

Cohort Exercise 9

100 Points

(100 points) Question 1: MongoDB and Node.js

For this exercise, we will simulate a group of 20 SUTD students going through their 8 terms and getting somehow random grades.

As such, please write a **Node.js** script that will:

1. Create a database named “sutd”
2. Inside that database, create a collection called “students”
3. Create 20 different `student` documents, with the following keys and values requirement:
 - a. `student_id` (value should be a number)
 - b. `average_grade` (value should be a number, initial value of 0)
 - c. `full_name` (value should be a string)
 - d. `grades` (value should be an empty array)
 - e. `term` (value should be a number, initial value of 0)
4. Write a for loop with 8 iterations, which, for each student, will:
 - a. generate four random numbers (between 0 and 100 both **included**) to be added to the students `grades`
 - b. increment `term` by 1
5. **After the 8 iterations** are done, compute the `average_grade` for each student based on the students `grades`
6. Display the sorted list of students with the highest `average_grade` first. You need to sort when retrieving the data, not after (see how to order when querying with MongoDB). The information of each student should be printed, with one student per line using `console.log()`.

Note: You may use helper functions if needed. Make sure that your code runs on Node.js, do NOT write a MongoDB shell script. You may use any approach you want (callback functions vs. async/await).