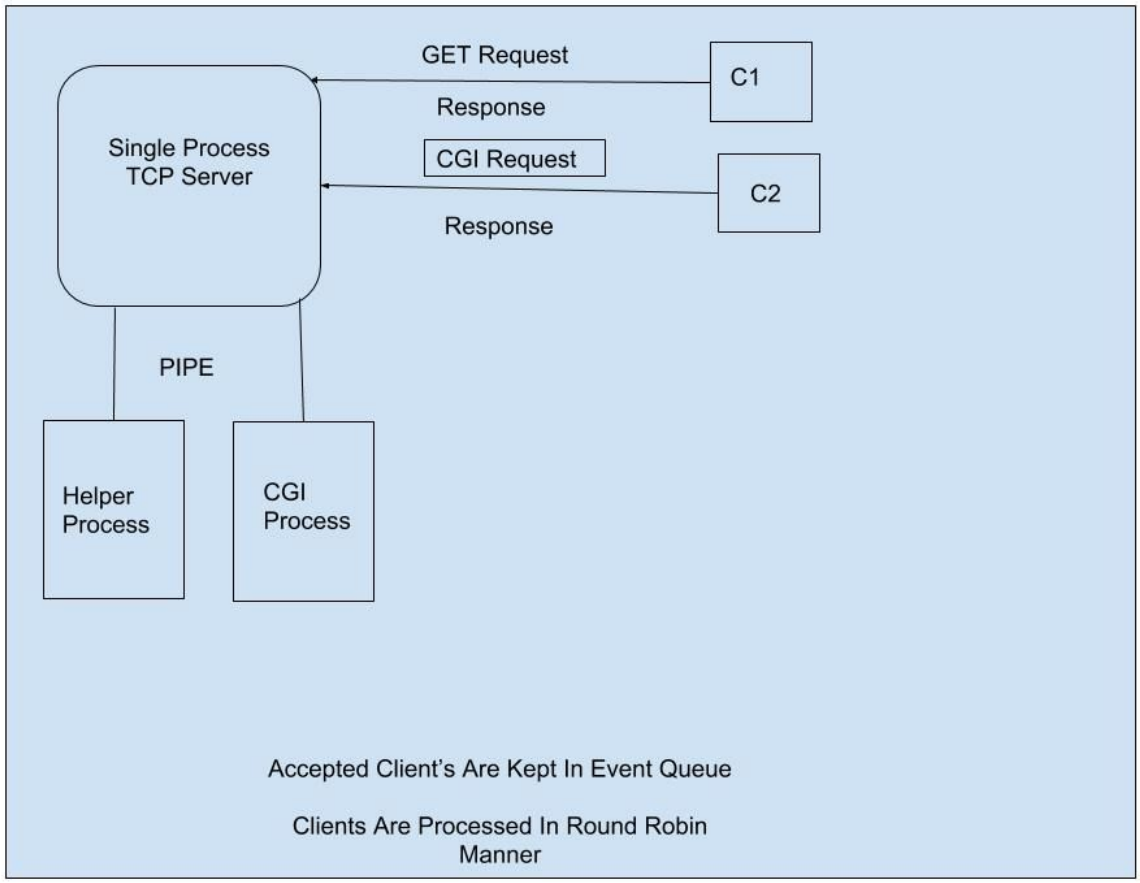
Here we have built a single process HTTP Server, server handles multiple clients simultaneously. Client sends GET request to the server, server will parse the request and check for the requested file. If the file is present in main memory the the server responds starts sending the file otherwise it will communicate to the helper process and helper process will read the file in main memory and communicate back to the main server process. This will reduce the disk overhead of reading the file in the main server.
Server also supports CGI requests. Here when a request ending .cgi comes then new process is forked and it executes the required file and returns response to the server. Server sends response back to the client.

Server handles multiple clients using select system call and communication between helper process and server is via pipe.

Results : HTTPerf with 1000 connections

```
anand@anand-Inspiron-5537:~/NetworkProgrammingAssignment/Assignment2/Problem2/IMP/part1$ httperf -v --server localhost --num-conns 1000 --port
 8000 --uri=/
httperf --verbose --client=0/1 --server=localhost --port=8000 --uri=/ --send-buffer=4096 --recv-buffer=16384 --num-conns=1000 --num-calls=1
httperf: warning: open file limit > FD_SETSIZE; limiting max. # of open files to FD_SETSIZE
httperf: maximum number of open descriptors = 1024
Maximum connect burst length: 1

Total: connections 1000 requests 1000 replies 1000 test-duration 0.274 s

Connection rate: 3644.4 conn/s (0.3 ms/conn, <=1 concurrent connections)
Connection time [ms]: min 0.2 avg 0.3 max 49.4 median 0.5 stddev 1.6
Connection time [ms]: connect 0.0
Connection length [replies/conn]: 1.000

Request rate: 3644.4 req/s (0.3 ms/req)
Request size [B]: 62.0

Reply rate [replies/s]: min 0.0 avg 0.0 max 0.0 stddev 0.0 (0 samples)
Reply time [ms]: response 0.1 transfer 0.2
Reply size [B]: header 17.0 content 106.0 footer 0.0 (total 123.0)
Reply status: 1xx=0 2xx=1000 3xx=0 4xx=0 5xx=0

CPU time [s]: user 0.06 system 0.21 (user 23.6% system 76.1% total 99.7%)
Net I/O: 658.4 KB/s (5.4*10^6 bps)

Errors: total 0 client-timo 0 socket-timo 0 connrefused 0 connreset 0
Errors: fd-unavail 0 addrunavail 0 ftab-full 0 other 0
anand@anand-Inspiron-5537:~/NetworkProgrammingAssignment/Assignment2/Problem2/IMP/part1$
```

Diagram


GET Request
C1
Response
Single Process
TCP Server
CGI Request
C2
Response
PIPE
Helper
Process
CGI
Process
Accepted Client's Are Kept In Event Queue
Clients Are Processed In Round Robin
Manner