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Learn Git and GitHub without any code!

Using the Hello World guide, you'll start a branch, write comments, and open a pull request.

Read the guide

Exercise1GettingStarted

Jump to bottom

sethnielson edited this page 22 days ago · 2 revisions

Exercise 1: Getting Started

Assigned	8/29/2019
Due	9/4/2019
Points	10

Overview

You're probably used to the first day of class being a bit slow. But we're not a usual class.

Network Security has a reputation of being one of the harder classes in this program. It's not really true. The truth is that we have a lot of students without sufficient programming background and I have to work really hard to catch you up.

In my opinion, somebody that has never opened a socket before shouldn't be taking network security. But I don't get to make the rules and I get a lot of students that haven't programmed much at all, let alone worked with sockets.

So here, in class, on day 1, we're going to do a lot to get things setup and moving. Most of this exercise will be in class, but there will be people that miss class and you are going to help them (see teams later in this document).

Part 1: Getting to Know People

The first part of this assignment is to do some "speed networking." I want you to do the following in *10 minutes*:

- Find 5 people you do not know
- Learn their names
- Learn their experience with Python and specifically Python3
- Learn their experience with networking
- Learn their experience with any kind of computer security

Part 2: Form Teams

Create a team of 5 people (or 4 if there aren't enough people left). Your team must include at least 3 people you didn't know before class (or 2 if you have a team of 4).

Come up with a team name if you can do it quickly, but come to the front of the class and meet me as soon as your team is formed. I will give you a team number, a password, and an IP address. The password is for access to a VM at the given IP address, which we'll talk about in a minute.

Part 3: Setup the Environment

If you do not use Linux, you must do one of the following:

- Either, download VirtualBox and setup a VM with Linux
- or, if you use Windows, install a linux distro using Windows Subsystem for Linux

If you use a Mac, you must still use VirtualBox. Every year, we have some kind of incompatibility.

(If you didn't bring your computer today, or you can't get it setup in time, follow along with someone else in your team and then complete the assignment later on your own.)

Once you have Linux available, perform the following ssh command:

```
ssh -N -L 2222:<ip_address>:22 team<team_number>@nas.isi.jhu.edu
```

This will create a tunnel through the publicly available nas to your individual VM.

Next, log in to your machine through the localhost port you just created:

```
ssh -p 2222 student_20194@localhost
```

Part 4: Learn to use some basic Python Sockets

On your new VM, start up a python3 interpreter. You will use Python sockets to connect to a class server and provide the following pieces of information:

- Name (using ascii characters only)
- Preferred email
- github name
- Team name (team<team_number> is fine)

(if you don't have github, please sign up for an account)

To use Python sockets, refer to the documentation. You only need to worry about *client* side sockets. In particular, you need to know how to use:

- socket.connect()
- socket.recv()
- socket.send()

If you aren't familiar with Python3, make sure you understand that you're sending *bytes* not strings. So use b"" to indicate that.

To complete this assignment, you need to connect to 192.168.200.52, port 19001. Once connected, use recv() (1024 bytes will be many times more than enough) to get the instruction message. Transmit back the requested information using send(), and then call recv() again to see a confirmation message. Send a b"YES" message if correct, or b"no" if you need to change it. Once you have it right, calling recv() should show you a b"SUBMITTED" message.

That's it! You just got your first 10 points of class!

Part 5: What comes next?

Next, we will use the email address you gave us to invite you to the class slack (20194-JHU-NetworkSecurity). If you've made it this far, you're in really good shape! You have access to a VM, a local linux or linux-like environment, and you've used Python3 with sockets for network communication!

GREAT JOB!

▼ **Pages** 16

| Find a Page... |

Home

BackgroundOverlayNetworks

Exercise1GettingStarted

Exercise2EscapeRoomSockets

Exercise3EscapeRoomAsyncio

Exercise4EscapeRoomAsychUserInput

Exercise5EscapeRoomPlayground

Exercise6EscapeRoomPackets

Network Security Fall 2019

Playground

PlaygroundBankQuickstart

PlaygroundConverstionQuickstart

Readings

Serialization

Syllabus

Show 1 more pages...

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```