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A Dialogue on Security

Chapter by **Peter Reiher (UCLA)**

Professor: *Hello again, student!*

Student: *I thought we were done with all this. We've already had three pillars, and I even stuck around for a few appendices. Will I never be done with this class?*

Professor: *That depends on who I am. Some professors want to talk about security and some don't. Unfortunately for you, given that you're here, I'm one of those who want to.*

Student: *OK, I suppose we'd better just get on with it.*

Professor: *That's the spirit! Soonest begun, soonest done. So, let's say you have a peach...*

Student: *You told me we were at least done with peaches!*

Professor: *When one is discussing security, lies will always be a part of the discussion. Anyway, you've got a peach. You certainly wouldn't want to turn around and find someone had stolen your peach, would you?*

Student: *Well, if it isn't as rotten as the one you ended up with, I suppose not.*

Professor: *And you probably wouldn't be any happier if you turned around and discovered someone had swapped out your peach for a turnip, either, would you?*

Student: *I guess not, though I do know a couple of good recipes for turnips.*

Professor: *And you also wouldn't want somebody slapping your hand away every time you reached for your peach, right?*

Student: *No, that would be pretty rude.*

Professor: *You wouldn't want that happening to any of the resources your computer controls, either. You might be even unhappier, if they're really important resources. You wouldn't want the love letter you're in the middle of composing to leak out, you wouldn't want someone to reset the saved state in your favorite game to take you back to the very beginning, and you would be mighty upset if, at midnight the evening before your project was due, you weren't allowed to log into your computer.*

Student: *True, those would all pretty much suck.*

Professor: *Let's try to keep a professional tone here. After all, this is a classroom. Kind of. That's what operating system security is all about, and that's what I'm here to tell you about. How can you ensure that secrets remain confidential? How can you guarantee the integrity of your important data? How can you ensure that you can use your computer resources when you want to? And these questions apply to all of the resources in your computer, all the time, forever.*

Student: *All this sounds a little like reliability stuff we talked about before...*

Professor: *Yes and no. Bad things can happen more or less by accident or through poor planning, and reliability is about those sorts of things. But we're going a step further. SOMEBODY WANTS YOUR PEACH!!!!*

Student: *Stop shouting! You were the one asking for a professional tone.*

Professor: *My apologies, I get excited about this stuff sometimes. The point I was trying to make is that when we talk about security, we're talking about genuine adversaries, human adversaries who are trying to make things go wrong for you. That has some big implications. They're likely to be clever, malevolent, persistent, flexible, and sneaky. You may already feel like the universe has it in for you (most students feel that way, at any rate), but these folks really, truly are out to get you. You're going to have to protect your assets despite anything they try.*

Student: *This sounds challenging.*

Professor: *You have no idea... But you will! YOU WILL!! (maniacal laughter)*