

COSC 211 Lab 8 – Caches

0.Introduction

In this lab, you will have the opportunity to explore different caching strategies. There are a total of 30 marks available for this assignment.

The written assignment is due **at the end of the day** on Sunday, December 3rd, 2023. The submission can be hand written and scanned or typed and submitted through Canvas. Work must be clear with all work shown. Submissions will be accepted earlier. Late submissions will not be accepted. Even if you do not complete all questions, please try them all and submit what you have for partial marks.

1. Written Assignment

1. (/10) Exercise 5.2 (5th edition) (Show all work)
 - a. 5.2.1 (5 marks)
 - b. 5.2.2 (5 marks)
2. (/4) Exercise 5.3 (5th edition) (Show all work)
 - a. 5.3.1 (1 marks)
 - b. 5.3.2 (1 marks)
 - c. 5.3.3 (2 marks)
3. (/6) Exercise 5.6 (5th edition) (Show all work)
 - a. 5.6.1 (2 marks)
 - b. 5.6.2 (2 marks)
 - c. 5.6.3 (2 marks)
4. (/4) Exercise 5.13 (5th edition) (Show all work)
 - a. 5.13.1 (1 marks)
 - b. 5.13.2 (1 marks)
 - c. 5.13.3 (2 marks)
5. (/6) Given a hard disk with 512 byte sector, an 8 ms (millisecond) average seek time, a 100 Mbyte/second data (megabytes per second) transfer rate, a controller overhead of 2 ms and a rotational speed of 10,000 rpm, calculate the following. Show all calculations.
 - a. The rotational latency. (2 marks) (show all work)
 - b. The transfer time for one sector. (2 marks) (show all work)
 - c. The average read time (recall that this is the average seek time + average rotational latency + sector transfer time + controller overhead) (2 marks) (show all work)

Written Submission

Submit your written assignment through Canvas on the above indicated due date. Please take care and effort to make your assignment answers as clear as possible.