a) Why software architecture is essential:

After reading the text and watching the video, I conclude that software architecture is important in every organization because it determines how a system is organized, structured, and designed. It allows skilled developers to work together effectively by providing shared knowledge. The architecture ensures the software system can handle growth, be easily maintained, and perform reliably. It aligns technical choices with business goals and enables the efficient development and adaptation of complex software systems.

b) Difference between software architecture and software design:
Software architecture is the big-picture view of a system, focusing on its overall structure, organization, and essential components and how they interact. but software design deals with the specific details of individual parts within the architectural framework. It involves designing things like the internal structure, interfaces, and interactions of smaller parts to make the system function. Architecture provides the overarching framework, while design focuses on implementation details.

c) Challenges in software architecture:

Software architecture is difficult due to various reasons. First, it involves dealing with abstraction and complexity, trying to find the right level of detail while accurately representing the intricacies of the system. Second, making architectural decisions often means making trade-offs between conflicting goals, which can be complex. Third, software architecture is a collaborative effort, requiring agreement and understanding among expert developers, which can be challenging to achieve. Lastly, architecture must consider both functional and non-functional requirements, making it necessary to balance multiple considerations and ensure they are met throughout the system.