

1. (Classified Research for the US Government)

[Assumptions: I assume that the international students and myself have some sort of clearance, all students devices have some sort of complex password but most likely do not have an antivirus software, and a budget for how much security the university can buy. In addition, I assume that only the students and I have access to the information and that the information regarding the research is stored in a very secure computer or location]

Assets:

- Research Data/Notes: The US government trusted the researchers to perform a task that is classified which means that the research could endanger national security and damage my reputation if fallen in the wrong hands. I am trying to enforce confidentiality and privacy of the asset.
- List of researchers: The list of researchers involved in the research task can endanger the professor's and the students' lives if fallen into the wrong hands. I am trying to enforce confidentiality, privacy, and availability.

Threats:

- Cybersecurity breach: Foreign and domestic black or red hat hacker groups would want access to the classified research data and would probably have advanced hacking capabilities and are sometimes funded by a foreign government. Their degree of access would probably be external unless one of the international students attempted to weaken the vulnerability of the computer systems used and such threat is likely to occur.
- Burglary: Anyone can try to break in and physically steal the research data or the computer itself for the purpose of accessing the classified data to either sell it or give it to an unfriendly nation. Burglars will probably have basic lockpicks or additional tools to break and enter a location, but their degree of access will most likely be external and burglaries will rarely occur.
- Espionage and/or Sabotage: Since the students are international students, they may have loyalty to their own nation and may give some data to their nation even if they received a clearance. In addition, since the students are directly involved with the research, they have access to a lot of the data and their degree of access will most likely be internal but will unlikely happen.

Countermeasures:

- Antivirus and/or Anti-Malware Services: I think if the university or the researchers paid for an antivirus and/or anti-malware services, it would be worth it because the services are not extremely expensive, yet they do a pretty good job protecting computer systems.
- Training: I think paying for basic cybersecurity training is worth it because although it may be somewhat costly upfront, the training will go a long way and will teach habits that can significantly lower the chance of a cybersecurity breach.

2. (Manage a Large University with Pin Tumbler Locks)

[Assumptions: I assume that the university has a budget regarding security and that better locks often require more maintenance. In addition, I am assuming that the university is close to or in the middle of a large city where crime often happens, and where criminals carry weapons.]

Assets:

- Students and Faculties: The students and faculties are the most important part of the university and are at risk from crime especially in large cities where criminals can just walk into the university or in off-campus homes. I am trying to enforce integrity and privacy.
- University's Sensitive Information: Universities carry sensitive information about the students and faculties especially things like bank accounts, social security numbers, schedules, and many other things. I am trying to enforce privacy, confidentiality, and integrity.

Threats:

- Crime: Since the scenario is in the middle of a large city, crimes are likely to happen for things such as money, harming others, and other malicious intents. Criminals will be able to break into windows, carry weapons, and possibly lock pick doors yet their degree of access will be external.

Countermeasures:

- Better Locks for Student Dorms: I would invest in better locks for student dorms, such as locks with more tumblers, because I think the initial cost will be expensive upfront, but the maintenance should be relatively low. In addition, the locks last for a while replacing old locks will rarely happen.
- Invest in a Police Force: I think investing in a police force is a justified because even if someone were to have an extremely secure lock, if there are no police, the criminal would just come back the next day even more armed and dangerous. Although, a police force requires a lot of money, it significantly deters the rate of crime.
- Reinforced Doors in Academic Buildings: I think investing in reinforced doors for academic buildings is justified because although the initial cost is expensive, similar to the locks for student dorms, maintenance should have a relatively low cost and there are not too many academic buildings. In addition, since students are in those academic buildings for the majority of the day and afternoon, it would have the lowest cost relative to protecting the most students.

3. (Weekend Trip)

You are a UVA student who lives in a house along Jefferson Park Avenue and all your housemates invited you to a weekend trip where your house will be empty for two to three days. However, your house has a weak door frame and a cheap lock with a window at ground floor (where someone can crawl in), but you are a college student, so you do not have much money. How could secure your house as best as you can for the weekend trip?

Assets:

- Computers: Computers are extremely expensive and often times hold sensitive and important data so someone who has your computer can learn a lot about you without your permission. I want to enforce privacy.
- Safe: Some college students have safes in their houses which means that they often have money or sensitive data in those safes and those safes can be carried away. I want enforce privacy and confidentiality.
- Property: In general, properties such as your television, couch, chair and many others cost money so if someone were able to steal those things, you would lose a lot of money. I want to enforce privacy and integrity.

Threats:

- Robbery: Robbery is always a threat in cities and universities that are close to locations with a large population density, especially for students who do not make too much money. Oftentimes, robbers would rob a house for money and property and can easily do so because typical student homes are not very secure, even if their access was external.
- Someone Trying to Shelter in your House without Permission: Some homeless people, may easily break and enter your home for shelter. Although, helping people is a good thing, breaking and entering without permission does violate someone's privacy.

Countermeasures:

- Lock Doors: The most sensible countermeasure is to lock your doors because there is no cost to doing so and it heavily deters people from entering your home.
- Leave Some Lights On: I think leaving some of the lights on is justified because it gives the impression from someone outside the house to think that people are present deterring criminals from even attempting to enter your home. Although there is an additional cost to the electricity bill, it is still better than losing a lot of money from someone knowing that the house is empty because all the lights are off.
- Have a Friend watch the house: I think having a trusted friend watch the house is one of the best countermeasures because there is little to no cost yet you essentially have a free bodyguard over the house.