Assignment-1

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1.1 E.F. Codd

Edgar Frank Codd was born in Fortuneswell, Dorset, on the Isle of Portland. Codd earned his PhD from the University of Michigan in Ann Arbor in 1965. In the thesis, which built on Von Neumann's work and demonstrated that a set of eight states was adequate for universal computing and building, he discussed self-replication in cellular automata. His self-replicating computer design was only realised in 2010. He developed his views of data organisation over the 1960s and 1970s, publishing "A Relational Model of Data for Large Shared Data Banks" in 1970, a year after an internal IBM document. To his dismay, IBM took a while to use his ideas, at least until business rivals started doing so. Codd's theorem, a result established in his seminal work on the relational model, equates the expressive power of relational algebra and relational calculus.
Reference: E.F. Codd

1.2 Data Model

A data model is an abstract model used to organise data items and standardise their relationships with one another and with attributes of physical objects. There are two distinct but related notions that might be referred to as data models. It can also refer to an abstract formalisation of the entities and connections present in a certain application domain, such as the clients, goods, and orders in a manufacturing company. Particularly in relation to programming languages, a data structure can also be used to refer to a data model. Particularly in the context of enterprise models, function models are frequently used in conjunction with data models. By providing the description and structure of data, data models serve as a major tool to support the creation of information systems.
Data models can be of 3 types:

1. Conceptual Data Model
2. Logical Data Model

3. Physical Data Model

Reference: Data Model

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10 Large digital applications which have huge database size and large number of transactions in the filed of Finance, retail, manufacturing, IT are:

1. CRED
2. Groww
3. BigBasket
4. Paytm
5. Flipkart
6. Zomato
7. Ola Cabs
8. RazorPay
9. Infosys

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3.1 OLTP

- It is well-known for editing databases online.
- It utilises a standard database management system.
- The tables in an OLTP database are normalised.
- An OLTP database must maintain the data integrity constraint.
- Both read and write operations are performed

3.2 OLAP

- It is well known as an online database query management system.
- A data warehouse is used in this.
- The tables in an OLAP database are not normalised.
- There aren't many updates to the OLAP database. Data integrity is therefore unaffected.
- Only read operation is performed generally.

Reference: OLTP vs OLAP