# Implementation Task 3 (IT3)

**Due:** Wednesday, 29 May 2025, by 9:00 PM (Singapore time)
**Weight:** 4% of total assessment

## Overview

This task involves the use of **MongoDB** for:

- Reverse engineering BSON documents
- Writing queries for data retrieval and manipulation
- Demonstrating understanding of hierarchical document structure

All implementations and outputs must be submitted **electronically via Moodle**.

Note: Submissions via email will be **deleted** and receive a **mark of zero**.

## Submission Requirements

You must submit the following three files in a single zipped folder:

| File Name | Content |
|---|---|
| IT3Task1Solution.pdf | UML diagram and explanation for Task 1 |
| IT3Task2.js | MongoDB queries and data manipulation (Task 2) |
| IT3Task2Solution.txt | Terminal output from running IT3Task2.js |

Name your zipped file as:

<YourUOWStudentNumber>-IT3.zip

Upload the ZIP to **Moodle** under the *Implementation Task 3* submission section.

### Preliminary Task (No marks)

Download and run the script studentSeminar2.js:

```
mongosh "mongodb://localhost:27017/myDB" --file
"D:/mongoDBScripts/studentSeminar.js"
```

Verify data was loaded using:

db.studentSeminar.find().pretty()

No submission or report required for this task.

## Task 1: Reverse Engineering (1.0 mark)

**Instructions:**

1. Choose **one document** from the studentSeminar collection.
2. Draw its equivalent **conceptual model in UML notation**.
3. State the **MongoDB implementation technique** used (e.g., one-to-many, embedded documents, etc.).

Use UMLet or any UML drawing tool you prefer.

**Deliverable:**

- IT3Task1Solution.pdf
  (Include your **name and UOW student number**)

## Task 2: MongoDB Data Manipulation (3.0 marks)

**Instructions:**

Using db.studentSeminar, complete the following tasks in a script file IT3Task2.js. Then run it and **save the full output** (commands + results) to IT3Task2Solution.txt.

Each subtask below is worth **0.4 mark**, except the last one, which is **0.6 mark**.

Tasks to Implement:

i. Find all seminars whose description is "In-memory Database.". **(0.4 mark)**

ii. Find total number of seminars the student std009 have enrolled in. **(0.4 mark)**

iii. Find the details of all seminars that have students received marks higher than 80. **(0.4 mark)**

iv. Find the details of all 3 credit points seminars that the student Sharon Smith has attended. You MUST use conjunction operator to implement this query. **(0.4 mark)**

v. Insert a new seminar to the studentSeminar collection. The detail of the seminar is as followed:

SeminarID : sem006,

Seminar Description : Attending Online Course,

Seminar Date : 12-May-2025,

Credit Point : 2

**(0.4 mark)**

vi. Change the seminar date of seminar sem006 to 18 May 2025. **(0.4 mark)**

vii. Add a student's enrolment to the studentSeminar collection. The student is enrolled to attend the seminar sem006 on 12 May 2025. The detail of the student is as follow:

studentID: std006

student name: Ofelia Ashley

address: 123, Bukit Timah

telephone: [ handphone: 93858134, residentphone: 64352893 ]

enrol to: sem002

mark received: 0

enrolment Date: 12-May-2025

Note: You can leave the mark received as 0 because the mark is not available yet.

**(0.6 marks)**

**Deliverables:**

- IT3Task2.js: contains the above MongoDB commands
- IT3Task2Solution.txt: copy-pasted output from terminal showing:
  - all MongoDB queries
  - their output using pretty()
  - no syntax errors
  -

**Important**: Do not omit the MongoDB commands in the output file. A report without query listings will receive **no marks**.

## Submissions

This implementation task is due by 9:00 pm (2100 hours) Wednesday, 29 May 2025, Singapore time.

Submit the files **IT3Task1Solution.pdf, IT3Task2.js,** and **IT3Task2Solution.txt** through Moodle in the following way:

1) Zip all the files (**IT3Task1Solution.pdf, IT3Task2.js,** and **IT3Task2Solution.txt** into one zipped folder. Name your zipped file as YourName-IT3)
2) Access Moodle at **http://moodle.uowplatform.edu.au/**
3) To login use a Login link located in the right upper corner the Web page or in the middle of the bottom of the Web page
4) When successfully logged in, select a site CSCI235 (SP225) Database Systems
5) Scroll down to a section Submissions of Implementation Tasks
6) Click at Submit your Implementation Task 3 here link.
7) Click at a button Add Submission
8) Move the zipped file created in Step 1 above into an area provided in Moodle. You can drag and drop files here to add them. You can also use a link *Add…*
9) Click at a button Save changes,
10) Click at check box to confirm authorship of a submission,
11) When you are satisfied, remember to click at a button Submit assignment.

A policy regarding late submissions is included in the subject outline. Only one submission per student is accepted.

Implementation Task 3 is an individual assignment, and it is expected that all its tasks will be solved individually without any cooperation with the other students. Plagiarism is treated seriously. Students involved will likely receive zero. If you have any doubts, questions, etc. please consult your lecturer or tutor during lab classes or over e-mail.

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*End of specification*