

Event-Driven Single Process Server

Submitted By

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Usage

To start server

make

./server P

Where P is port number

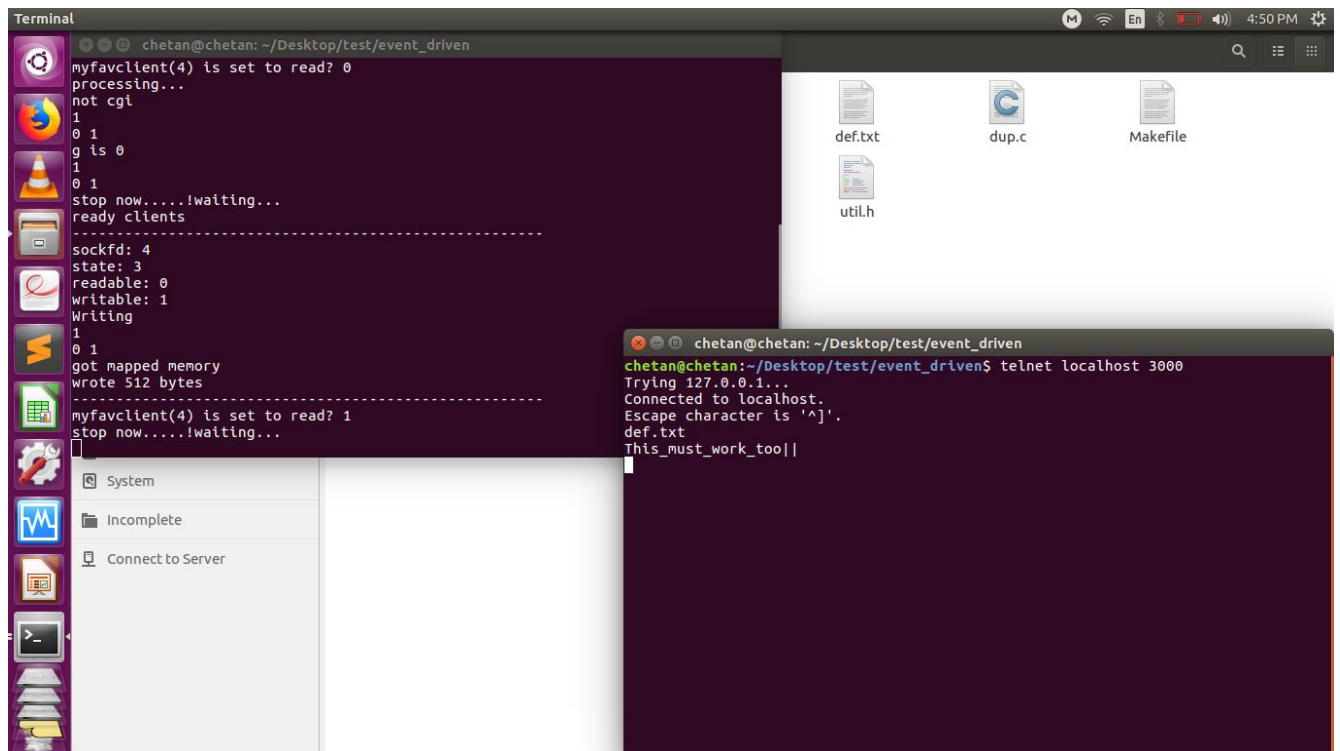
Telnet can be used as a client.

telnet localhost P

Design

1. The server uses only one process and no threads.
2. For I/O tasks like fetching a file in main memory, it uses child processes.
3. The server uses non-blocking i/o calls on sockets.
4. For checking the states of socket descriptors it uses select method.
5. Every client connected gets stored in a client structure which contains its current state and client request and how much data already been written to it.
6. The client requests a file with file name e.g. abc.txt.
7. Fn displayMincore() checks if the file is in main memory, and if it not in main memory a function loadFile(helper child) loads it into main memory.
8. If the file is large, server sends the file in small chunks and stores the offset of data transferred in client structure.
9. With this, server never wastes too much time on one client.

Result



The screenshot displays a Linux desktop environment. On the left is a vertical dock with application icons. In the center is a terminal window titled "Terminal" with the prompt "chetan@chetan: ~/Desktop/test/event_driven". The terminal output shows a server process running, including messages like "myfavclient(4) is set to read? 0", "processing...", "not cgi", and "stop now.....!waiting...". A file manager window is open to the right, showing the contents of the "~/Desktop/test/event_driven" directory, which includes files named "def.txt", "dup.c", "Makefile", and "util.h". A second terminal window is open in the bottom right, showing a telnet connection to localhost on port 3000, with the output "Connected to localhost." and the prompt "Escape character is '^]'".

```
chetan@chetan: ~/Desktop/test/event_driven
myfavclient(4) is set to read? 0
processing...
not cgi
1
0 1
g is 0
1
0 1
stop now.....!waiting...
ready clients
-----
sockfd: 4
state: 3
readable: 0
writable: 1
Writing
1
0 1
got mapped memory
wrote 512 bytes
-----
myfavclient(4) is set to read? 1
stop now.....!waiting...

chetan@chetan: ~/Desktop/test/event_driven
chetan@chetan:~/Desktop/test/event_driven$ telnet localhost 3000
Trying 127.0.0.1...
Connected to localhost.
Escape character is '^]'.
def.txt
This_must_work_too|
```