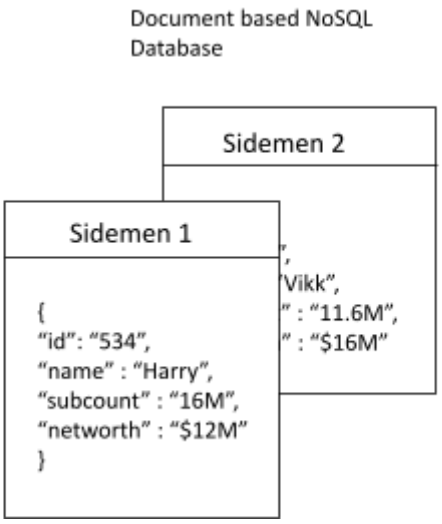
Document Based NoSQL:

These databases are very similar to key-value databases. Here information is stored in a document along with a key pair. It uses the internal structure of the document for identification and storage.
The data is saved as an instance in the database in comparison to how we do it in relational databases i.e. in tabular form. This method of storing data makes it easier for users to map the data in the database.

Below is a visualised difference between a Traditional Relational Database and a document-store.

id	name	subcount	networth
534	Harry	16M	$12M
645	Vikk	11.6M	$16M
557	KSI	23.4M	$20M
675	Simon	9.7M	$10M

Relational Database



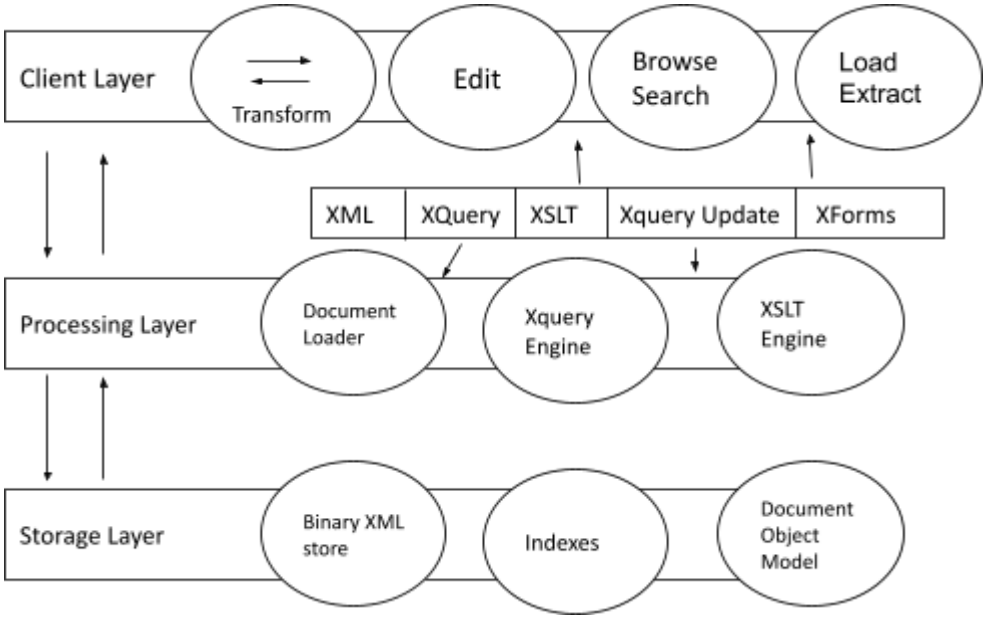
- **How does this work ?**

  These types of databases can store any sort of information in a document. Although ideally we use some form of schema with a certain file format(for example : JSON) to store data, we can intermix and store any kind of data we want to, irrespective of whatever kind of data has been stored our database will be able to parse it.
  It is much simpler to work with data and queries are pretty much simple to comprehend as compared to what we faced in SQL.
  Same operations performed in a Sql database like delete, add and further querying can be done on it.

As earlier it was stated that data is stored with a key, this key is unique for every information and can be used to retrieve or access the data in the document instead of being taken out on a column by column basis.

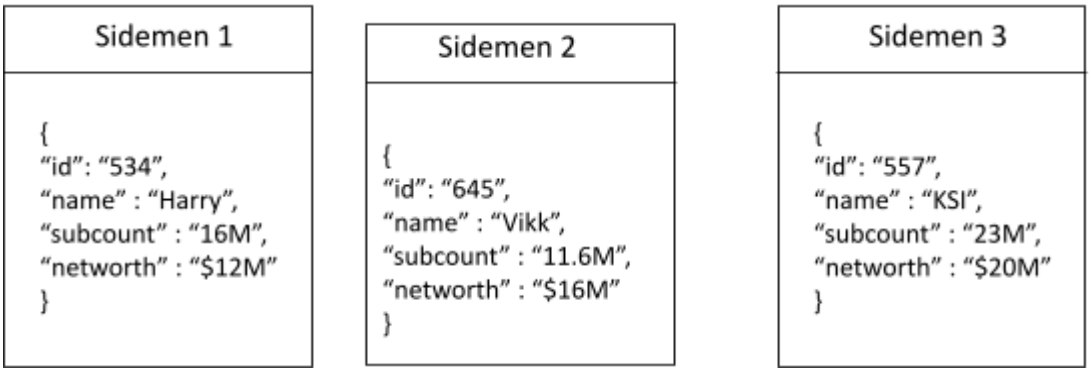
There are different types of Document databases like XML or JSON.

XML Databases:



Here documents store data in XML format. It is best designed for business purposes or where data is being processed in XML format.
It was also the first Document Database.
We use XML databases in eXist, MarkLogic.

JSON Databases:



Now if we consider the first example we gave above, these documents are stored in JSON format files.

Above is the collection of files. Although generally, it's not important for documents in the collection to be of the same type.

Few JSON Databases are MongoDB, OrientDB, CouchDB.

We can do certain operations in document- stores like,

- ➔ Can perform searches using different fields, regular expressions.
- ➔ Can perform queries by implementing javascript functions.
- ➔ We can index the database using any field we want to.

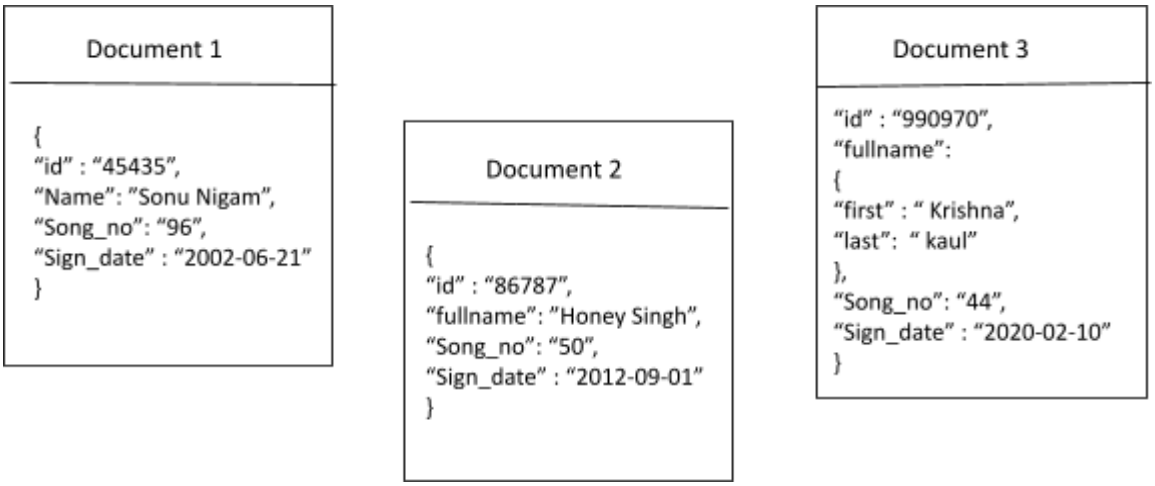
➢ Some Document based NoSQL Database - *MongoDB, CouchDB, OrientDB*

- **Benefits of Document Based NoSQL:**

  There are certain benefits of using document based database like,

  - High Scalability
  - Data Model is collection documents in JSON or XML format
  - Information is available in a single database, rather than having it spread across several linked databases.
  - More flexibility, no need for consistency among documents.
  - Capable of storing huge chunks of data with relatively no issues.
  - Addition of new data is easy.
  - Supports ACID transactions.
  - Flexible schema.

Below is an example of document based database, it is a database for an Artist management company.



If you observe that over the years the style of storing the information the document has changed, but it won't affect the previously stored data.

- **Limitations:**
    - Loss of data can occur due to wrong configuration or by using a single node.
    - Can't run complex queries.
    - Security issues.
    - Doesn't enforce data constraints
    - Interlinking documents can be very complex to operate.
    - References don't work easily in document based NoSQL.

Document based Databases are widely in use due to the flexibility they offer. With database applications becoming more and more complex, it allows us to scale up and add huge data easily, which makes the process of handling and working with huge data pretty simple for us.
It, like many other NoSQL databases, also helps with analytics as a business-venture might need to store data of various kinds.

- **Some real life applications of Document Based Database:**
    - Blogging sites like twitter
    - Analytical platforms
    - E-commerce platforms like Amazon
    - Content management systems