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Network & Security

Dr. Yang

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Homework #1

1. Explain the CIA triad.

Give a practical example for each of the objective/service in the CIA triad. (15 points)

The CIA triad is an acronym that stands for Confidentiality, Integrity, and Availability.

* Confidentiality stands for security of the content that is sensitive. An example of this would be the action of encrypting data and effectively distributing the key.
* Integrity stands for keeping the data consistent and accurate at all times. An example of this would be preserving the documents from unwarranted alterations.
* Availability stands for ensuring that hardware, software, etc is update to date and easily accessible to those who have authorization. An example would be having backup of data and having it easily accessible.

1. Textbook, Page 27, Problem 1.8 (attack tree) (15 points)



1. Textbook, Page 98, Problem 3.19. Please use both Vigenere basic cipher (10 points) and Vigenere autokey cipher (10 points).

Key: L E G L E G L E G L E

Key: 11 4 6 11 4 6 11 4 6 11 4

Phrase: 4 24 14 9 0 13 0 19 9 14 13

Phrase: E X P L A N A T I O N

Ciphertext: 15 2 20 20 4 19 11 23 14 25 17

Ciphertext: P C U U E T L X O Z R

Autokey: L E G E X P L A N A T I O N

Autokey: 11 4 6 4 23 15 11 0 13 0 19 8 14 13

Phrase: E X P L A N A T I O N L E G

Phrase: 4 23 15 11 0 12 0 19 8 14 13 11 4 6

Ciphertext: 15 27 21 15 23 27 11 19 21 14 32 19 18 19

Ciphertext: P B V P X B L T V O G T S T

1. Textbook, Page 99, Programming Problems 3.23 (20 points) and 3.26 (30 points).

In the folder as 3.23 and 3.26

1. Reading assignment: Chapter 1 and Chapter 3 of textbook (William Stallings).