

INFO20003 Tutorial – Week 12

(Tutorial: NoSQL and Revision)

Objectives:

This tutorial will cover:

- I. Understand the concepts of NoSQL databases – 15 mins
- II. Choosing appropriate NoSQL database types for scenarios – 10 mins
- III. CAP theorem with respect to NoSQL databases – 15 mins
- IV. Revision

Key Concepts:

- What are NoSQL databases?
- Types of NoSQL database
 - Graph databases
 - Key-value stores
 - Column-family stores
 - Document stores

Exercise:

Choosing a NoSQL database

Libraries store information about their collections in their catalogue.

Match each of the following statements to the type of NoSQL database that would be best for storing that library's data. Select from the four types of NoSQL database discussed previously.

- a. In one library, items are catalogued by author, title and publisher, as well as any number of other fields chosen by the cataloguer, such as physical description, subject codes and notes.
- b. In another library, each catalogue record is stored in the MARC format (Figure 1), a coded text format that contains all the catalogue information for a particular item.
- c. A public library wishes to store cover photos of all its items, which might be in JPEG, PNG or PDF format, or stored as a URL.
- d. A university library wishes to keep track of which published academic papers reference each other in order to help researchers measure their metrics.

```
LEADER 00000nam 22000001 4500
008 730220s1955 ilu b 00000 eng
019 55007351
050 0 QA276.5|b.R3
082 311.22
110 20 Rand Corporation.
245 12 A million random digits|bwith 100,000 normal deviates.
260 0 Glencoe, Ill.,|bFree Press|c[1955]
300 xxv, 400, 200 p.|c28 cm.
504 Bibliography: p. xxiv-xxv.
650 0 Numbers, Random.
984 |cMS T 519 R152
```

Figure 1: An example of a MARC record. MARC is a very old format that predates NoSQL, JSON and even XML by several decades, yet it remains the industry standard in library data systems.

Key Concepts:

- Advantages of NoSQL
- The CAP theorem

Revision:

Your tutor will offer some revision activities.