# CSCI 415 Data Communication Networks
# Homework 6
# Due 03/31/08

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**Nagle algorithm**
This problem intends for you to experiment with the effect of enabling/disabling Nagle's algorithm. By default, the TCP implementation enables Nagle's algorithm. To disable Nagle's algorithm, a client may set the socket option as follows:

```
#include <netinet/tcp.h>

. . .

socklen_t i;
setsockopt(s, IPPROTO_TCP, TCP_NODELAY, &i, sizeof(i));
```

(a) Modify the program of HW2 to do the following:

- Client: the client repeats the following 50 times: (1) send a message with one character, (2) send another message with one character, wait for a message from the server.
- Server: the server accepts messages from the client and sends a message back to the client only when the number of characters received is a multiple of 2.

(b) Using the time() function which gives the number of seconds elapsed since 01/01/1900, measure the time it takes for the client to send all the characters. Estimate how much time the server waits before sending a non-biggybacked acknowledgement. For instance:

```
#include <ctime>

. . .

time_t t1=time(0);

//the code you need to measure the time for goes here

time_t t2=time(0);
cout<<t2-t1;
```

(c) Repeat part (b) with Nagle's algorithm disabled.