

# Term Project

## Why a Project?

This course covers a very large discipline, and—perhaps more so than many other areas of computer science—the discipline of computer security runs through many other areas. Because the class has a very limited amount of time, we will only touch the surface of many topics. The project is to give you an opportunity to explore one of these topics, or some other area or application of computer security that interests you, in some depth.

## The Ground Rules

You may select a project from the list below (in most cases, you will need to refine or limit the suggestions). You may also think of a project on your own. The project can be a detailed research report or survey, or a programming project. In any case, check with the instructor before beginning to be sure it is a reasonable project. Please select something that interests you.

You may work individually, or in groups of up to 4 people (if you want to have more than 4, please come see the instructor). Of course, the larger the group, the more we will expect from it.

## Some Suggestions for Project and Report Topics

Here are some possible topics for projects. You will have to narrow these down, of course.

- How do you handle phishing attacks, spam, and other annoying mail
- Security requirements for a specific environment, such as a medical or an academic research environment
- How can you automatically configure systems to enforce a particular policy?
- How can you automatically generate a description of the security policy a system enforces?
- Factor a number
- Design and implement a firewall with specific properties and features
- Elections, electronic voting machines, and computer security
- Modify access control mechanisms to an existing system (such as adding capabilities to Linux or Windows)
- Rights and amplification of rights in a capability-based system
- Standards for secure electronic communications (like electronic mail, chat tools, IPv6, or SSL/TLS).
- Design a program (or set of programs) to apply statistical analysis to break ciphers.
- Source code analysis of an open-source project or tool for which source code is available
- How to handle intrusions: detection, tolerance, response (the last two are very hot topics right now!)
- Develop and implement a large (useful) program using assurance techniques, and argue convincingly why it is secure (such as a simple mail server, WWW server, etc.)
- Analyze a system's or site's security.
- Develop security tool (you can pick what you want to write, but please check with me first!)
- People who attack systems; how, who, why, and so forth

## What Is Due and When

Please submit the following on the dates indicated:

*Project selection:* due on Monday, April 11; 10% of project score. Submit a write-up with your team members consisting of a one-line title of your project, a one-paragraph description, and the names of all team members. If you're doing a programming project, state the problem you want to solve and the requirements for a solution.

*Completed project:* due on Wednesday, June 1 (this is the day of the final); 90% of your project score. Turn in your final project.

In all cases, submit the project to SmartSite as described in **All About Homework**. If a team has multiple members, only one need submit the material, and the others can simply submit a note saying who submitted the final project.