Operating System Lab
Lab 2

1)
Setup Description:
        Connected Two Machines with CAT 6 Lan cable
File size = 2000000 byte
Maximum disk read capacity of server machine – 60814 KB/s
Number of requests/sec = (46320*1024)/2000000 = 23.71584 req/sec

Maximum Bandwidth = 11.775 MiB/s
Number of request/sec = (11.775*1000)/2000 = 5.8875 req/sec

2)
Client mode : random
Sleep : 0
Duration : 120
        a) optimal value of n : 25
        b) Throughput increases from 5.016 req/sec to 5.84 req/s and saturates
           afterwards .i.e remains nearly constant for further increase in N .

        The response time conitinuoly increases linearly with increasse in number
         of threads. This is due to the fact that as the number of users increases
        the server forks a new thread for eacn client and tus the response time to
        cater any individual client increases due to limited disk and network
        bandwidth

        c)Identification:

            Command   Output
            For disk : iostat -x 1 10   Disk Read Rate ~=11894 KiB/s
            For Network : iperf   11.775 Mib/s

        Clearly the network bandwidth reached its upper limit.
        Thus network is the bandwidth

        d)Server Throughput = 5.84 req/s
           File Size = 2000000 bytes
          Total Bytes sent per sec = 5.84*2000000 bytes/sec = 11.68 MiB/s
                        (nearly equal to maximum network bandwidth)

3) Client mode : random
Sleep : 0
Duration : 120

a)optimal value of n = 25
b)Throughput increases from 0.8347 req/sec to 5.78 req/sec and remains saturated with fluctuation of +-0.1 in ts value on further increase of N

The response time conitinuoly increases linearly with increasse in number of threads. This is due to the fact that as the number of users increases the server forks a new thread for eacn client and tus the response time to cater any individual client increases due to limited disk and network bandwidth

c)Identification:

Command	Output
For disk : iostat -x 1 10	Disk Read Rate ~=11894 KiB/s
For Network : iperf	11.775 Mib/s

Here also the network bandwidth is the bottleneck

d)Server Throughput = 5.78 req/s
     File Size = 2000000 bytes
     Total Bytes sent per sec = 5.78*2000000 bytes/sec = 11.56 MiB/s
               (nearly equal to maximum network bandwidth)

4) Client Mode : fixed
Duration : 120
Sleep : 0

a) saturation value of n = 2
b) Throughput increases from 5.8264 to 5.8842 and remains saturated on further increase of N (within +-0.02)

The response time conitinuoly increases linearly with increasse in number of threads. This is due to the fact that as the number of users increases the server forks a new thread for eacn client and tus the response time to cater any individual client increases due to limited disk and network bandwidth

c)

Command	Output
For disk : iostat -x 1 10	Disk Read Rate ~=11894 KiB/s

For Network : iperf   11.775 Mib/s

Clearly the network bandwidth reached its upper limit and is thus the bottleneck resource here

d) Server Throughput = 5.884 req/s
   File Size = 2000000 bytes
   Total Bytes sent per sec = 5.884*2000000 bytes/sec = 11.768 MiB/s
      (nearly equal to maximum network bandwidth)