which role(s) am I (the professor and the TAs) and why? (8 points)

In Scrum, there are three primary roles: Product Owner, Scrum Master, and Development Team. The Product Owner is responsible for defining the product vision, managing the product backlog, and ensuring that the team is working on the most valuable features. They act as the bridge between stakeholders and the development team, prioritizing work to ensure business goals are met. The Scrum Master is responsible for facilitating the Scrum process, removing impediments, and ensuring that the team adheres to Scrum principles and practices. They act as a coach, guiding the team to improve and ensuring smooth collaboration. The Development Team consists of cross-functional members who are responsible for delivering potentially shippable increments at the end of each Sprint. They are self-organizing and collaboratively decide how to achieve their goals within each Sprint.

In this context, I represent the Development Team because I am responsible for completing the work assigned during the course, such as coding and other tasks. You (the professor and TAs) take on the role of the Product Owner and partially the Scrum Master. As the Product Owner, you define the scope of the assignments and prioritize the work students need to complete. You also serve as a Scrum Master by providing guidance, addressing any blockers, and facilitating the learning process.

1.3 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. (5 points)

Altering the ownership of files/directories in a Unix shell is performed using the command chown or chmod for modifying permissions. In this case, we are changing the owners of a file/directory, so we are going to use chown. The syntax for chown is the following:

$ chown [owner]:[group] [file/directory]

($ included for clarity, is not required to call chown if typing directly into shell)

To make a directory named named /var/www/html to be owned by a user named callab5 and a group also named callab5, the following chown command should be executed:

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