Homework 1: Threat Modeling

This homework is due **Thursday, September 7** at **10 p.m**. You will have a budget of five late days (24-hour periods) over the course of the semester that you can use to turn assignments in late without penalty and without needing to ask for an extension. You may use a maximum of two late days per assignment. Once your late days are used up, extensions will only be granted in extraordinary circumstances.

We encourage you to discuss the problems and your general approach with other students in the class. However, the answers you turn in must be your own original work, and you must adhere to the Code of Academic Integrity. Solutions should be submitted electronically via Canvas in **plain text format** by completing the template at the end of this document.

I. Introduction

Welcome to *Introduction to Networks & Security*! To get to know you better, we would like you to answer the following questions. In addition, please take a photo of yourself (a "selfie") and include it with your homework submission. Don't worry, we won't publish it anywhere!

1. What is your name? How would you like to be called?

2. What are you looking to get out of this course?

3. What kind of experience do you have with Python, Javascript, C, and computer networking?

4. Is there anything else you would like the course staff to know?

II. Rational Paranoia

For each scenario below, imagine that you are in charge of security. Apply the security mindset to answer these questions:

> *What assets are important for you to protect?*
> *What security threats will you choose to defend against?*
> *What countermeasures can you justify, in terms of costs and benefits?*

Answer each of the above in the form of a bulleted list, with brief justifications or explanations as necessary. State any critical assumptions you decide to make. Your grade will be based on the thoroughness, realism, and thoughtfulness of your analysis.

1. Pick **two** of the following scenarios. (If you answer them all, we'll choose the lowest two scores.)

   (a) You are managing the security of checked luggage at Philadelphia International Airport.

   (b) You have been appointed White House Communications Director.

   (c) As head of the NSA, you set procedures for hiring new employees.

   (d) You are grading Homework 1 submissions for a class of 50 students.

   (e) You are responsible for the security of a Penn high-rise dorm.

   (f) You are responsible for the nighttime security of the Benjamin Franklin statue near the Upper Quad gates.

   (g) You are re-designing Penn InTouch's academic recordkeeping system.

2. Choose another scenario from everyday life that we haven't discussed in class.
   Your choice may be directly related to computer security, but it doesn't have to be.

Submission Template

Please submit your answers to Canvas in a plain text file. Upload your selfie as a separate file.

```
# Survey
- Name: ...
- Course hopes & expectations: ...
- My experience with:
  (a) Python: ...
  (b) Javascript: ...
  (c) C: ...
  (d) Networking: ...
- Anything else you'd like us to know: ...

# Problem 1:
_____ Scenario (repeat twice)

[Assumptions:
explain_assumptions]

Assets:
- Asset - brief_explanation
...

Threats:
- Threat - brief_explanation
...

Countermeasures:
- Countermeasure - brief_justification
...

# Problem 2:
Original Scenario

explain_your_scenario

Assets:
...

Threats:
...

Countermeasures:
...
```