

**CS 224**

Fall 2023–2024

Lab 6 Report

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Section 3

**Part 1**

**Matrix Size: 75**

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| **Block Size Cache Size** | **2** | **4** | **8** | **16** | **32** |
| **128** | Hit Rate: 37 # of misses: 11690 | Hit Rate: 53 # of misses: 8666 | Hit Rate: 61 # of misses: 7240 | Hit Rate: 65 # of misses: 6536 | Hit Rate: 66 # of misses: 6214 |
| **256** | Hit Rate: 37 # of misses: 11660 | Hit Rate: 53 # of misses: 8650 | Hit Rate: 61 # of misses: 7226 | Hit Rate: 65 # of misses: 6518 | Hit Rate: 67 # of misses: 6177 |
| **512** | Hit Rate: 52 # of misses: 8878 | Hit Rate: 53 # of misses: 8617 | Hit Rate: 61 # of misses: 7191 | Hit Rate: 65 # of misses: 6482 | Hit Rate: 67 # of misses: 6142 |
| **1024** | Hit Rate: 53 # of misses: 8752 | Hit Rate: 66 # of misses: 6344 | Hit Rate: 62 # of misses: 6978 | Hit Rate: 65 # of misses: 6452 | Hit Rate: 67 # of misses: 6102 |
| **2048** | Hit Rate: 53 # of misses: 8619 | Hit Rate: 70 # of misses: 5640 | Hit Rate: 71 # of misses: 5452 | Hit Rate: 66 # of misses: 6279 | Hit Rate: 67 # of misses: 6080 |

**Matrix Size: 150**

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| **Block Size Cache Size** | **2** | **4** | **8** | **16** | **32** |
| **128** | Hit Rate: 26 # of misses: 34115 | Hit Rate: 39 # of misses: 28309 | Hit Rate: 45 # of misses: 25482 | Hit Rate: 48 # of misses: 24068 | Hit Rate: 49 # of misses: 23361 |
| **256** | Hit Rate: 26 # of misses: 34115 | Hit Rate: 39 # of misses: 28309 | Hit Rate: 45 # of misses: 25482 | Hit Rate: 48 # of misses: 24068 | Hit Rate: 49 # of misses: 23361 |
| **512** | Hit Rate: 26 # of misses: 34115 | Hit Rate: 39 # of misses: 28309 | Hit Rate: 45 # of misses: 25482 | Hit Rate: 48 # of misses: 24068 | Hit Rate: 49 # of misses: 23361 |
| **1024** | Hit Rate: 43 # of misses: 26289 | Hit Rate: 42 # of misses: 26560 | Hit Rate: 45 # of misses: 25482 | Hit Rate: 48 # of misses: 24068 | Hit Rate: 49 # of misses: 23361 |
| **2048** | Hit Rate: 51 # of misses: 22825 | Hit Rate: 58 # of misses: 19175 | Hit Rate: 47 # of misses: 24349 | Hit Rate: 48 # of misses: 24068 | Hit Rate: 49 # of misses: 23361 |

**Matrix Size: 75**

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| **Block Size Cache Size** | **2** | **4** | **8** | **16** | **32** |
| **128** | Hit Rate: 52 # of misses: 5845 | Hit Rate: 76 # of misses: 2929 | Hit Rate: 87 # of misses: 1518 | Hit Rate: 93 # of misses: 823 | Hit Rate: 96 # of misses: 506 |
| **256** | Hit Rate: 52 # of misses: 5811 | Hit Rate: 76 # of misses: 2911 | Hit Rate: 87 # of misses: 1501 | Hit Rate: 93 # of misses: 807 | Hit Rate: 96 # of misses: 470 |
| **512** | Hit Rate: 52 # of misses: 5768 | Hit Rate: 76 # of misses: 2897 | Hit Rate: 87 # of misses: 1482 | Hit Rate: 93 # of misses: 782 | Hit Rate: 96 # of misses: 438 |
| **1024** | Hit Rate: 53 # of misses: 5738 | Hit Rate: 76 # of misses: 2878 | Hit Rate: 88 # of misses: 1467 | Hit Rate: 94 # of misses: 756 | Hit Rate: 97 # of misses: 402 |
| **2048** | Hit Rate: 53 # of misses: 5717 | Hit Rate: 76 # of misses: 2862 | Hit Rate: 88 # of misses: 1443 | Hit Rate: 94 # of misses: 731 | Hit Rate: 97 # of misses: 377 |

**Matrix Size: 150**

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| **Block Size Cache Size** | **2** | **4** | **8** | **16** | **32** |
| **128** | Hit Rate: 50 # of misses: 22865 | Hit Rate: 75 # of misses: 11443 | Hit Rate: 87 # of misses: 5823 | Hit Rate: 93 # of misses: 3040 | Hit Rate: 96 # of misses: 1705 |
| **256** | Hit Rate: 50 # of misses: 22812 | Hit Rate: 51 # of misses: 11410 | Hit Rate: 87 # of misses: 5786 | Hit Rate: 93 # of misses: 3002 | Hit Rate: 97 # of misses: 1620 |
| **512** | Hit Rate: 51 # of misses: 22756 | Hit Rate: 51 # of misses: 11382 | Hit Rate: 88 # of misses: 5741 | Hit Rate: 93 # of misses: 2967 | Hit Rate: 97 # of misses: 1572 |
| **1024** | Hit Rate: 51 # of misses: 22701 | Hit Rate: 54 # of misses: 11365 | Hit Rate: 88 # of misses: 5717 | Hit Rate: 94 # of misses: 2912 | Hit Rate: 97 # of misses: 1499 |
| **2048** | Hit Rate: 51 # of misses: 22655 | Hit Rate: 75 # of misses: 11331 | Hit Rate: 88 # of misses: 5694 | Hit Rate: 94 # of misses: 2878 | Hit Rate: 97 # of misses: 1476 |

**Part 2**

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|  | **B: 2 C: 128 M:150** | **B: 4 C: 2048 M:150** | **B: 32 C: 2048 M:150** |
| **Direct Mapped** | Hit Rate: 50 # of misses: 22865 | Hit Rate: 75 # of misses: 11331 | Hit Rate: 97 # of misses: 1476 |
| **Full - LRU** | Hit Rate: 50 # of misses: 22865 | Hit Rate: 76 # of misses: 11285 | Hit Rate: 97 # of misses: 1414 |
| **Full - Random** | Hit Rate: 50 # of misses: 22860 | Hit Rate: 75 # of misses: 11329 | Hit Rate: 97 # of misses: 1447 |

**Part 3**

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| **Cache Size**  **Set Size** | **B: 4 C: 2048 M:150** | **B: 32 C: 2048 M:150** |
| **4** | Hit Rate: 76 # of misses: 11285 | Hit Rate: 97 # of misses: 1414 |
| **8** | Hit Rate: 76 # of misses: 11285 | Hit Rate: 97 # of misses: 1414 |
| **16** | Hit Rate: 76 # of misses: 11285 | Hit Rate: 97 # of misses: 1414 |