Information Systems
Year 1, Semester 2
Assignment 1

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QUESTION 1

Based in the provided scenario, the most applicable type of database is NoSQL. As Vettor, et al. (2020) says, NoSQL databases are used to rapidly store and process large volumes of non-relational and semi-structured data.

The NoSQL database is the most applicable database for the given scenario. Ana-Gabriela (2024) lists the following benefits of NoSQL databases, all of which align perfectly with the description:

- They can process large volumes of data quickly, and can deliver output in real time, improving the overall user experience.
- They have a flexible schema, in which tough constraints aren't imposed on data. This allows the database to tolerate may varieties of dissimilar data (e.g. text, video and shares), with a highly abstract structure.
- They are horizontally scalable, meaning they can be distributed across many servers in different locations.

A DISCUSSION OF THE DIFFERENT KINDS OF DATA THAT WOULD BE STORED (4)

A LIST + 3-SENTENCE DEFINITIONS OF 4 TYPES OF THE RECOMMENDED DATABASE (4X3 = 12) $$$

There are several different variants of NoSQL databases, with varying methods of storing data. According to Vettor, et al. (2020), these include:

- Document stores, which store data in JSON-based files.
- Graph stores, that store data a nodes, edges, and data properties.
- Key value stores, which store data points in a series of key/value pairs. They are also the simplest variant of NoSQL database.

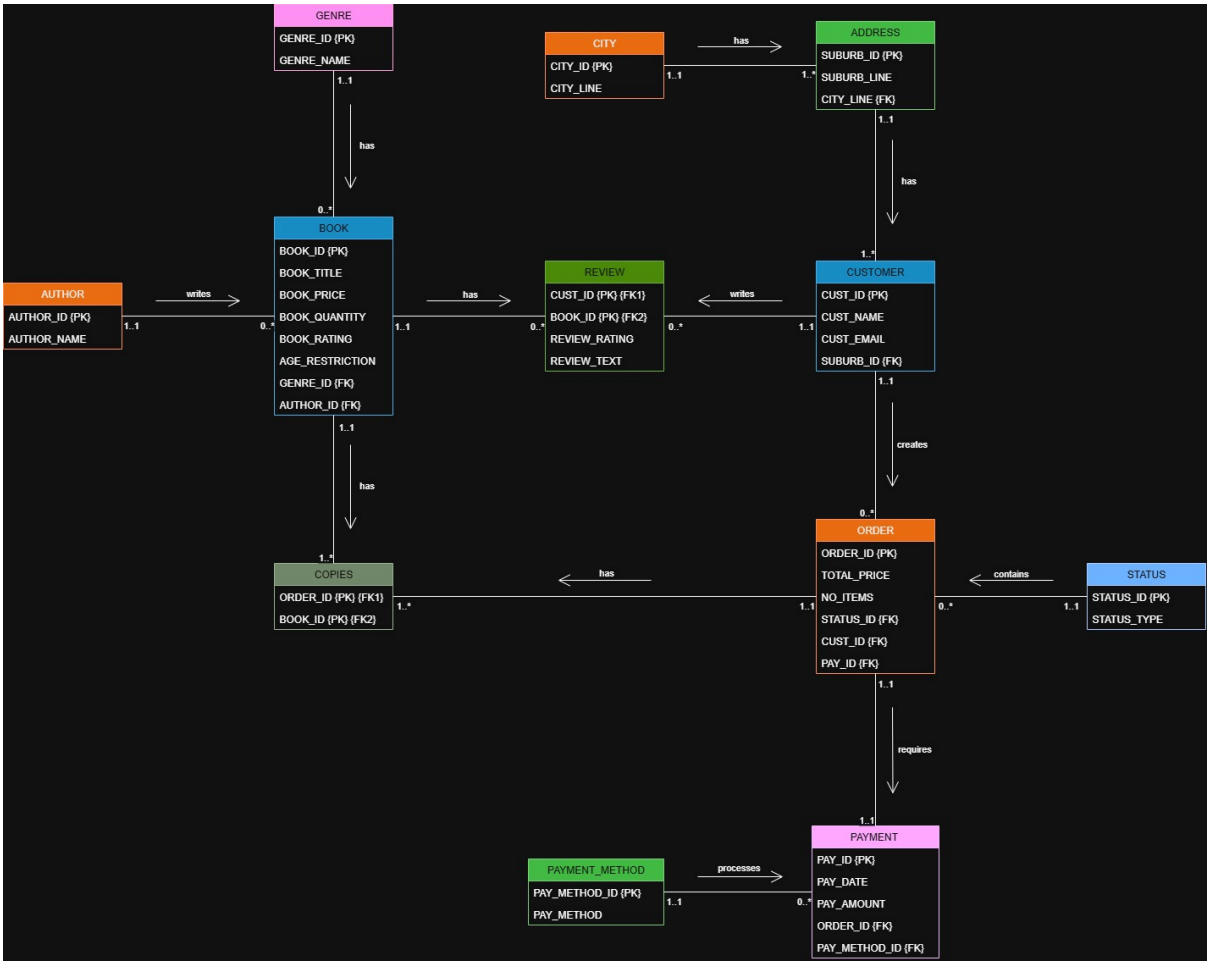
- Wide column stores, which are similar to key/value stores (they also use key/value pairs), but the data is nested in a single column.

NoSQL databases are ideal for big data (Ana-Gabriela, 2024). Oracle (2020) says the first 3 Vs of big data are as follows, and would also relate to the social media platform in the following ways:

- Volume - A social media platform of the sort described in the scenario, may have many petabytes of data in its information systems. This data will also be constantly increasing, prompting a need for scalability within the system. Some types of data, such as videos, will be more complex, and thus larger than more primitive types, such as text. Some data might not even have a pre-specified size, such as live streams.
- Velocity - The social media platform's system will constantly be receiving input and interaction from millions of users, which need to be processed, stored and even retrieved in searches for specific pages, users and posts. Additionally, the system must process data in real-time, to deliver new, popular content to users in real-time, and keep them engaged.
- Variety - The rise of new datatypes, such as digital audio, digital video and GIFs, is particularly applicable in the social media platform. These cannot be handled as the tighter, more specific datatypes of relational databases, thus enforcing the need of the NoSQL model. The platform's data variety also includes more primitive types, such as text, on top of the previously mentioned types – perfect for the NoSQL model.

QUESTION 2

Coronel, et al. (2020) and Watt and Eng (2014) where referred to in creating the following diagram, in response to the presented scenario.



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