CS 2413 Test 2

1. [15] Write a perl script that will print out all lines starting with "Total:" from all the files given on the command line.

2. [**15**] Write a Perl program, called loc, to print out all files with the given name under the directories given on the command line. i.e. the command
`loc core /home/maynard /home/srobbins`
would print out the pathnames of all core files which are in the directory trees below `/home/maynard` and `/home/srobbins`.

3. [**20**] Write a **function**, called compose, that will be passed two structures of the form:

```
struct command
  {
    char *cmd;          /* name of command */
    char *argv[10];     /* Null terminated argv list of arguments to command */
  };
```

   The function `compose()` with prototype:
   `int compose(struct command cmd1, struct command cmd2);`
   will fork and exec both commands, piping the output of the first command into the second command.

4. [**25**] Write a C program which will fork 40 children. Each child will send back to the parent process, via a single pipe, either one or two messages depending on whether the child's pid is odd or even. If the child's pid is even the child will send the single message "`one`" while a child with an odd pid will send the message "`one`" followed by a second message "`two`" The parent process must not terminate until all messages have been read.

5. [**25**] In the system that you are writing, many programs (called clients) will be executing and will need other programs, called servers, to process some data. In this version of the system each program will write to a well known fifo (named pipe) with the name "`/tmp/dispatch`". The dispatcher program reads each message from the fifo, execs the appropriate server program and then writes the data to the server. The server program is expecting its data via stdin and will write its data to stdout. The dispatcher must be certain that the server's stdout is redirected to the fifo named in the message. The format of the message is:

Data	**Field (first byte - last byte)**
program name	0-255
return fifo name	256-511
data	512-1023

   You may assume the the program name and fifo name are null terminated.

   Write the dispatcher program for this system.
   Note that the dispatcher does not terminate but constantly reads messages from the dispatch pipe.