CS224

Lab No.6

Section No.5

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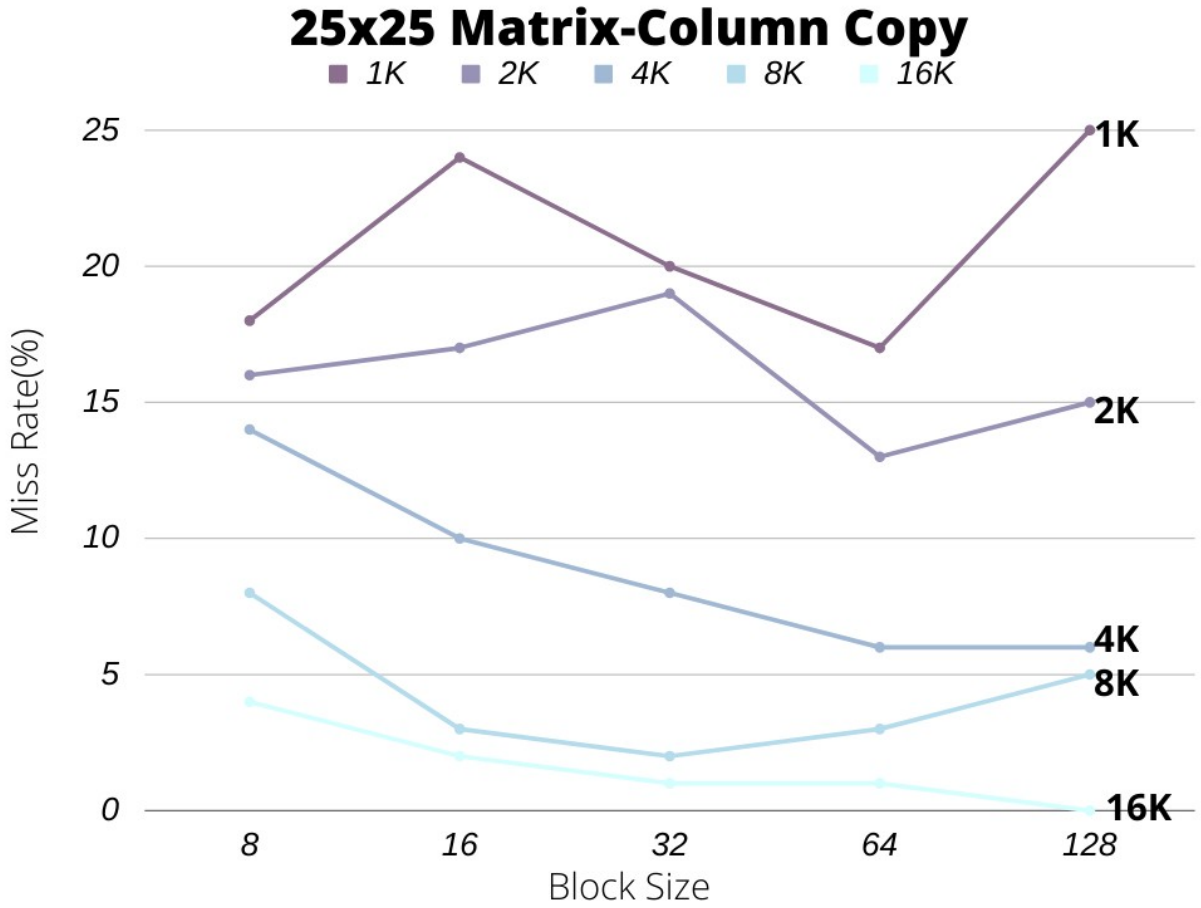
Matrix Size: 25x25

Part a) Direct Mapped Cache:

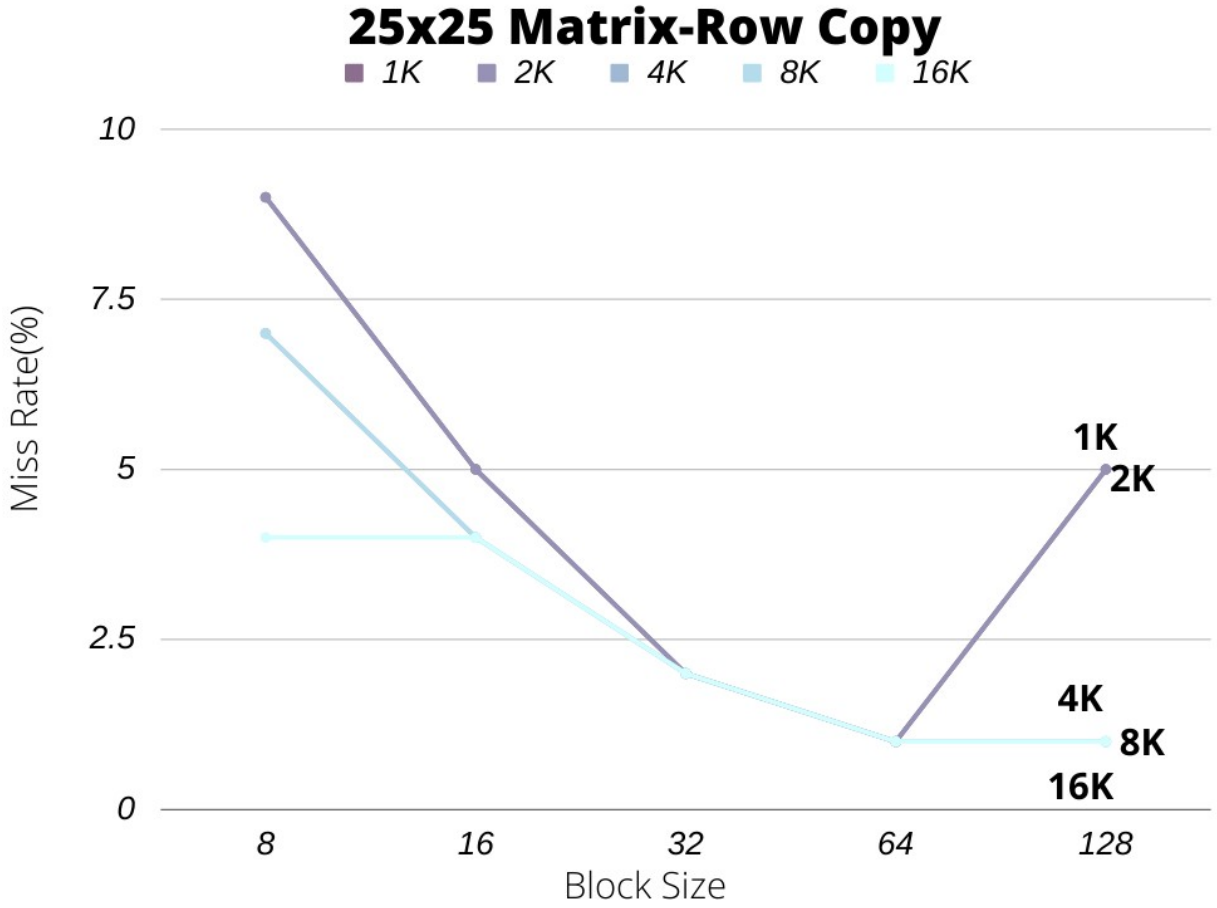
	Block Sizes										
	Cache Sizes	**8**		**16**		**32**		**64**		**128**	
	1K	18%	1007	24%	1386	20%	1173	17%	977	25%	1421
	2K	16%	900	17%	947	19%	1093	13%	728	15%	830
	4K	14%	805	10%	575	8%	462	6%	352	6%	370
	8K	8%	447	3%	151	2%	124	3%	160	5%	274
	16K	4%	225	2%	120	1%	61	1%	33	0%	19

Table 1.1, Miss Rates(on the left) and Miss Numbers(on the right), Direct Mapped Cache, Column wise copy



Block Sizes										
Cache Sizes	**8**		**16**		**32**		**64**		**128**	
1K	9%	290	5%	153	2%	79	1%	43	5%	176
2K	9%	290	5%	153	2%	79	1%	43	5%	174
4K	7%	226	4%	121	2%	62	1%	34	1%	20
8K	7%	226	4%	121	2%	62	1%	34	1%	20
16K	7%	225	4%	120	2%	61	1%	33	1%	19

Table 1.2, Miss Rates(on the left) and Miss Numbers(on the right), Direct Mapped Cache, Row wise copy



Part b) Fully Associative Cache:

Chosen Good Hit Rate: Cache Size: 8K - Block Size: 128 – Miss Rate: 5% - Number of Miss 274
Chosen Medium Hit Rate: Cache Size: 2K - Block Size: 32 – Miss Rate: 19% - Number of Miss 1093
Chosen Bad Hit Rate: Cache Size: 1K - Block Size: 16 – Miss Rate: 24% - Number of Miss 1386

	Good		**Medium**		**Bad**	
Direct Mapped Cache	5%	175	19%	1093	24%	1386
Fully Associative Cache - LRU	0%	13	18%	1014	23%	1321
Fully Associative Cache - Random	0%	13	18%	1005	23%	1334

Table 1.3, Miss Rates(on the left) and Miss Numbers(on the right), Fully Associative Cache

Part c) N-way Associative Cache:

Chosen Good Hit Rate: Cache Size: 8K - Block Size: 128 – Miss Rate: 5% - Number of Miss 274
Chosen Medium Hit Rate: Cache Size: 2K - Block Size: 32 – Miss Rate: 19% - Number of Miss 1093
Chosen Bad Hit Rate: Cache Size: 1K - Block Size: 16 – Miss Rate: 24% - Number of Miss 1386

	Set Size 1		**Set Size 2**		**Set Size 4**		**Set Size 8**	
Good Hit Rate	5%	274	0%	15	0%	13	0%	13
Medium Hit Rate	19%	1093	18%	1014	18%	1014	18%	1014
Bad Hit Rate	24%	1386	23%	1326	23%	1321	23%	1321

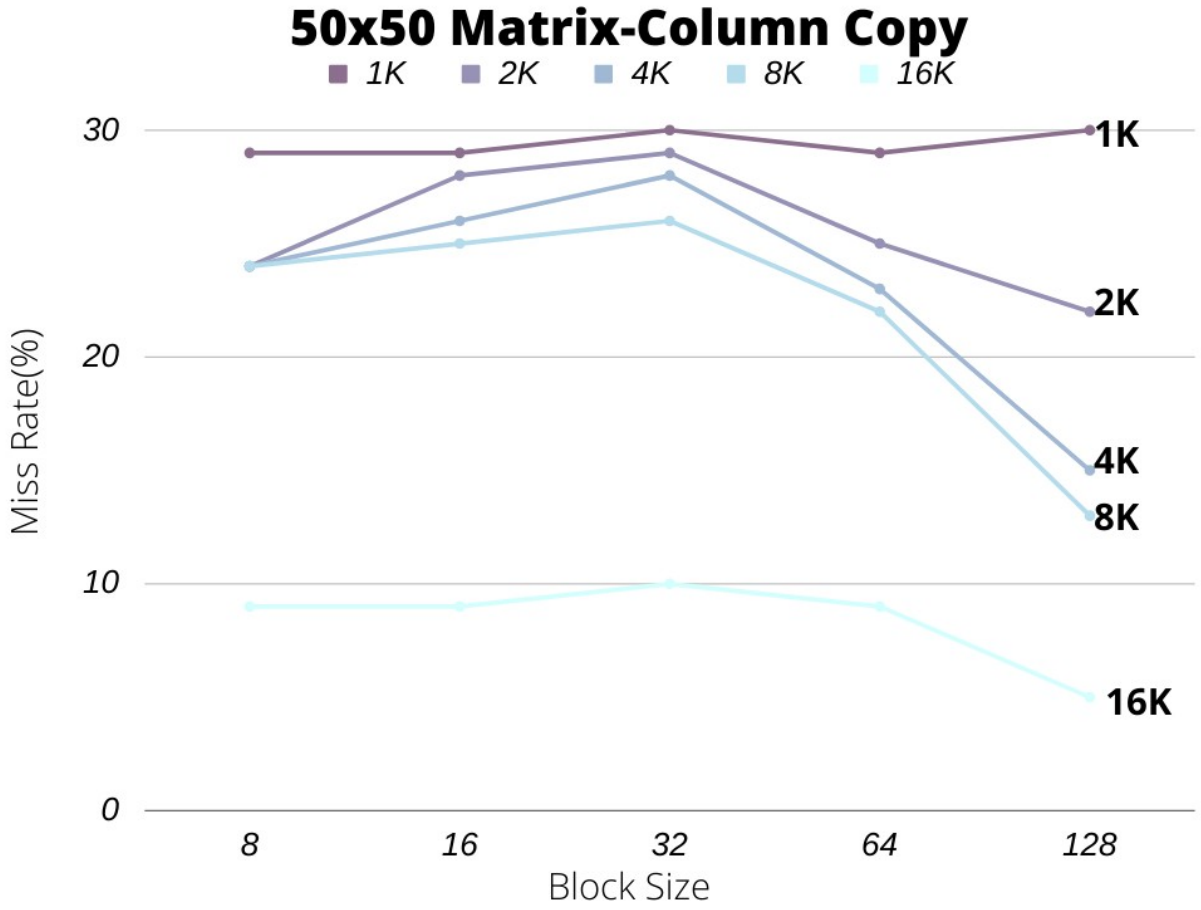
Table 1.4, Miss Rates(on the left) and Miss Numbers(on the right), N-way Associative Cache

Matrix Size: 50x50

Part a) Direct Mapped Cache:

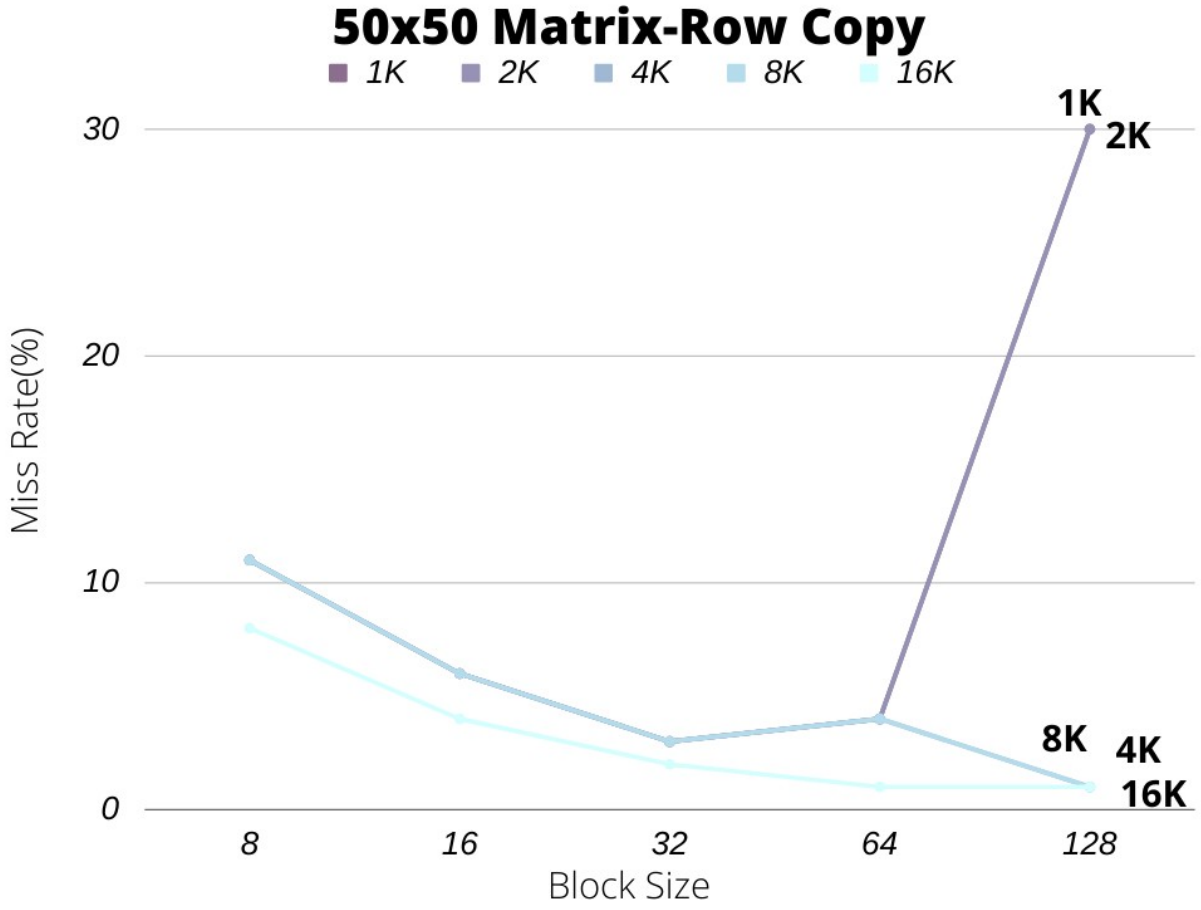
	Block Sizes										
	Cache Sizes	**8**		**16**		**32**		**64**		**128**	
	1K	29%	5516	29%	5492	30%	5703	29%	5405	30%	5651
	2K	24%	4555	28%	5332	29%	5383	25%	4645	22%	4108
	4K	24%	4505	26%	4810	28%	5223	23%	4271	15%	2818
	8K	24%	4480	25%	4772	26%	4937	22%	4115	13%	2406
	16K	9%	1701	9%	1773	10%	1828	9%	1605	5%	1004

Table 2.1, Miss Rates(on the left) and Miss Numbers(on the right), Direct Mapped Cache, Column wise copy



Block Sizes										
Cache Sizes	**8**		**16**		**32**		**64**		**128**	
1K	11%	991	6%	503	3%	254	4%	366	30%	2632
2K	11%	991	6%	503	3%	254	4%	366	30%	2630
4K	11%	991	6%	503	3%	254	4%	366	1%	69
8K	11%	991	6%	503	3%	254	4%	366	1%	69
16K	8%	694	4%	335	2%	179	1%	134	1%	50

Table 2.2, Miss Rates(on the left) and Miss Numbers(on the right), Direct Mapped Cache, Row wise copy



Part b) Fully Associative Cache:

Chosen Good Hit Rate: Cache Size: 16K - Block Size: 32 – Miss Rate: 10% - Number of Miss 1828
Chosen Medium Hit Rate: Cache Size: 8K - Block Size: 128 – Miss Rate: 13% - Number of Miss 2406
Chosen Bad Hit Rate: Cache Size: 1K - Block Size: 32 – Miss Rate: 30% - Number of Miss 5703

	Good		**Medium**		**Bad**	
Direct Mapped Cache	10%	1828	13%	2406	30%	5703
Fully Associative Cache - LRU	2%	285	11%	1986	27%	5095
Fully Associative Cache - Random	3%	583	11%	2018	30%	5663

Table 2.3, Miss Rates(on the left) and Miss Numbers(on the right), Fully Associative Cache

Part c) N-way Associative Cache:

Chosen Good Hit Rate: Cache Size: 16K - Block Size: 32 – Miss Rate: 10% - Number of Miss 1828
Chosen Medium Hit Rate: Cache Size: 8K - Block Size: 128 – Miss Rate: 13% - Number of Miss 2406
Chosen Bad Hit Rate: Cache Size: 1K - Block Size: 32 – Miss Rate: 30% - Number of Miss 5703

	Set Size 1		**Set Size 2**		**Set Size 4**		**Set Size 8**	
Good Hit Rate	10%	1828	14%	2624	8%	1436	1%	282
Medium Hit Rate	13%	2046	11%	1986	11%	1986	11%	1986
Bad Hit Rate	30%	5703	27%	5095	27%	5096	27%	5095

Table 2.4, Miss Rates(on the left) and Miss Numbers(on the right), N-way Associative Cache