SLIIT

Discover Your Future

Sri Lanka Institute of Information Technology

Mini Case Studies
Individual Assignment 2

IE2022 - Introduction to Cyber Security

Submitted by:

Student Registration Number	Student Name
IT19001180	Rodrigo K. A. M.

Date of submission: 14.05.2020

Case Study 01 - Electronic Health Record (EHR) Access Control Case Study

a. Benefits

- Private key is created and saved on the smart card. Smart card's operating system avoids key revelations outside the card.
- Digital certificate is saved on smart card and it makes authentication and nonrepudiation possible.
- Information on smart card is encrypted. So, no one can do anything to the information.

Risks

- Price of readers
- Certificate authority issues
- Algorithm replacement

b. Protecting the system in opposition to illegal information. Alteration by guaranteeing that obtained information is true and hasn't been modified.

c. Protecting authorized limits on data information access using encrypting the confidential data.

d. Validating the users by allowing single sign on and using e-signs.

e. PKI uses the public key cryptography. So, there is a pair of keys called public key and private key. Public key is used for the public and private key is kept by the user. Using public key, cannot find the private key of a user. So, when information is received by the user, it can only be read or opened through the user's private key. So, data transmission is secured.

f. Because hospital system must be a real time system and contains sensitive data such as patients records, doctors records etc. It means when the data is processed, the results should get quickly (at the moment). So, when using smart cards/PKI, the data processing will be more secure since the data encryption methods and other security measurements.

g. Smart cards are used to finish digital forms. So, using smart cards redundant data can be eliminated. To do that smart card has to be connect with the database of the system. And

smart cards enable expansion and mitigation. Higher consultants for advance in reducing data redundancy.

h. Using digital signature. There is a process to create a digital signature and at the end of the process the signature will be verified when the signature matches hash value and key which are used in the middle of the digital signature creation process. the digital signature is only available to a trading partner. So, data accuracy is high.

i. Doctor functions: It would be better to have prescriptions for common illnesses. By doing that some time is saved and it may help to increase the efficiency of the system.
Patient functions: It would be better to add a feedback session. So, if a patient wants to do a complaint or suggestion, it would be way to increase the efficiency of the system.
Nurse functions: It would be better to include a description about each disease and their symptoms.
• visitor functions
• attendant functions
• pharmacist functions

j. Yes. Because it is a main reason to increase the efficiency and the security of the system. When smart card technology implemented in EHRs the patients, the staff including the doctors information will be secured and only authorities can access to the information. The efficiency and the security will be increased better than paper based records

Case Study 02 - Protecting Employee Data in a Global Corporation Case Study

a) Employee data is a kind of sensitive data. Because all those data contain their private matters. So, if employee data is leaked by mistakenly or allegedly, employee's privacy can be violated and also corporations will be having lose profit, bad publicity and also legal actions.

b) No. corporation gives attention to their employee if they have US employee. They protect their sensitive data under the US rules.

c) Sony Pictures Entertainment hack

d) Model contract, safe harbor

e) It is an important responsibility of every corporation to protect their employee data. If someone handle those sensitive data improperly, it will ruin everything including the corporation. So, the privacy of the employees will be violated, and their details will be eliminated, everyone will know about them. On the other hand, corporation will get a bad name and they will be having loss of profit.

f) • Shell oil corporation must respect to their core values (honesty, integrity etc) and follow them
   • Implement more security options to their database (sensitive data)
   • Appoint legitimate users to access the data

g) • Use a strong encryption method
   • Respect to the country rules to protect data
   • Respect to the corporation vow