CS 3342 Laboratory Problem Set 1

Due September 22, 2000

These problems are to be done on an individual basis following the Trinity University Academic Integrity Policy. Laboratory problems should be submitted electronically (e-mail to cs3342@ariel.cs.trinity.edu) on or before the due date and should contain a problem write-up, source code to any programs and data sets used in solving the problem. The submitted files should be ASCII text files having Unix end-of-line characters (please convert all Windows and Mac text files to Unix format–I have found that Emacs seems to do a reasonable job of such conversions). If several files need to be submitted, put them in a directory having name *your-last-name-problem-set-number* and create a tar archive of this file system and attach it to your e-mail problem submission.

Mapping a Portion of `Trinity.Edu` Network

The Trinity University internet consists of more than 20 interconnected networks which attach more than 3000 computers in what appears to be two connected networks. This network includes web server machines, database servers, Unix workstations, Intel architecture personal computers, Macintosh computers, print servers, file servers and other dedicated special purpose machines.

The Trinity internet is, as are most internets these days, a very dynamic entity. Changes are constantly being made which involve adding equipment, removing equipment, moving equipment, upgrading equipment, changing software, changing network transmission media, etc. Your task in this laboratory problem is to construct a detailed map of a portion of our internet. It is understood that any such mapping will become out of date rather quickly, but it is still a useful exercise to do this mapping exercise to provide a snapshot of networking activities at this point in time. Further, it helps one's understanding of network technology to actually see state of the art equipment and its installation.

Your map should include the top-level backbone of our internet as well as detailed maps of all networked equipment in the Halsell building. You will find that there is a lot of equipment in this building, so you will have to develop your own mapping notation to deal with the complexity of the information presented in your maps. You may be able to convince computer center staff to show you mapping displays on machines running the SNMP protocol as an aid to locating some of the equipment, but be advised that not all of our equipment responds to SNMP queries.

For each network station (including net based print servers, routers, gateways, etc.) you should indicate the location, machine type, operating system, machine domain name, IP number, physical net media, network protocols and what the machine is used for.

For example, HAS 201C contains a Mac 9500 running the LinuxPPC operating system. The net media is 10Base T, net protocols are AppleTalk and TCP/IP. This a faculty workstation used for teaching and research. I would urge you to design a form to be used when gathering the raw data for this project.

Finally, it is important that this net scavenger hunt be unobtrusive to the owners and users of these machines. Be courteous, do not touch or move the equipment and tell people that they may have access to the information gathered in this project by contacting the course instructor. Each student will be supplied with a letter explaining this project which has been signed by the instructor and the Computing Center Director.

Problem Set 1 Solution [HTML] [PS] [PDF]