RMIT UNIVERSITY

From: Dr. Dwight

Re: COSC2539 Assignment 1

Instructions — For assignment read and complete the following tasks and questions. Make sure to review the grading rubric.

Q1. (20 Marks)

Papaya Inc is global producer of papaya fruit. The company has been doing well with online sales. However, the CEO is concerned about the cyber security of the organization.

Discuss two cyber threats that the organization could potentially face and analyze the impact to the CIA triad. Then provide some recommended security mechanisms to mitigate the threats. (Write 300-500 words)

Q2. (20 Marks)

Your business manager at Papaya Inc. is on vacation in New Zealand. Unfortunately, your manager is a work-a-holic, and has continued to do work instead of spending time with his family. He is working from a small coffee shop with an unsecure wireless access point. He wants to send you a message but does not want a stranger or bad person to intercept the message and protect confidentiality.

Discuss and recommend the standard type of symmetric encryption that he should use for protecting documents for communication (hint: US government standard). Secondly, provide the technical command line code step-by-step to encrypt the file.
(Write 300-500 words)

Q3. (15 Marks)

Your business manager appears to have ignored your last email outlining how to protect documents and has sent you the following ciphertext using a simple substitution cipher he found on the Internet. Decipher the following text using the frequency analysis technique. First, create a frequency analysis table. Second, decrypt the message. Show the steps or justification (aka what were your hypothesis and trial and error)

Gsrh rh z xlmgizxg yvgdvvm Kzkzbz Rmx. zmw Yznyll Zriormvh uli gsv kfixszhv lu 50 glmh lu wirvw kzkzbz. Gsv gvinh lu gsv ztivvnvmg ziv zh ulooldvw. Gsv xlmgizxg droo ozhg urev bvzih. Yznyll Zriormvh droo kzb lm z jfzigviob yzhrh gsv nzipvg ezofv lu 2.5 glmh. Ru vrgsvi kzigb yivzxsvh gsv xlmgizxg, gsvm vzxs kzigb droo vmgvi xlmuorxg ivhlofgrlm. Xlmuorxg ivhlofgrlm rmeloevh vzxs kzigb vmgvirmt z yzmzmz vzgrmt xlmgvhg. Gsv kzigb gszg vzgh gsv nlhg yzmzmzh droo yv wvvnvw gsv drmmvi. Gsv drmmvi droo wvgvinrmv gsv lfgxlnv lu gsv yivzxs lu xlmgizxg.

Q4. (25 Marks)

Record a video to perform a technical demonstration of any functionality of public-key cryptography using OpenSSL or other tool. The demonstration can cover concepts from the textbooks, lectures, tutorials, or you may choose another area based on permission from the instructor.

Essentially, you will record a demonstration of the software and discuss step by step what you are doing. Then upload Studio on Canvas to upload.

Q5. (20 Marks)

Academic Article Synthesis

Synthesis usually entails finding the connection (similarities) between two concepts or topics. Synthesize two of the academic articles that you reviewed summarized over the past 4 weeks. Discuss how these two articles are connected. Make sure to include the proper IEEE citations.
(Write 100-300 words)