

Homework # 2

Due October 13

On the Sun computer which calls itself `washington.cs.unc.edu`, there is a server running at port number 24389. The “state” of this server is a single integer x . When this server receives a datagram y consisting of one to six digits and absolutely no noxious characters such as letters or innocuous characters such as blanks, tabs, or nulls, it interprets the datagram as a positive integer and, if the server is in a good mood, sends a response of the form $x+y=z$, where $x + y \equiv z \pmod{1000000}$, and updates its state to be z . For example, if the server state is 876893 and the server is sent the datagram 303001, its response should be $876893+303001=179894$. However, one-third of the time the server is in a bad mood and will refuse to send any reply. By the way, the server will never reply to an inappropriate message, *e.g.*, `3030x1`.

Your assignment is to write a program that will send twelve datagrams to this server and then receive and print the server’s responses.

The Sun file `/unc/brock/243/f89/src/adder.c`[†] contains the source for the server. By the way, if `washington` crashes someone must execute the following command:

```
% /unc/brock/243/f89/src/adder &
```

on `washington` to restart the server.

Rules of engagement

You are required to do this assignment as part of a team of two or three people unless you are the only Comp 243 student at a remote site.

No member of the team is allowed to generate code except in the presence of his/her team members.

No team may turn in its assignment until all members of the team understand the solution.

No team may contain more than one C/Unix guru or more than one C/Unix beginner unless the team is composed solely of students watching the class from a remote site.

The purpose of these rules is to ensure that students unfamiliar with our computer systems will be helped by experts.

[†] `adder.c` can be retrieved by anonymous FTP from `dopey.cs.unc.edu` as `pub/243`.