COSC2406/2407 **Database Systems**

Week 4/5 Lab Tasks

Aims:

The aim of this laboratory is for you to familiarize yourself with using Apache Derby and to time queries.

Task 1: Unfinished work

Make sure you have completed the work from the previous lab sheets and have both mongodb and Apache Derby installed in an AWS instance.

Task 2: Connect to Apache Derby on your AWS instance

Our aim by the end of this task is to have inserted the following data into Apache Derby (set up in week 2 lab) using the interactive SQL tool https://db.apache.org/derby/papers/DerbyTut/ij_intro.html which can be invoked with the following command:

java org.apache.derby.tools.ij

Given_name	Family_name	Age	Student_number
Fred	Zhang	20	s1234
Kim	Jones	21	s4567
Ann	Ng	24	s6789

Student	Course	Semester
s1234	COSC2406	1
s1234	COSC1127	1
s1234	COSC2110	2
s4567	COSC2406	1
s6789	COSC2406	1
s6789	COSC2110	2

(1) Use the interactive SQL tool to create two tables and insert the above data. Remember you need to first connect to an existing database or create a new database before creating any tables.

(2) Write a query to find the names of the students enrolled in COSC2110 in semester 2.

If you are struggling with the commands in apache derby, the following tutorial may be helpful: http://db.apache.org/derby//papers/DerbyTut/ij_intro.html

Task 3: Timing queries using Apache Derby

(1) The next task is to test the performance of Apache Derby in terms of the number of queries it can perform per second on our dataset. Our dataset is rather small and so a more realistic test might require a much larger dataset than this.

(2) Briefly read "Analysing statement execution" and Working with RunTimeStatistics" (starting from page 22 and up to about page 27) in Tuning Derby https://db.apache.org/derby/docs/10.13/tuning/tuningderby.pdf

(3) Use runtimestatistics to time your query from Task 2.