

## EE4204 Computer Networks

### Socket Programming Lab Report

#### Implementation:

TCP-based client-server socket program for transferring a large message using a hypothetical jumping window protocol. The message is read from a large file and transmitted by the client to the server by splitting into short data-units (**DUs**) which are sent and acknowledged in batches of size  $n$ .

#### Performance Graphs:

The batch sizes tested are  $n = 1, 2$ , and  $4$ . The short data-units tested are sizes ranging from 500 to 5000, taken at every interval of 500. Each reading for each parameter combination is taken 10 times before the averages for transfer time and throughput are taken.

Batch size  $n = 1$

Data-Unit Sizes (bytes)	Transfer Time (ms)	Throughput (Kbytes/s)
500	12.801	4707.136
1000	6.597	9874.918
1500	5.929	11315.206
2000	3.853	15874.762
2500	3.316	19088.571
3000	2.977	20293.898
3500	2.535	23847.038
4000	2.400	24835.223
4500	2.174	28253.280
5000	2.073	30477.318

## EE4204 Computer Networks

### Socket Programming Lab Report

Batch size  $n = 2$ 

Data-Unit Sizes (bytes)	Transfer Time (ms)	Throughput (Kbytes/s)
500	9.115	7157.199
1000	5.358	11034.524
1500	3.411	17939.600
2000	2.889	22226.089
2500	2.230	27190.949
3000	1.770	33738.713
3500	1.513	44249.170
4000	1.351	45860.153
4500	1.128	59340.657
5000	1.050	61476.856

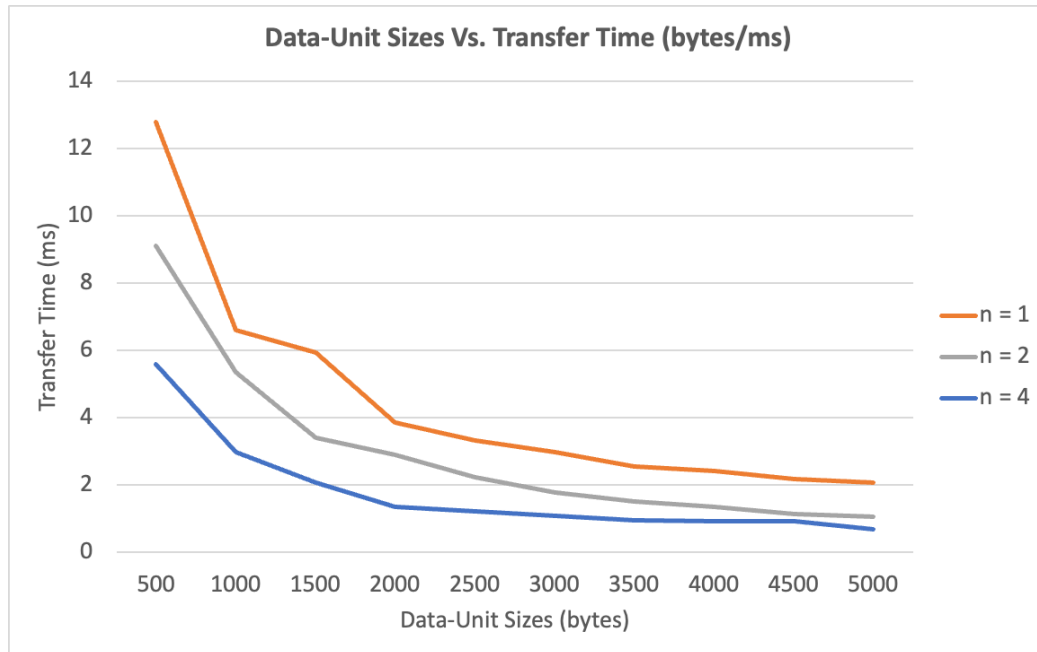
Batch size  $n = 4$ 

Data-Unit Sizes (bytes)	Transfer Time (ms)	Throughput (Kbytes/s)
500	5.573	11049.256
1000	2.960	22049.614
1500	2.066	29653.055
2000	1.337	45608.511
2500	1.209	50699.334
3000	1.080	56516.201
3500	0.934	65629.669
4000	0.913	69010.823
4500	0.907	70989.925
5000	0.676	91341.590

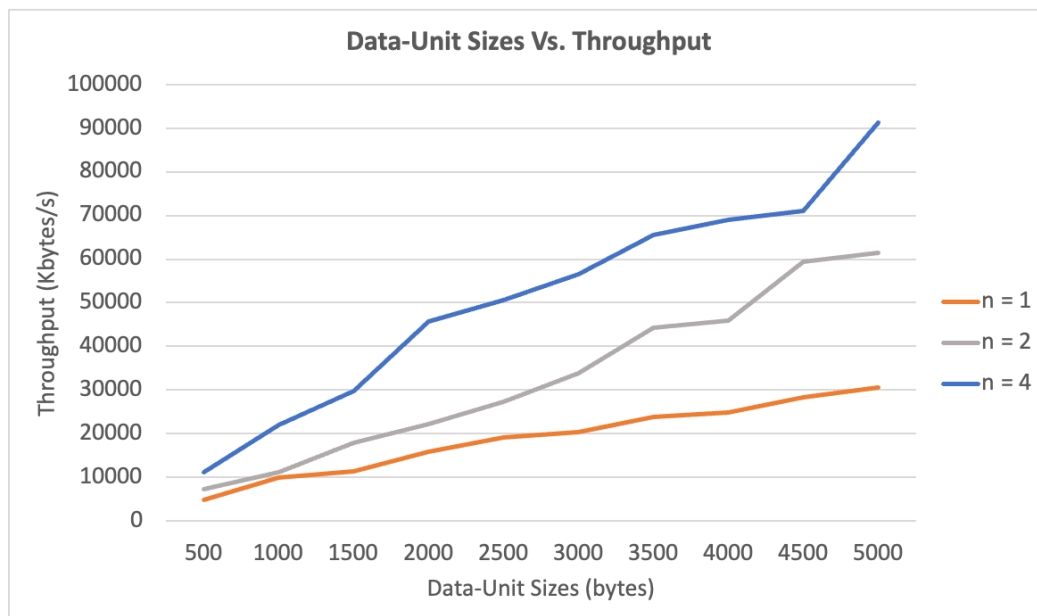
## EE4204 Computer Networks

### Socket Programming Lab Report

#### Performance Analysis:



As the data-unit sizes increase, the transfer time decreases. Hence, they are inversely proportional to each other.



As the data-unit sizes increase, the throughput increases. Hence, they are directly proportional to each other.