ITP 125 – Homework 05

Deadline

1 minute before the next class.

Objective

Let’s use Python to solve world problems

Procedure

1. Google Drive and download the **itp125 - homework 05 - challenge01.py**  
     
   Modify this file so that the user can input any number that they want, and the program will spit out the answer based on the inputted number.  
     
   Remember the first part is based on the code for the problem found here:  
     
   <https://projecteuler.net/problem=1>

When you have solved this, rename the file **hw05a.py**

1. Review the problem from the following site:

<https://projecteuler.net/problem=2>

Write a Python script that solves this problem. You may talk with anyone to help find the solution. You may refer to the previous question to figure out the answer. Name this file **hw05b.py**.

**Note:** If for any reason you do not finish. You will still get credit if you try.

Questions

1. Look at the following code:

*:1*

*start bomb.bat*

*goto 1*

If you were to paste that code into a file called “bomb.bat”, what do you think will happen if you run that on a Windows machine?

**This will cause an infinite loop, causing the computer to effectively stop working**

Find a way for you to put this file on a person’s machine and force it to constantly start when they login.

**In windows there’s a “task scheduler” in which you can schedule this file to run at startup. Wow this is actually a really good prank…**

1. How many subnets and hosts per subnet can you get from the network 172.30.0.0 255.255.254.0?

**Number of subnets:**

**Network: 172.30.0.0 = 10101100.00011110.00000000.00000000**

**Network is class B**

**nnnnnnnn.nnnnnnnn.hhhhhhhh.hhhhhhhh**

**Mask: 255.255.254.0 = 11111111.11111111.11111110.00000000**

**There are seven 1’s in the host address space, therefore there are 2^7-2 = 126 subnets you can get.**

**There are nine zeros in the host address space, therefore there are 2^9-2 = 510 hosts you can get for one main subnet.**

1. You are designing a subnet mask for the 172.17.0.0 network. You want 80 subnets with up to 300 hosts on each subnet. What subnet mask should you use?

**172.17.0.0 = 10101100.00010001.00000000.00000000**

**To get 80 subnets, we need 7 bits:**

**172.17.0.0 = 10101100.00010001.xxxxxxx0.00000000**

**Therefore the subnet mask we should use is:**

**255.255.254.0 = 11111111.11111111.11111110.00000000**

1. Which subnet does host 172.22.78.103/25 belong to?

**IP: 172.22.78.103 = 10101100.00010110.01001110.01100111**

**Mask: 255.255.255.128 = 11111111.11111111.11111111.10000000**

**Network: 172.22.78.0 = 10101100.00010110.01001110.00000000**

1. What is the broadcast address of the network 172.27.178.0/23?

**IP: 172.27.178.0 = 10101100.00011011.10110010.00000000**

**Mask: 255.255.254.0 = 11111111.11111111.11111110.00000000**

**Broadcast: 172.27.179.255 = 10101100.00011011.10110011.11111111**

1. What is the first valid host on the subnetwork that the node 172.27.210.169/23 belongs to?

**IP: 172.27.210.169 = 10101100.00011011.11010010.10101001**

**Mask: 255.255.254.0 = 11111111.11111111.11111110.00000000**

**First host: 172.27.179.1 = 10101100.00011011.11010010.00000001**

Submission

After you are done with answering the questions, name the file **hw05a.py (**for the first challenge)**, hw05b.py** (for the second challenge)**, and hw05c.docx** (for the answers to the question) then encrypt the file using **7zip or Keka**, and. Upload the file to your **itp125 folder** on the web hosting.

Set the password to be **dontgooglelemonparty**

Make sure you can see the file by publicly accessing the URL using any web browser of your choosing.

Refer to lab 1 if you are having any issues.