IT 593 Computer Networks Lab
Lab Assignment 5

September 14, 2018

Submission Deadline: Monday 08 October, 2018

Lab Objectives

1. *To write, execute and debug c programs which use Socket API.*
2. *To gain exposure to C socket programming.*
3. *To understand how to use TCP and UDP based sockets and their differences.*

Problem 2: *Multi-threaded Web server: The assignment is to create a small multi-threaded Web server using C sockets. Your Web server should implement the subset of HTTP/1.0 as described in detail below.*

1. *Implement the methods GET and HEAD.*
2. *Return the appropriate responses not only for correct GET and HEAD requests but also for malformed or otherwise illegal requests.*
3. *Include Date:, Server:, Content-Type: and Content-Length: headers in all responses. Last-Modified: should be included where appropriate.*

Problem 2: *Write a test program that uses the C socket interface to send messages between a pair of workstations. Use this test program to perform the following experiments.*

1. *Measure the round-trip latency of TCP and UDP for different message sizes* ($e.g., 1byte, 1000bytes, 200000bytes, \ldots, 1,000,000bytes$).
2. *Measure the throughput of TCP and UDP for 100-KB, 2000-KB, 3000-KB, . . . , 32-MB messages. Plot the measured throughput as a function of message size.*
3. *Measure the throughput of TCP by sending 1 MB of data from one host to another. Do this in a loop that sends a message of some size; for example, 1,024 iterations of a loop that sends 1-KB messages. Repeat the experiment with different message sizes and plot the results.*