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ITMD 511: Application Development Methodologies

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HW1

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Part 1:

The biggest computer software failure in history happened in 2014 when Heartbleed arrived. This was a newly discovered security vulnerability would put users’ passwords, usernames, and credit card information at risk. Heartbleed was a security vulnerability in OpenSSL software that would let a hacker access the memory of data servers. About 500,000 web sites were affected, which meant that user’s sensitive data was at risk of being intercepted at each of those sites. This vulnerability also meant that an attacker could steal a server’s digital keys that were used to encrypt communications, and could allow the attacker to access a company’s internal documents. The OpenSSL versions that had this vulnerability were 1.0.1 through 1.0.1f, and the use of OpenSSL is across the web. The people who discovered the issue were from a security firm called Codenomicon and Google researcher Neel Mehta. This vulnerability could have been avoided by limiting the amount of time the connections were open or setting them to drop the connection once the session ended. If the connections were closed, it would help to prevent an attacker from trying to gain access to the session due to the line of code that contained the bug called CVE-2014-0160. Another option is to limit the key usage so that if an attacker did gain access to an encryption key out of the server’s memory, they would not be able to decode all the secure traffic from the server because the keys use was limited.

Part 2:

One software program that I have written was an android application called Star Mission. It was developed for 6th-8th grade students to help them learn more about astronomy at the YOUmedia Center in Humboldt Park. We had discovered that the center had a Sky Quest XT6 telescope that was donated to them by the Adler Planetarium, and that was not being used at the YOUmedia Center due to inadequate knowledge of astronomy and how to use it. We made the design of the app simple and kid friendly to not deter them from using it and make it fun. Our goal was to get the students more interested in astronomy with the use of technology, and then hopefully make them want to explore more on their own by wanting to use the telescope. Our team had a few problems with development of the application, but the biggest one was android version issues. Older android devices with an older android version would have issues running the app once it was loaded, causing it to lock or crash immediately. Originally, we had coded the application to be used with the latest version of android, but later during the project our team had received some used android devices to be donated to the YOUmedia center to be used for the Star Mission app. Unfortunately, even after going back into the code and changing the android version, it was discovered that some of the devices could not handle our application. This problem resulted in limiting the number of devices that were to be donated to the YOUmedia Center. Our solution to the issue was to get our application licensed and up on the Google Play Store, so that the students and faculty could download it on their own devices.