CS 553 Cloud Computing

Assignment 1

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1. CPU Benchmark

Steps to run and execute the program on cmd
1. gcc -mfma -mavx2 -o .\CPUBenchmarking .\CPUBenchmarking.c
2. .\CPUBenchmarking
3. When you compile and execute the above file you will be asked to Enter number of Threads, enter number of threads you want to perform on CPU Benchmarking among 1,2,4 and 8 threads.

"CPUBenchmarkLog.txt" file will be generated with processor speed in terms of GFlops and GIOPS for the number of thread you entered.

"FlopSamples.txt" file will be generated with with 600 samples for Flops.

"IopSamples.txt" file will be generated with with 600 samples for Iops.

2. Network Benchmark
Server: TCP_Server.java
UDP_Server.java

Client: TCP_Client.java
UDP_Client.java

1. You will first run UDP_Server.java/ TCP_Server.java for UDP or TCP respectively.
2. After running the server file, It will display an port number for client to connect.
3. Run the client file for TCP or UDP, It will ask for number of threads and port number displayed by the server.

4. "TCP Network Benchmrk.txt" file will be generated with throughput in (MBits/sec) and Latency in millisec for TCP connection.
5. "UDP Network Benchmrk.txt" file will be generated with throughput in (MBits/sec) and Latency for in millisec for UDP connection.

3. **Disk Benchmark**
   1. javac DiskSpeed.java
   2. java DiskSpeed
   3. User will be asked to enter number of threads for the operations.
   4. The program will execute 5 methods for Sequential write, Sequential read, Random Write, Random Read, Read+Write operations respectively.
   5. Files "disk_evaluation.txt", "storage.txt", "Output.txt" will be generated from the execution containing the computations for throughput and latency for each thread and blocksize.

4. **Memory Benchmark**
   1. gcc -pthread -o MemoryBenchmark MemoryBenchmark.c
   2. **./**MemoryBenchmark
   3. The user will be asked to enter number of threads for the memory operations which are Sequential Write access, Random Write Access and Read+Write operations.
   4. A file "memory_evaluation.txt" will be generated from the execution containing the computations for throughput and latency for each thread and blocksize.