Data Intensive systems for Machine Learning

Coding Assignment 3
Dense Matrix Multiplication

Hardware Configuration

Processor	M3 Chip
Architecture	ARM based (Apple-Silicon)
Core type/ number of cores	CPU Cores: 8 Cores GPU Cores: 8 Cores
Core frequency	4.05 GHz
Memory	8 GB

Software Configuration

Operating system	MacOS Sonoma (MacOS 14)
Scala	2.12.18
Spark core	3.4.0
Spark mllib	3.5.5
Netlib	1.1.2
Breeze	0.13
Sbt	1.10.10

Performance Comparison

1000 Iterations

	Handcoded scala	Spark	Breeze
Iterations	1000	1000	1000
Average time-taken for one iteration (seconds)	0.978008	0.12642799999999998	0.234707

100 Iterations

	Handcoded scala	Spark	Breeze
Iterations	100	100	100
Average time-taken for one iteration (seconds)	0.10231100000000001	0.12547	0.22743