TNE20003 – Internet and Cybersecurity for Engineering Applications

Portfolio Task – Lab 7 Pass Task

Aims:

- To develop a network client program to connect to a remote system and download data/information

Preparation:

- View "Internet Enabled Programming"

Due Date:

- All tasks in this lab are to be completed and demonstrated to your Lab instructor preferably during or at the end of the current lab, but if you do not complete the tasks you may demonstrate it at the beginning of your next lab class. To do this you must upload all documents up to Canvas to ensure that you complete and hand the task in on time. This submission is to be no later 9pm on the day of the next lab. For example if your lab is on the 18/9, then final submission is no later than 9pm on the 25/9.

Task 1

If you don't already have Python on your computer then you will need to download it from here

Python

Task 2

Once downloaded install it on your system making sure that you include the path option under the installation.

Task 3

- Using the lecture notes and your prior knowledge of Programming via Ruby and or C and or C# and or C++, depending on your background, start configuring the code which will allow you to download the content of a webpage.
- In this task, you will be connecting to a remote web server and downloading a HTML page. Since the move to HTTP version 1.1, and the widespread adoption of HTTPS, downloading a web page is more complex than it used to be. As such, there are a number of standard Python libraries to handle all the difficult stuff for you. However, you MUST NOT use these libraries to complete this task. The point of this task is to build a generic client program to connect to a generic system, not to build a web page downloader.

To simplify the coding task to something more relevant for a generic program, we will be using HTTP version 1.0. This will cause the remote server to auto-close the connection when the download has finished. HTTP 1.1 not only keeps the connection open but uses a process called "chunked transfer" which adds complexity to retrieving data. HTTP 1.0 lets you create a simple loop to read data from the server, and when the server is finished, the connection is closed and your loop should automatically terminate.

There are limited systems running HTTP version 1.0, most web servers will return an error if you try. Having said that, the Google home page (http://www.google.com) not only supports HTTP version 1.0, but also functions without encryption (no HTTPS)

Methodology:

Examine the HTTP 1.0 protocol to get an understanding of how to format your request to the server to fetch content. Refer to lecture content, and online materials for support. One such site is "Using sockets in python".

Summary of Pass Task:

You will need to develop a Python program to connect to http://www.google.com, and download the landing page. Your program will need to:

Connect to the google server

Construct the HTML request string to fetch the page "/"

Download the entire response from the google site

Print downloaded response to screen

Assessment:

Not completing this task will result in you failing the Unit

To pass this task, you must demonstrate the functioning program to your Lab Supervisor. Your supervisor will ask you some questions about how the code functions to validate that it is your work. Upon successful demonstration and answering questions, this task will be marked as complete