

Bilkent University

Department of Computer Science

CS 224

Lab Work

Lab 6

Section 2

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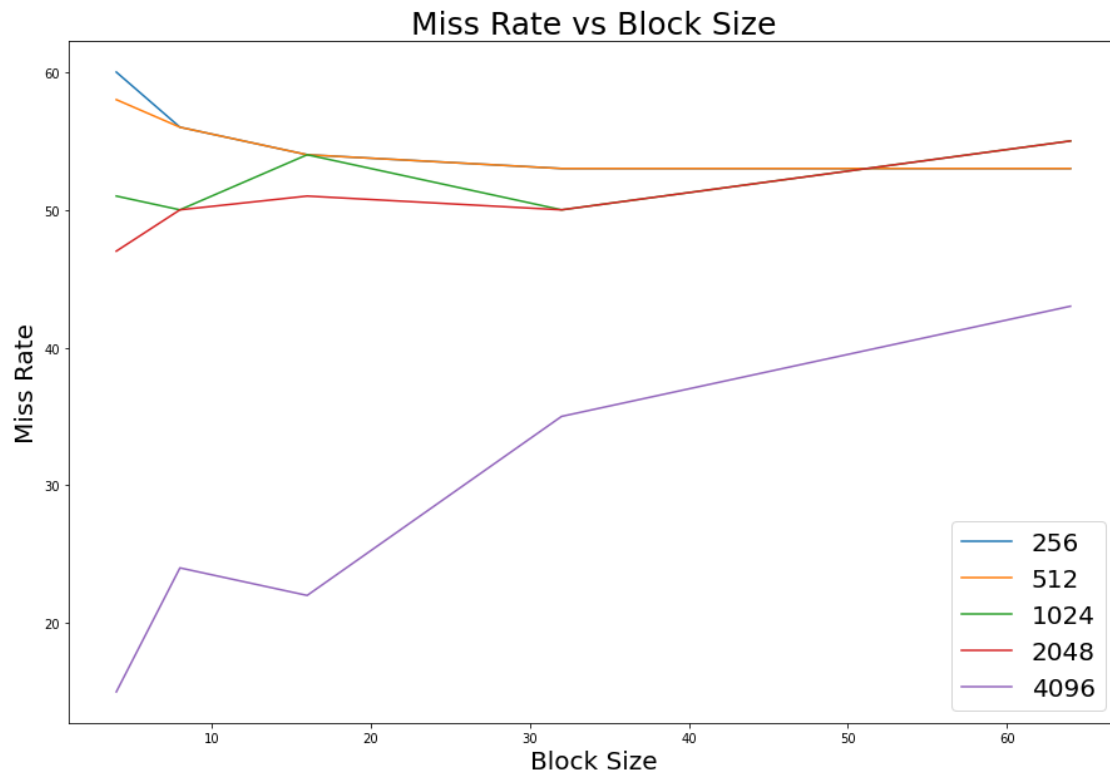
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The values next to the number of misses show the miss rate in each case.

Size of the matrix: (N = 30)

a.)

Block Size (words)	4	8	16	32	64
Cache size (bytes)					
256	2074 (%60)	1940 (%56)	1871 (%54)	1837 (%53)	1820 (%53)
512	2014 (%58)	1940 (%56)	1871 (%54)	1837 (%53)	1820 (%53)
1024	4206 (%51)	1719 (%50)	1870 (%54)	1725 (%50)	1928 (%55)
2048	1636 (%47)	1709 (%50)	1751 (%51)	1725 (%50)	1928 (%55)
4096	535 (%15)	880 (%24)	746 (%22)	1220 (%35)	1474 (%43)



b.)

	Good (Cache size: 4096, block size: 4)	Medium (Cache size: 4096, block size: 16)	Bad (Cache Size: 256, block size: 4)
Full Associative (LRU)	664 (%19)	206 (%6)	2074 (%60)
Full Associative (Random)	656 (%19)	608 (%18)	2037 (%63)
Direct Mapped	535 (%15)	1220 (%35)	2074 (%60)

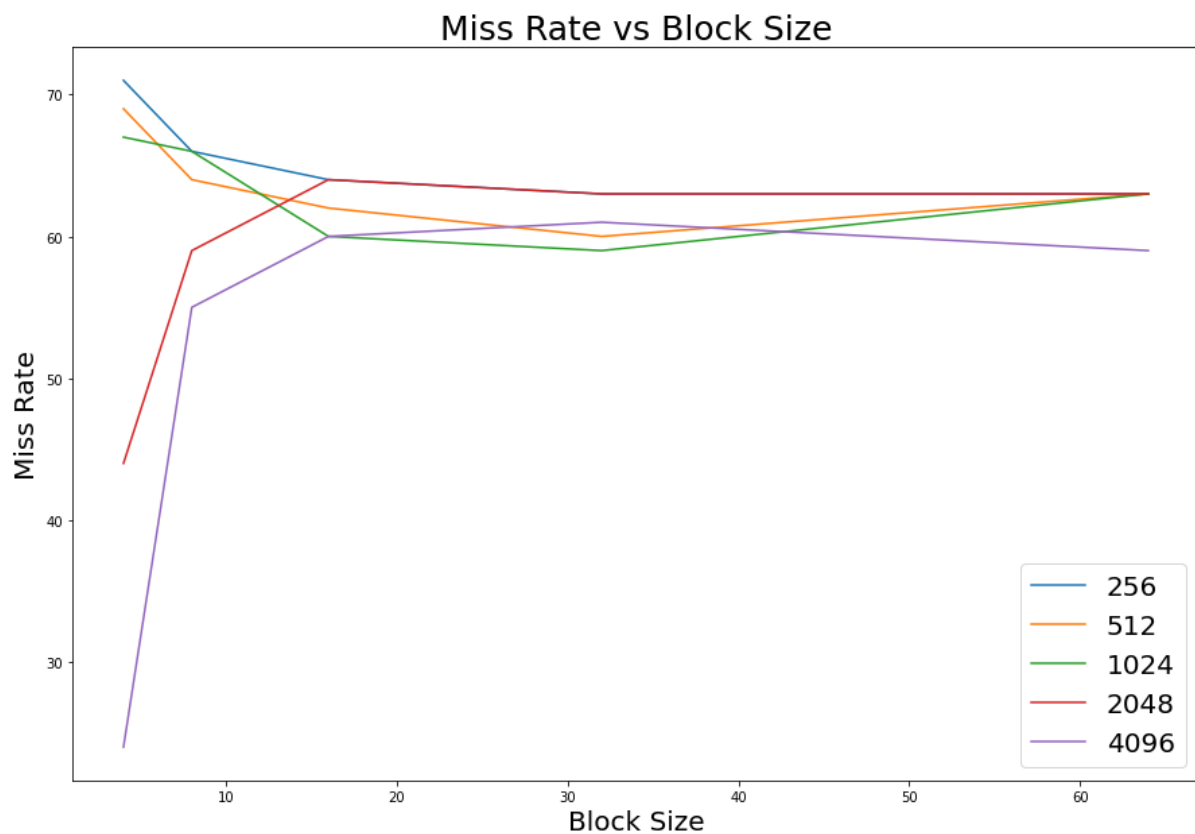
c.)

	Good (Cache size: 4096, block size: 4)	Medium (Cache size: 4096, block size: 16)	Bad (Cache Size: 256, block size: 4)
Direct	535 (%15)	1220 (%35)	2074 (%60)
2-Way (LRU)	588 (%17)	1512 (%44)	2057 (%60)
4-Way (LRU)	662 (%19)	240 (%7)	2053 (%60)
8-Way (LRU)	662 (%19)	204 (%6)	2036 (%59)
16-Way (LRU)	661 (%19)	207 (%6)	2046 (%59)

Size of the matrix: (N = 80)

a.)

Block Size (words)	4	8	16	32	64
Cache size (bytes)					
256	8149 (%71)	7677 (%66)	7439 (%64)	7321 (%63)	7262 (%63)
512	7963 (%69)	7457 (%64)	7215 (%62)	7138 (%60)	7262 (%63)
1024	7786 (%67)	7677 (%66)	7038 (%60)	6878 (%59)	7262 (%63)
2048	4743 (%44)	6841 (%59)	7439 (%64)	7321 (%63)	7262 (%63)
4096	2734 (%24)	6307 (%55)	6935 (%60)	7068 (%61)	6814 (%59)



b.)

	Good (Cache size: 4096, block size: 4)	Medium (Cache size: 4096, block size: 8)	Bad (Cache Size: 256, block size: 4)
Full Associative (LRU)	2740 (%24)	1437 (%12)	8149 (%71)
Full Associative (Random)	6049 (%26)	4674 (%20)	8149 (%71)
Direct Mapped	2734 (%24)	6307 (%55)	8149 (%71)

c.)

	Good (Cache size: 4096, block size: 4)	Medium (Cache size: 4096, block size: 8)	Bad (Cache Size: 256, block size: 4)
Direct	2724 (%24)	6307 (%55)	8149 (%71)
2-Way (LRU)	2726 (%24)	1431 (%12)	8149 (%71)
4-Way (LRU)	2727 (%24)	1431 (%12)	8149 (%71)
8-Way (LRU)	2734 (%24)	1434 (%12)	8149 (%71)
16-Way (LRU)	27238 (%24)	1434 (%12)	8149 (%71)