Writeup- The CIA Triad Collin Fitzgerald 4/10/2025 CYSE 200T

The CIA Triad is a long standing fundamental rule in the cybersecurity realm. The nomenclature "CIA" is not referring to the agency, but instead referring to confidentiality, integrity, and availibility. These key principles making up the CIA are crucial for effective information security practices. In order for data being stored and transported throughout the network there must be a strict framework in place to protect all aspects. This model establishes the very foundations that create the developmental factors of a security system. To make more sense of the triad, it is not only important to know what it stands for, but what each letter represents. Confidentiality ensures sensitive information is accessed only by authorized individuals, entities, or systems. For example, Google Drive practices confidentiality by ensuring only authorized individuals access certain documents. Integrity refers to the assurance that data remains accurate, complete, and unchanged throughout its lifecycle. Captcha verification to make sure the user is human is a great example of integrity. Lastly, availability means that information and resources are consistently accessible and usable by authorized users when requested. A banking service giving users online access to their funds is a positive example of availability.

Authorization versus authentication can be somewhat similar in some cases, but they are vastly different. Authentication is a method in which identity is verified to a specific system. This practice ensures that the person is who they claim to be by verifying credentials (passwords, usernames, etc.). This process is very important as critical infrastructure and personal data can be susceptible to breach if authentication is not carried out properly. Authorization on the other hand is what verifies an authenticated user is actually allowed to do within. It relays permissions and rights to the user to conduct

themselves within a system. This authorization could dictate levels of how much data, services, or applications a person has availability to.