**CSS 430 OPERATING SYSTEMS**

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**Assignment 4 Report 4 Part 2:**

**Performance results that must test:**

* Random Accesses with Cache Disabled

-->l Test4 disabled 1

l Test4 disabled 1

threadOS: a new thread (thread=Thread[Thread-7,2,main] tid=2 pid=0)

Category test: Random Access = Disk Cache Disabled

Average Time Write: 41 msec Average Time Read :41 msec

* Random Accesses with Cache Enabled

threadOS: a new thread (thread=Thread[Thread-3,2,main] tid=0 pid=-1)

-->l Test4 enabled 1

l Test4 enabled 1

threadOS: a new thread (thread=Thread[Thread-5,2,main] tid=1 pid=0)

read and write block differ

Category test: Random Access = Disk Cache Enabled

Average Time Write: 38 msec Average Time Read :39 msec

* Localized Accesses with Cache Disabled

-->l Test4 disabled 2

l Test4 disabled 2

threadOS: a new thread (thread=Thread[Thread-11,2,main] tid=4 pid=0)

Category test: localize Accesses = Disk Cache Disabled

Average Time Write: 231 msec Average Time Read :233 msec

* Localized Accesses with Cache Enabled

-->l Test4 enabled 2

l Test4 enabled 2

threadOS: a new thread (thread=Thread[Thread-9,2,main] tid=3 pid=0)

read and write block differ

Category test: localize Accesses = Disk Cache Enabled

Average Time Write: 0 msec Average Time Read :0 msec

* Mixed Accesses with Cache Disabled

-->l Test4 disabled 3

l Test4 disabled 3

threadOS: a new thread (thread=Thread[Thread-17,2,main] tid=7 pid=0)

Category test: Mixed Accesses = Disk Cache Disabled

Average Time Write: 28 msec Average Time Read :28 msec

* Mixed Accesses with Cache Enabled

-->l Test4 enabled 3

l Test4 enabled 3

threadOS: a new thread (thread=Thread[Thread-15,2,main] tid=6 pid=0)

read and write block differ

Category test: Mixed Accesses = Disk Cache Enabled

Average Time Write: 10 msec Average Time Read :11 msec

* Adversary Accesses with Cache Disabled

-->l Test4 disabled 4

l Test4 disabled 4

threadOS: a new thread (thread=Thread[Thread-21,2,main] tid=9 pid=0)

Category test: Adversary Accesses = Disk Cache Disabled

Average Time Write: 34 msec Average Time Read :34 msec

* Adversary Accesses with Cache Enabled

-->l Test4 enabled 4

l Test4 enabled 4

threadOS: a new thread (thread=Thread[Thread-19,2,main] tid=8 pid=0)

read and write block differ

Category test: Adversary Accesses = Disk Cache Enabled

Average Time Write: 33 msec Average Time Read :34 msec

**3. Report:**

**Specification/design explanation on Cache.java**

**Performance Consideration Comparisons Results For All Category Tests**

**Analysis:** Overall using disk cache had a faster performance than not using disk cache in most cases but in particular in Mixed Accesses a difference of 18 msec./17 msec. for write/read.

However, in Localized Accesses Test the difference was enormous taking 0 msec. for both write and read when using Disk Cache and when using took 231 msec./233 msec. for write/read.

In the last case, Adversary Accesses Test the difference was minimal of 1 msec./0 msec. for write and read.

**Performance Consideration Comparisons Results For All Category Tests Table**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Category  Test | Not Using  Disk Cache  (Disabled)  WAT | Not Using  Disk Cache  (Disabled)  RAT | Using  Disk Cache  (Enabled)  WAT | Using  Disk Cache  (Enabled)  RAT | Difference  msec  WAT | Difference  in  msec  RAT |
| Random Accesses | 41 msec | 41 msec | 38 msec | 39 msec | 3 msec | 2 msec |
| Localized Accesses | 231 msec | 233 msec | 0 msec | 0 msec |  |  |
| Mixed Accesses | 28 msec | 28 msec | 10 msec | 11 msec | 18 msec | 17 msec |
| Adversary Accesses | 34 msec | 34 msec | 33 msec | 34 msec | 1 msec | 0 msec |

* **Performance Consideration on Random Accesses**

Using Disk Cache (enabled) performed a bit faster than not using Disk Cache in both Read and Write:

Not Using Disk Cache (enabled), Read and Write Average time was exactly the same

Using Disk Cache (enabled), Read and Write Average time differ by 1msec in which Read took longer

* **Performance Consideration on Localized Accesses**

Using Disk Cache (enabled) performed a lot faster than not using Disk Cache in both Read and Write:

Not Using Disk Cache (enabled), Read and Write Average time differ by 2 msec. in which Read took longer.

Using Disk Cache (enabled), Read and Write Average time was exactly the same 0 msec.

* **Performance Consideration on Mixed Accesses**

Using Disk Cache (enabled) performed a lot faster than not using Disk Cache in both Read and Write:

Not Using Disk Cache (enabled), Read and Write Average time were exactly the same 28 msec.

Using Disk Cache (enabled), Read and Write Average time differ by 1 msec. in which Read took 1 more msec.

* **Performance Consideration on Adversary Accesses**

Using Disk Cache (enabled) performed a bit faster than not using Disk Cache in both Read and Write:

Not Using Disk Cache (enabled), Read and Write Average time were exactly the same 34 msec.

Using Disk Cache (enabled), Read and Write Average time differ by 1 msec. in which Read took 1 more msec.