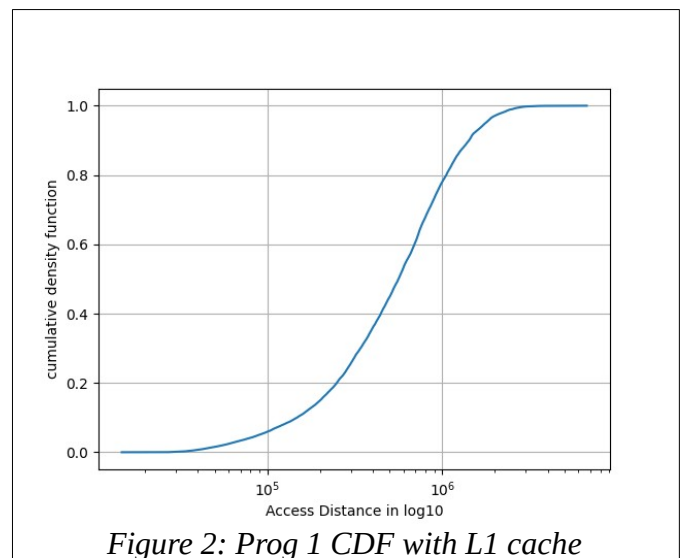# Assignment 2 Report
Group 25 – Krishanu Singh, 170347

Part I
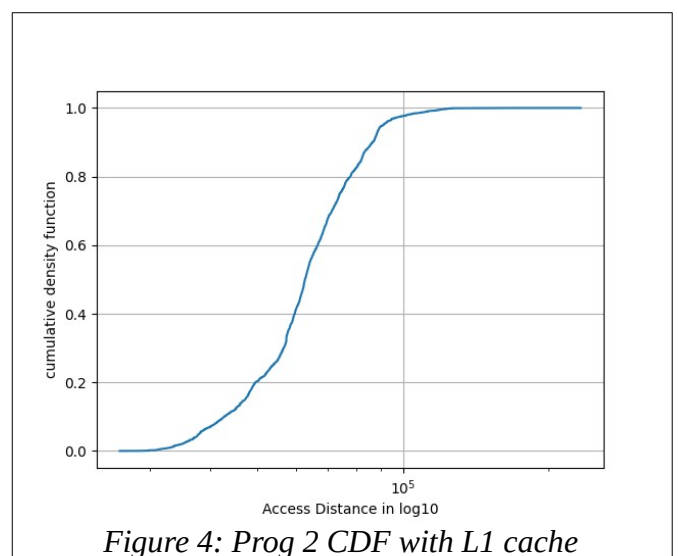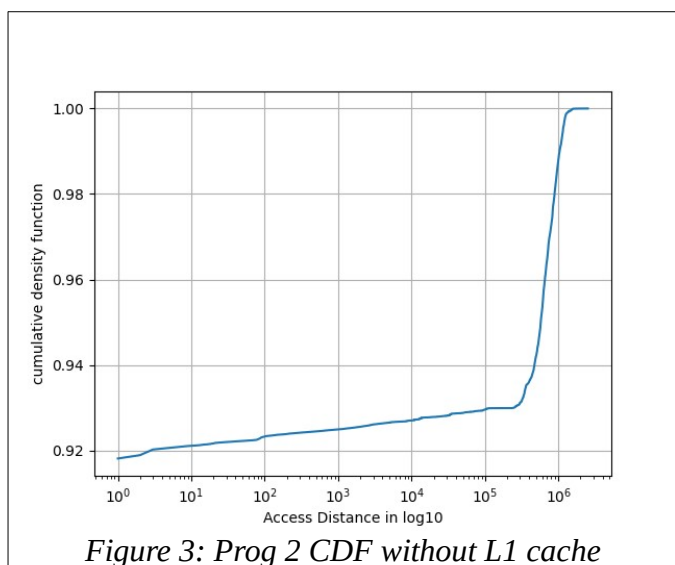
	Prog 1	Prog 2	Prog 3	Prog 4
number of machine accesses	14,05,25,625	25,21,787	95,51,010	10,64,881

Part II and Part III

Prog 1

Figure 1: Prog 1 CDF without L1 cache

Figure 2: Prog 1 CDF with L1 cache

Prog 2

Figure 3: Prog 2 CDF without L1 cache

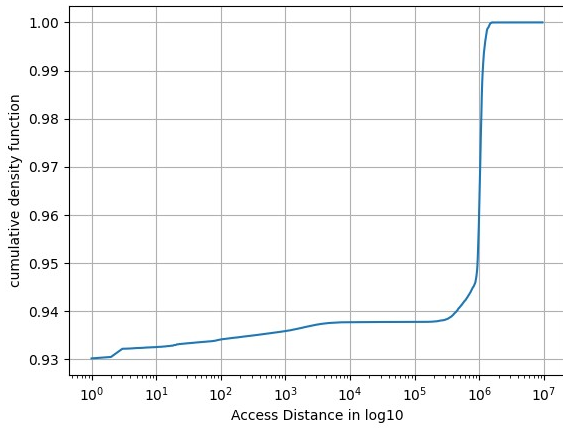
Figure 4: Prog 2 CDF with L1 cache
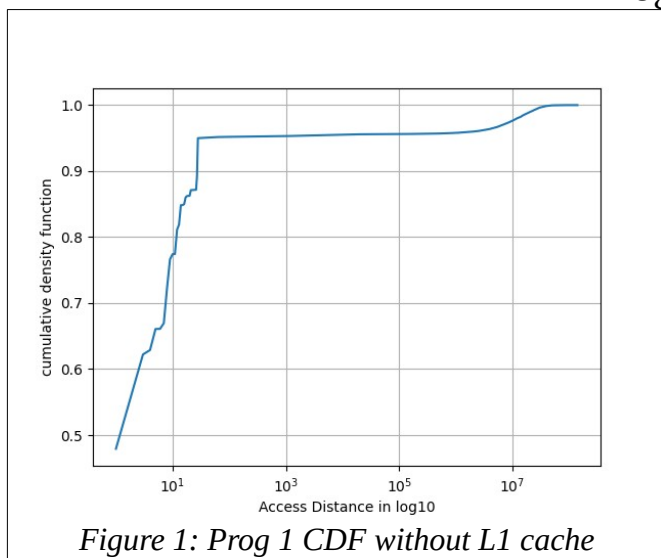
Prog 3

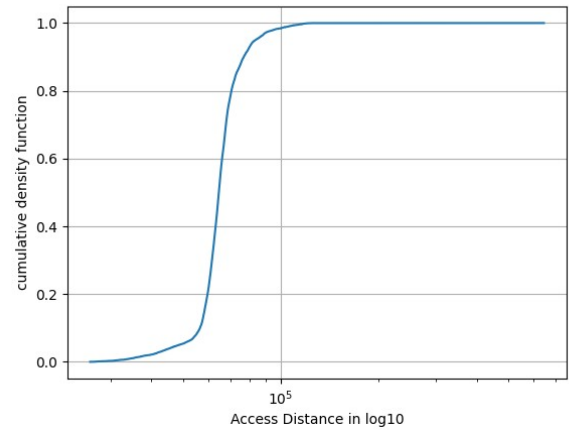*Figure 5: Prog 3 CDF without L1 cache*

Figure 6: Prog 3 CDF with L1 cache

Prog4
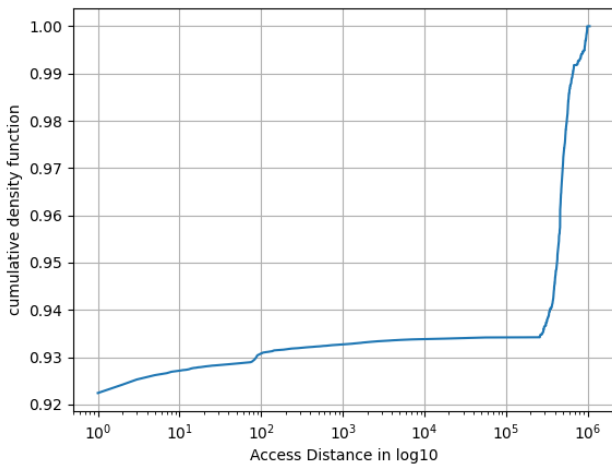
Figure 7: Prog 4 CDF without L1 cache

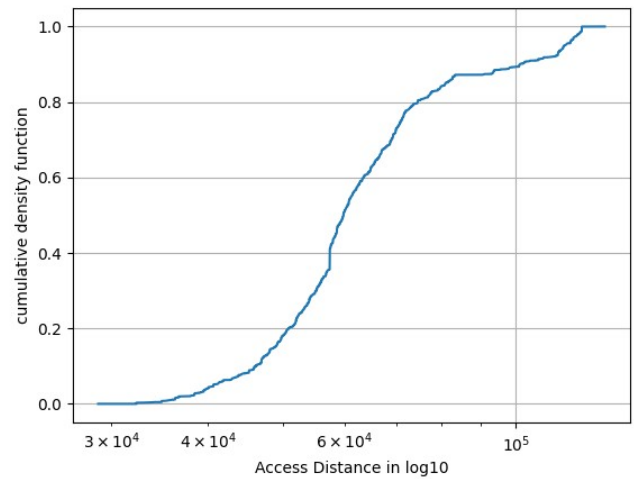*Figure 8: Prog 4 CDF with L1 cache*

L1 Cache Information

Field	Value
Level	1
Block Size	64
Set-Associativity	16
Total Cache Size	2097152
Total Set Count	2048

Accesses Information

Program	Hits	Misses	Total
1	133832043	6693582	140525625
2	2289241	232546	2521787
3	8906708	644302	9551010
4	934620	130261	1064881

The Cache size is about $2*10^6$ bytes or about 10^5 blocks(1 block =64 bytes)
For prg 1 most of the access distance was under 64*200 ie about 10^4 blocks. So the cache hit most of the time for reuse distance of less than about 10^5 blocks but not all of them due to limited associativity. This is what we observe from the fact that most misses had a access distance of greater than 10^5 blocks.
Similar is the case for all other access, miss trace mostly consists of access distance greater than 10^5 blocks.

Part IV

No of Memory Blocks vs their sharing profile

Shared by	Prog 1	Prog 2	Prog 3	Prog4
Private	433	433	439	8623
2 threads	70	8262	63	57409
3 threads	1872	16384	0	6
4 threads	32455	40957	0	0
5 threads	143250	4	0	0
6 threads	244970	0	0	1
7 threads	173832	1	1	1
8 threads	124529	12	65547	12