

CS 553 - Cloud Computing, Spring 2020

README Manual

Team 14

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Disk Benchmarking

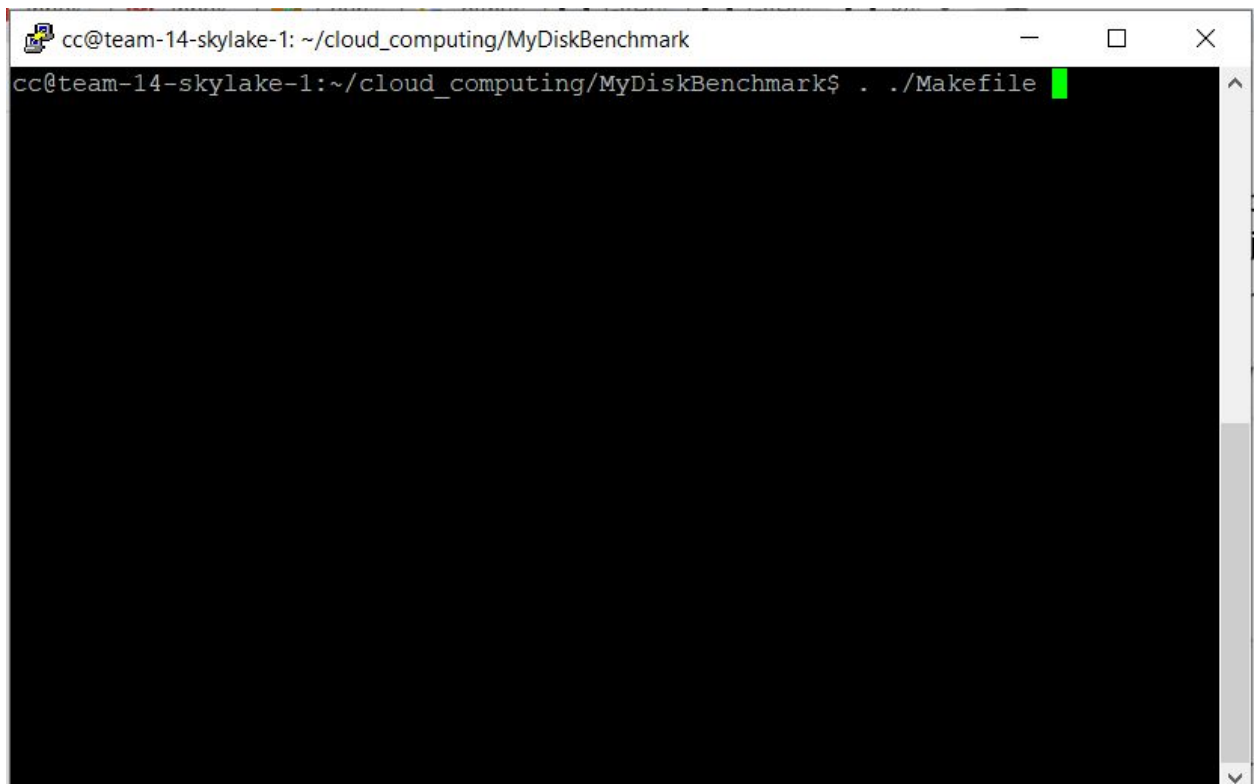
Folder Structure -

- MyDiskBenchmark folder contains src folder having source code file MyDiskBench.c and Makefile to build code. It also contains folders and files for their output runs.
- The iozone folder contains the iozoneRunTests.sh script to run the benchmark test. It also contains other folders and files with their output runs.

Steps to run MyDiskBenchmark -

- First run MakeFile to build the source code.
- To run MakeFile just enter the name of the file and hit enter.

Command to run makefile: `./Makefile`

A screenshot of a terminal window. The title bar shows the user 'cc@team-14-skylake-1' and the current directory '~/cloud_computing/MyDiskBenchmark'. The terminal content shows the prompt 'cc@team-14-skylake-1:~/cloud_computing/MyDiskBenchmark\$' followed by the command './Makefile' which has been entered and is highlighted with a green cursor. The rest of the terminal area is black and empty.

```
cc@team-14-skylake-1: ~/cloud_computing/MyDiskBenchmark
cc@team-14-skylake-1:~/cloud_computing/MyDiskBenchmark$ ./Makefile
```

- After this, an executable file(green color) with name MyDiskBenchmark will be generated.

```
cc@team-14-skylake-1: ~/cloud_computing/MyDiskBenchmark
-rw-rw-r-- 1 cc cc 165 Mar 31 07:30 416MB1MB
-rw-rw-r-- 1 cc cc 166 Mar 31 07:26 5GB16MB
-rw-rw-r-- 1 cc cc 165 Mar 31 07:27 5GB1MB
-rw-rw-r-- 1 cc cc 166 Mar 31 07:29 833MB16MB
-rw-rw-r-- 1 cc cc 165 Mar 31 07:29 833MB1MB
-rw-rw-r-- 1 cc cc 62 Mar 31 23:35 Makefile
-rwxrwxr-x 1 cc cc 18504 Mar 31 23:36 MyDiskBenchmark*
-rw-rw-r-- 1 cc cc 9834 Mar 31 09:55 MyDiskBenchmark.c
-rw-rw-r-- 1 cc cc 1442 Mar 31 20:17 MyDiskBenchmark.sh
-rw-rw-r-- 1 cc cc 162 Mar 31 21:17 RR200GB64KB
-rw-rw-r-- 1 cc cc 162 Mar 31 21:16 RR400MB64KB
-rw-rw-r-- 1 cc cc 162 Mar 31 21:15 RR800MB64KB
drwxrwxr-x 2 cc cc 4096 Mar 31 20:12 ReadRandom/
drwxrwxr-x 2 cc cc 4096 Mar 31 16:11 ReadSequential/
-rw-rw-r-- 1 cc cc 162 Mar 31 21:13 WR200GB64KB
-rw-rw-r-- 1 cc cc 162 Mar 31 21:05 WR400MB64KB
-rw-rw-r-- 1 cc cc 162 Mar 31 20:49 WR800MB64KB
drwxrwxr-x 2 cc cc 4096 Mar 31 20:14 WriteRandom/
drwxrwxr-x 2 cc cc 4096 Mar 31 09:37 WriteSequential/
-rw-rw-r-- 1 cc cc 0 Mar 31 06:20 no_of_files
-rw-rw-r-- 1 cc cc 0 Mar 31 06:20 record_size
-rw-rw-r-- 1 cc cc 10386 Mar 31 06:23 temo.c
-rw-rw-r-- 1 cc cc 9783 Mar 31 06:13 temp.c
cc@team-14-skylake-1:~/cloud_computing/MyDiskBenchmark$
```

- Now, to take benchmark run MyDiskBench binary file with following arguments -
 - 1) First Argument - Record Size in bytes
 - 2) Second Argument - Number of threads
 - 3) Thirds Argument - Access Pattern(WS, WR, RS, RR)
- Example - `./MyDiskBench 1048576 4 WS`
 In this run, Record size will be 1MB, total of 4 threads and WS(Write Sequential) access pattern.

```
cc@team-14-skylake-1: ~/cloud_computing/MyDiskBenchmark
cc@team-14-skylake-1:~/cloud_computing/MyDiskBenchmark$ ./MyDiskBenchmark 1048576 4 WS
```

- Similarly you can change record size, number of threads and different access patterns for different benchmarks.
- Make sure to give record size in bytes.
- Output of the benchmark will be printed on the console like this -
 - Write Sequential:
 - Record Size: 1048676 bytes
 - No of threads: 4
 - File Size: 26843564560 bytes
 - Execution time for writing sequentially is 400.16 secs and throughput is

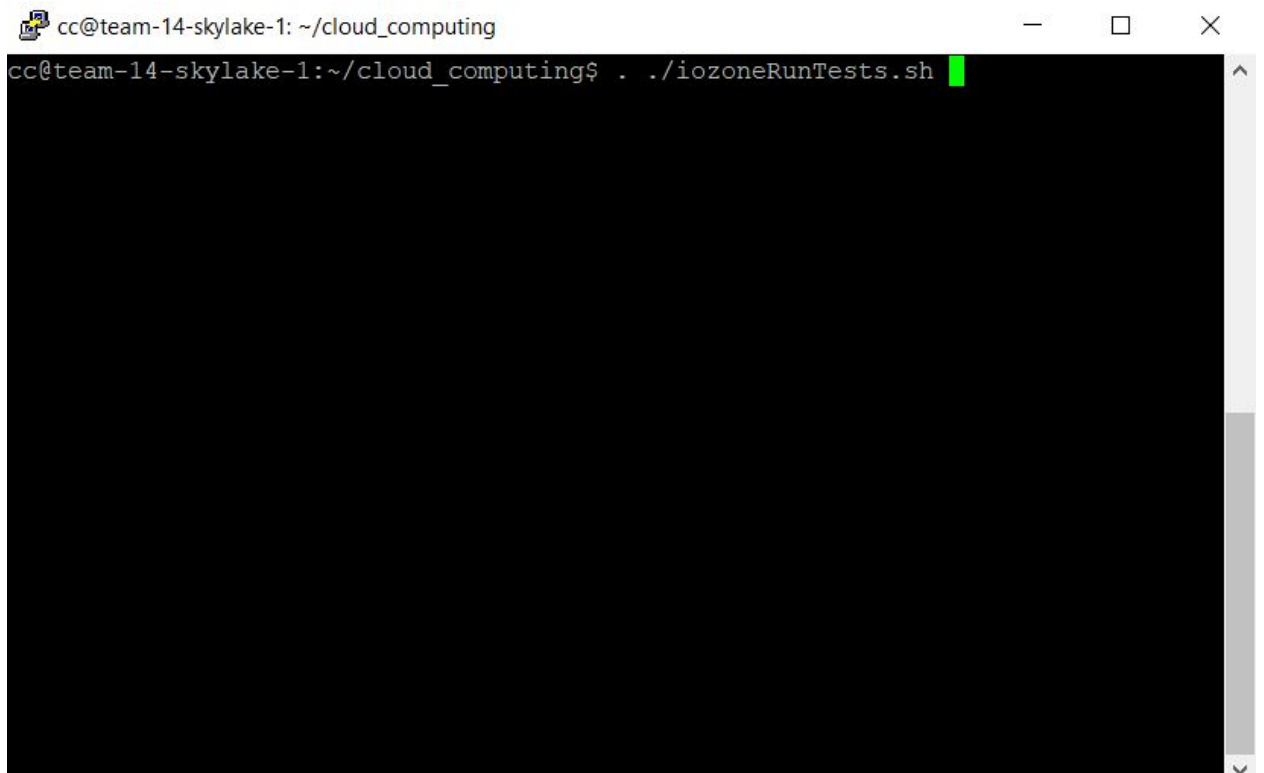
25.589 MBps

The file size printed in the output is the size of the file read or write by each thread.

Execution time is the time taken by the threads to write sequentially and throughput is the disk benchmark speed in MBps.

Steps to run IOZone Benchmark -

- I have created a script with the name `iozoneRunTests.sh` which contains a command to run all the benchmark tests with different record size and concurrency and will store the results in output files.
- Output files can be checked in the output folder for more detail.



A terminal window with a black background and white text. The title bar at the top reads "cc@team-14-skylake-1: ~/cloud_computing" and includes standard window control buttons (minimize, maximize, close). The terminal content shows the command `cc@team-14-skylake-1:~/cloud_computing$. ./iozoneRunTests.sh` followed by a green cursor. The rest of the terminal area is empty.

```
cc@team-14-skylake-1: ~/cloud_computing
cc@team-14-skylake-1:~/cloud_computing$ . ./iozoneRunTests.sh
```