



BIRMINGHAM CITY
University

CMP6207 - Assignment 1

Untitled CMP6207 Report

Lewis Higgins - Student ID 22133848

CMP6207 - Modern Data Stores

Module Coordinator: Konstantinos Vlachos

Contents

Introduction	1
1 Database comparisons	3
Conclusion	4
Bibliography	5

Introduction

The report will be based on the design and implementation of a MongoDB NoSQL database system for the company "IoThings Home Automation Solutions", and its detailed brief containing the deadline will become available during Week 2. There are two assignments in this module, where this report is worth **60%**, and a presentation (relating to code?) is the remaining **40%**. This module will also incorporate elements of web design, with HTML and CSS also playing a role alongside the primary use of JavaScript.

Work on this report is expected to fully begin in Week 4, or potentially even earlier within Week 2. A draft of this report may be due in Week 7.

Module plan

- As minor occurrences happen, such as the installation of MongoDB, log them here.
- The timetabling of this module means that there's not much point trying to get ahead.
 - This is partially a benefit, as it means you have time for CMP6228 and CMP6200.
- (Currently, not much can be said here due to the brief not being available yet.)
- Kostas cares more for the functionality over aesthetics. While you should put effort into the HTML and CSS parts, they're a lesser concern than the overall usability of the system.

Coding conventions

There are expected coding conventions within this module, though they are how you would code anyway. camelCase, spaces when assigning variables and between array contents ["Space", "Expected before me"]. Code must be indented to the relevant level which is likely handled by VSCode. Your lines should not exceed 80 characters, and you may need to get a JS linter to enforce this. Your code should be commented.

Expected function format

```
function toCelsius(fahrenheit) {  
    return (5 / 9) * (fahrenheit - 32);  
}
```

Database comparisons

- Compare types of databases here, ultimately ending on why MongoDB is their best option.

Structured Query Language, or SQL, was developed by IBM following Codd (1970)'s groundbreaking publication in the ACM journal, with the first commercial SQL implementation being published by Oracle in 1979 (Oracle, 2025). SQL powers many relational database systems even today, though the problems associated with its age, most notably in the speed of its operations, are beginning to show in modern systems. Therefore, NoSQL ("Not Only SQL") was developed as a new form of database that stores data in a non-tabular, non-relational format which work to efficiently store semi-structured and unstructured data in a flexible, functional and scalable model for faster operations than standard relational databases in most scenarios (Google Cloud, 2025; AWS, 2025).

MongoDB, an acronym from "hum**ong**ous DB", aims to address some of SQL's key issues through its

Conclusion

Overall, something was done. . .

Bibliography

- AWS (2025). *What is a NoSQL Database? - Nonrelational Databases Explained - AWS*. Amazon Web Services, Inc. URL: <https://aws.amazon.com/nosql/> (visited on 04/02/2025).
- Codd, E. F. (1st June 1970). ‘A relational model of data for large shared data banks’. In: *Commun. ACM* 13 (6), pp. 377–387. ISSN: 0001-0782. DOI: [10.1145/362384.362685](https://doi.org/10.1145/362384.362685).
- Google Cloud (2025). *What is NoSQL? Databases Explained*. Google Cloud. URL: <https://cloud.google.com/discover/what-is-nosql> (visited on 04/02/2025).
- Oracle (2025). *History of SQL*. URL: https://docs.oracle.com/cd/B13789_01/server.101/b10759/intro001.htm (visited on 04/02/2025).