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WEB 335: Discussion 3.1

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Normalization

Database normalization is a way to organize data within the database. “Normalization is a systematic approach of decomposing tables to eliminate data redundancy(repetition) and undesirable characteristics like Insertion, Update and Deletion Anomalies” (Studytonight, 2019). Normalization achieves two goals. Deletes useless or redundant data and ensures that the data is stored logically.

Database Normalization is important because it reduces memory space and makes the database easier to interact with and upkeep without the danger of data loss.

There are 5 normal forms.

* The 1st normal form is step one of the normalization process. “The 1st Normal form expects you to design your table in such a way that it can easily be extended and it is easier for you to retrieve data from it whenever required” (1NF, 2019). There are four rules in the first normal form. They must have single valued columns, values in the same column should have the same domain, columns have unique names, and the order of data storage does not matter.
* “For a table to be in the Second Normal Form, it must satisfy two conditions:

The table should be in the First Normal Form.

There should be no Partial Dependency” (Studytonight, 2019).

* The 3rd normal form occurs when a table is in the 2nd normal form and it does not have Transitive dependency, “when a non-prime attribute depends on other non-prime attributes rather than depending upon the prime attributes or primary key” (3NF, 2019).
* The Boyce and Codd normal forms are a step above the third normal form.
* The 4th normal form is when the table does not have multi-valued dependency.

One to many relationships are represented as embedded documents in MongoDB. “Embedding connected data in a single document can reduce the number of read operations required to obtain data” (MongoDB, n.d.). The following visual example is from mongodb.com.

Resources:

{

"\_id": "joe",

"name": "Joe Bookreader",

"addresses": [

{

"street": "123 Fake Street",

"city": "Faketon",

"state": "MA",

"zip": "12345"

},

{

"street": "1 Some Other Street",

"city": "Boston",

"state": "MA",

"zip": "12345"

}

]

}

Studytonight. (2019). *1NF, 2NF, 3NF and BCNF in Database Normalization | Studytonight*. Studytonight.com. <https://www.studytonight.com/dbms/database-normalization.php>

*First Normal Form (1NF) of Database Normalization | Studytonight*. (2019). Studytonight.com. <https://www.studytonight.com/dbms/first-normal-form.php>

*Third Normal Form (3NF) of Database Normalization | Studytonight*. (2019). Studytonight.com. https://www.studytonight.com/dbms/third-normal-form.php

‌*Model One-to-Many Relationships with Embedded Documents — MongoDB Manual*. (n.d.). Www.mongodb.com. https://www.mongodb.com/docs/manual/tutorial/model-embedded-one-to-many-relationships-between-documents/

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