Gentjan Gjeci
Milestone
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Because privacy has been one of the fundamental principles of our society it is very important that in our digital age we uphold that principle and protect our privacy by taking appropriate measures to do so. Encryption of our communication through digital media is the foundation upon which we build to protect our privacy. In the digital age, information plays such an important role and it affects our lives in one way or the other. Protecting our information is crucial, and finding better solutions or improving upon the existing ones, motivated me to further investigate how encryption works and how it can be used for our own benefits to keep our communications safe. As more and more mobile devices are used in our everyday lives I wanted to develop an application that sends and receives encrypted messages between users.

As the information in the digital age has become more and more important, keeping our information private and secure has become a necessity. If personal information is compromised it can have dramatic effect on people. With the tremendous increase on the usage of mobile devices and messaging applications to communicate between each other, it has become a challenge to keep our information secure from malicious people. Most mobile users today exchange messages with each other thinking that only they and the intended recipient will see the information. But as the data moves through the digital media encrypted it can compromised and stolen.

Most text messaging application people use in their mobile devices do not encrypt the data. Data traveling from user to user can be collected very easily from hackers or a person with the right skills. The information obtained illegally can be used

for anything, which can have a devastating outcome for users. Encrypting the data is a way to protect information from unauthorized entities. Encryption makes it almost impossible for anyone to read the encrypted data or make sense of the information even if they are able to obtain the data. Using existing encryption technology enables users to share information securely, and only the intended users can decrypt and read the information. In my research I will show how we can use encryption tools to build a secure messaging application which can be used to share information securely through the digital media.

Before the data is transmitted between parties, it is first encrypted by a strong encryption system built specifically for this application. I am using AES-128 bit encryption, one of the most advanced and secured encryption in existence today. The encryption key will be built before the communication starts and will be shared between users in a secured way. After that the both parties will use the same key to encrypt and decrypt messages sent between them.

The application will be installed among different virtual android devices and a conversation will be started to share messages between them. For experimenting purposes both the encrypted and unencrypted messages will be shown so the messages can be analyzed and compared between them. My application is able to send and receive messages between two users using the same messaging application. The messages are transmitted in plain text as I am working to build the encryption functionality within the application.

Securing the information by using strong encryption makes it impossible for unauthorized users to read the information illegally. Users can share data between each

other without the danger that their information will be compromised, stolen, and used to harm them.

References

Alexander Stanoyevitch. (2013). *Introduction to Cryptography with Mathematical Foundations and Computer Implementation*.