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Ch. 12 Homework

1) There are a few key differences between embedded devices and mobile devices. Computers that run inside some other devices are embedded devices and are often small and not noticeable. An embedded device is a computer which typically performs a single function and is a component in some other device. Mobile devices are devices that move in and out of environments with regularity as well as store and transmit data without notice, they tend to have powerful hardware resources and functions and capabilities, and they tend to be connected to the internet at all times.

3) Embedded devices, although small, are everywhere. Many devices used today have embedded devices. They are in everything from devices used every day such as digital alarm clocks to more complex devices such as cars to even more complicated things like industrial control systems. Embedded devices play a large role in everyday life of the physical world. Security of these embedded devices matters because if the intended functionality of these devices can be jeopardized, the physical everyday life of the world would be greatly impacted.

6) Jailbreaking, also known as rooting, is the process of removing the restrictions from a mobile device that the device manufacturer placed on it. Manufacturers place these restrictions on their mobile devices for a reason and removing them entails exposing your device to new dangers. Because jailbreaking involves removing the security restrictions on your mobile device, jailbreaking leaves your mobile device open to malicious apps as well as outside attacks. Jailbreaking mobile devices makes them a greater vulnerability which attackers can exploit in your security system, and it is just better if you don’t jailbreak your mobile devices.

7) There are several problems which exist when updating an embedded device. One of them is because embedded devices often aren’t networked, these embedded devices cannot be updated automatically. Embedded devices are also typically small components to larger computer devices, and you would have to access each of these small, embedded device components if you wanted to update them which would be inconvenient. There are also very many embedded devices which exist which if some of them need updates, that would be a lot of devices that need code written for their updates and time spent updating them.

9) The types of network connectivity vary for internet of things devices. Typically, a type of connection which is efficient with its power consumption, performance, and has an appropriate range of communication is desired. The type of connection depends on these factors and how appropriate the connection will be given what specifically the internet of things device is. Just to name a few types of connections that an internet of things device might have is a direct ethernet connect or a wireless Wi-Fi or cellular connection.