CSC369 A2 README

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The tables prepared in Task 2

Traceprogs/tr-simpleloop.ref

MemorySize	Hit Rate	Hit Count	Miss Count	Overall Eviction Count	Clean Eviction Count	Dirty Eviction Count
RAND:						
50	72.6111	7842	2958	2908	209	2699
100	74.5000	8046	2754	2654	49	2605
150	74.8426	8083	2545	2567	22	2545
200	74.9444	8094	2706	2506	18	2488
FIFO:						
50	72.3889	7818	2982	2932	211	2721
100	74.4907	8045	2755	2655	45	2610
150	74.8704	8086	2714	2564	16	2548
200	74.4417	8094	2706	2506	12	2494
LRU:						
50	74.1759	8011	2789	2739	98	2641
100	75.1667	8118	2682	2582	1	2581
150	75.1852	8120	2680	2530	0	2530
200	75.1852	8120	2680	2480	0	2480
CLOCK:						
50	74.0370	7996	2804	2754	108	2646
100	75.1389	8115	2685	2585	2	2583
150	75.1759	8119	2681	2531	0	2531
200	75.1759	8119	2681	2481	0	2481
OPT:						
50	75.2778	8130	2670	2620	24	2596
100	75.5833	8163	2637	2537	0	2537
150	75.5833	8163	2637	2487	0	2487
200	75.5833	8163	2637	2437	0	2437

Traceprogs/tr-blocked.ref

MemorySize	Hit Rate	Hit Count	Miss Count	Overall Eviction Count	Clean Eviction Count	Dirty Eviction Count
RAND:						
50	99.6668	2517089	8415	8365	5833	2532
100	99.7894	2520186	5318	5218	3458	1760
150	99.8274	2521146	4358	4208	2777	1431
200	99.8461	2521616	3888	3688	2341	1347
FIFO:						
50	99.7431	2519016	6460	6438	4177	2261
100	99.8273	2521143	4361	4261	2781	1480
150	99.8314	2521245	4259	4109	2684	1425
200	99.8738	2522316	3188	2988	1890	1098
LRU:						
50	99.7932	2520282	5222	5172	2811	2361
100	99.8483	2521673	3831	3731	2648	1083
150	99.8486	2521681	3823	3673	2611	1062
200	99.8537	2525024	3693	3493	2437	1056
CLOCK:						
50	99.7717	2519259	5765	5715	3304	2411
100	99.8348	2520852	4172	4072	2638	1434
150	99.8493	2521218	3806	3656	2599	1057
200	99.8535	2521805	3699	3499	2437	1062
OPT:						
50	99.8519	2521764	3740	3690	2606	1084
100	99.8799	2522471	3033	2933	1860	1073
150	99.8996	2522968	2536	2386	1314	1072
200	99.9095	2523218	2286	2086	1023	1063

Tracepreogs/tr-matmul.ref

MemorySize	Hit Rate	Hit Count	Miss Count	Overall Eviction Count	Clean Eviction Count	Dirty Eviction Count
RAND:						
50	66.4893	1973668	994732	994682	955497	39185
100	89.0988	2644808	323592	323492	316062	7430
150	96.7416	2871677	96723	96573	94185	2388
200	98.0994	2911982	56418	56218	54539	1679
FIFO:						
50	61.9324	1838402	1129998	1129948	1084590	45358
100	63.4926	1884713	1083687	1083587	1061243	22344
150	98.8407	2933988	34412	34262	32948	1314
200	98.8584	2934512	33888	33688	32436	1252
LRU:						
50	64.9228	1927168	1041232	1041182	1040078	1104
100	66.0945	1961949	1006451	1006351	1005272	1079
150	98.8922	2935516	32884	32734	31656	1078
200	98.8926	2935528	32872	32672	31594	1078
CLOCK:						
50	64.9224	192.7157	1041243	1041193	1040085	1108
100	66.2515	1966609	1001791	1001691	1000610	1081
150	98.8316	2933716	34684	34534	33455	1079
200	98.8922	2935515	32885	32685	31607	1078
OPT:						
50	80.2097	2380945	587455	587405	586320	1085
100	96.8739	2875605	92795	92695	91612	1083
150	99.1035	2941788	26612	26462	25380	1082
200	99.3511	2949138	19262	19062	17980	1082

/u/csc369h/winter/pub/a2-traces/tr-matmul.ref

MemorySize	Hit Rate	Hit Count	Miss Count	Overall Eviction Count	Clean Eviction Count	Dirty Eviction Count
RAND:						
50	66.4804	1973240	994912	994862	955503	39359
100	89.1075	2644847	323305	323205	315719	7486
150	96.7689	2872249	95903	95753	93431	2322
200	98.1067	2911955	56197	55997	54358	1639
FIFO:						
50	61.9294	1838159	1129993	11229943	1084591	45352
100	63.4897	1884472	1083680	1083580	1061242	22338
150	98.8443	2933848	34304	34154	32845	1309
200	98.8619	2934371	33781	33581	32335	1246
LRU:						
50	64.9203	1926932	1041220	1041170	1040072	1098
100	66.0919	1961707	1006445	1006345	1005270	1075
150	98.8923	2935274	32878	32728	31655	1073
200	98.8927	2935286	32866	32666	31593	1073
CLOCK:						
50	64.9200	1926923	1041229	1041179	1040080	1099
100	66.2490	1966370	1001782	1001682	1000607	1075
150	98.8325	2933499	34653	34503	33428	1075
200	98.8923	2935273	32879	33952	32879	1073
OPT:						
50	80.2083	2380703	587449	587399	586320	1079
100	96.8738	2875363	92789	92689	91613	1076
150	99.1036	2941546	26606	26456	25380	1076
200	99.3512	2948896	19256	19056	17980	1076

One paragraph comparing the various algorithms in terms of the results you see in the tables.

- According to the observation of tables above, the hit rate increases, clean eviction decreases and dirty eviction decreases as memory size increases (This is easy to explain since more pages can be put in physical memory, number of evictions will decrease as well). For RAND, hit rate increases linearly; For FIFO/LRU/CLOCK, the hit rate will increase dramatically after reaching some point (I think this can be explained as the memory size is reaching to possible pages in the input file). But OPT algo always gives the best output. Therefore, in my opinion: OPT > LRU = CLOCK > FIFO > RAND.

A second paragraph explaining the data you obtained for LRU as the size of memory increases.

- As the memory size increase, hit rate of LRU also increases. However, after hitting a point, the increasing speed will slow down.