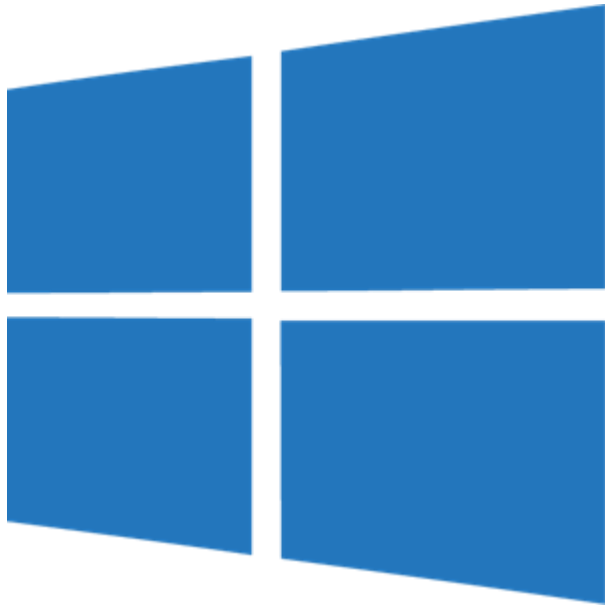


MONGODB

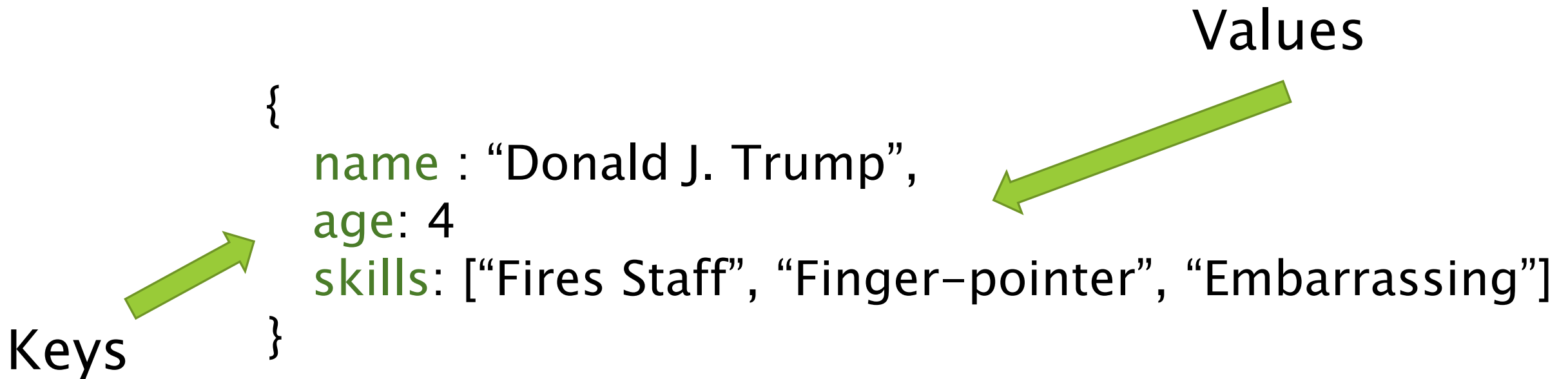
Andrew Sheehan
MET CS602

OPERATING SYSTEMS



WHAT IS MONGODB

MongoDB is a NoSQL database. Stores data in
key-value pairs



DIFFERENCES NOSQL V. SQL

SQL	NOSQL
Relational dependences	Loose dependences
Updates to tables time consuming	Updates to tables on-demand
Performance dependent on queries & indexes	Performance depend on hardware & network
Rigid scaling	Elastic scaling
Costly	Cost Efficient

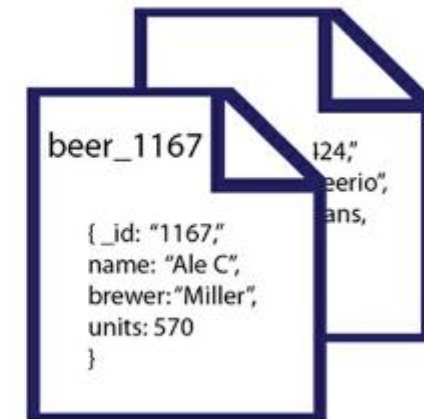
DIFFERENCES NOSQL V. SQL

RDBMS	MongoDB
Database	Database
Table	Collection
Row	Document

Beers Table

1167	Ale C	Miller	570
3424	Beerio	Ians	340
5612	Amstel	Amtel	121
2409	Colt's	BeerCo	98

Beer Documents



TYPES OF NOSQL DATABASES

Columnar Database

Optimized for reading/writing columns of data as opposed to rows of data

Hbase, Cassandra

Graph Database

Focus on how data relates to other data

Neo4J

Document Database

Data as documents

MongoDB, CouchDB

Key-Value Store

Uses a big hash table of keys and values.

Amazon S3, Riak, Dynamo

POPULAR NOSQL DATABASES

Cassandra – One of the first Big Data coined NoSQL database. Right now they boast having over 10 Petabytes in production. Cassandra has support for Hadoop and Spark.

MongoDB – One of the most popular name in NoSQL. MongoDB is a document db using JSON like document schema to store data in database.

CouchDB – Another Big Data NoSQL Database. CouchDB is a Document database. Designed around ease and flexibility for developer to get running as quickly as possible.

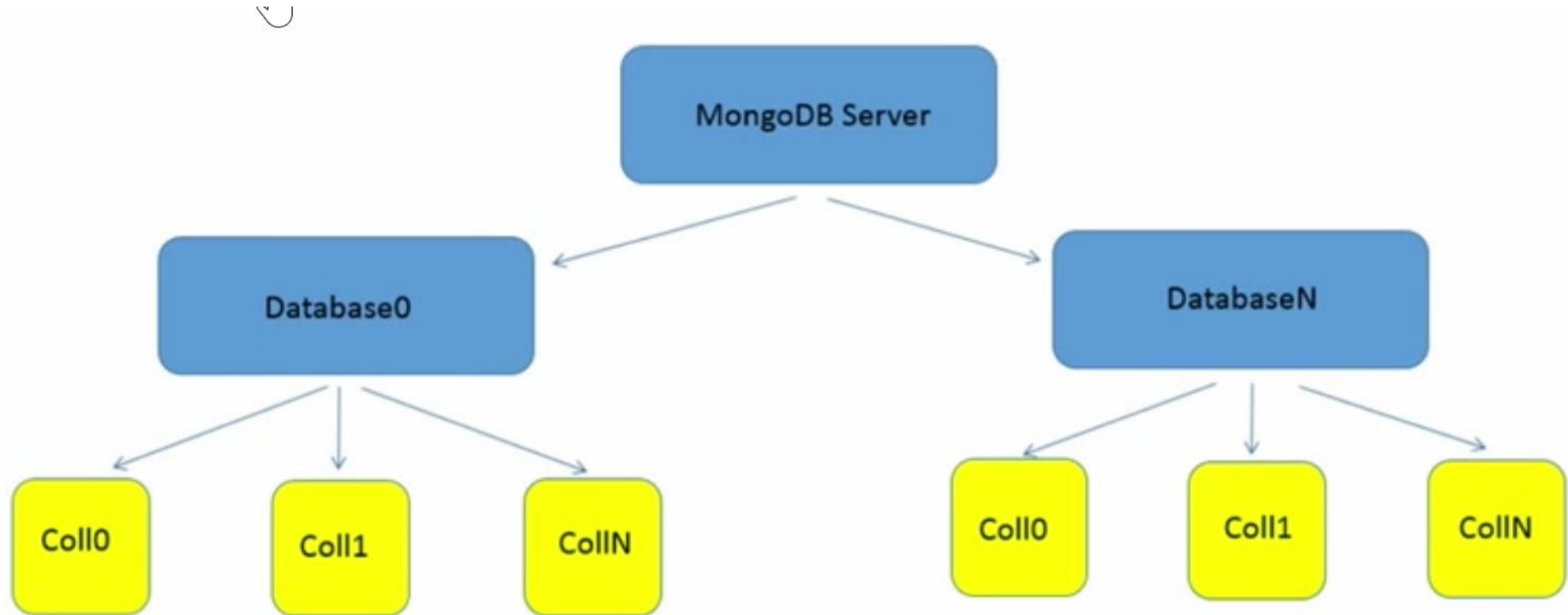
DynamoDB – Touted by AWS as the most popular Cloud NoSQL Database. DynamoDB is a Document and Key-value database (really cool stuff). Being out of AWS DynamoDB is an extremely customizable NoSQL database that can scale as the use case decides.

Hbase – Top NoSQL opensource on Hadoop choice. Facebook is both a heavy user and contributor to HBase. HBase is Columnar database.

BigTable – The brain child of Google. When Google released the whitepaper on BigTable HBase was developed out of the research. Now available through Google Cloud Platform. BigTable is a Columnar database.

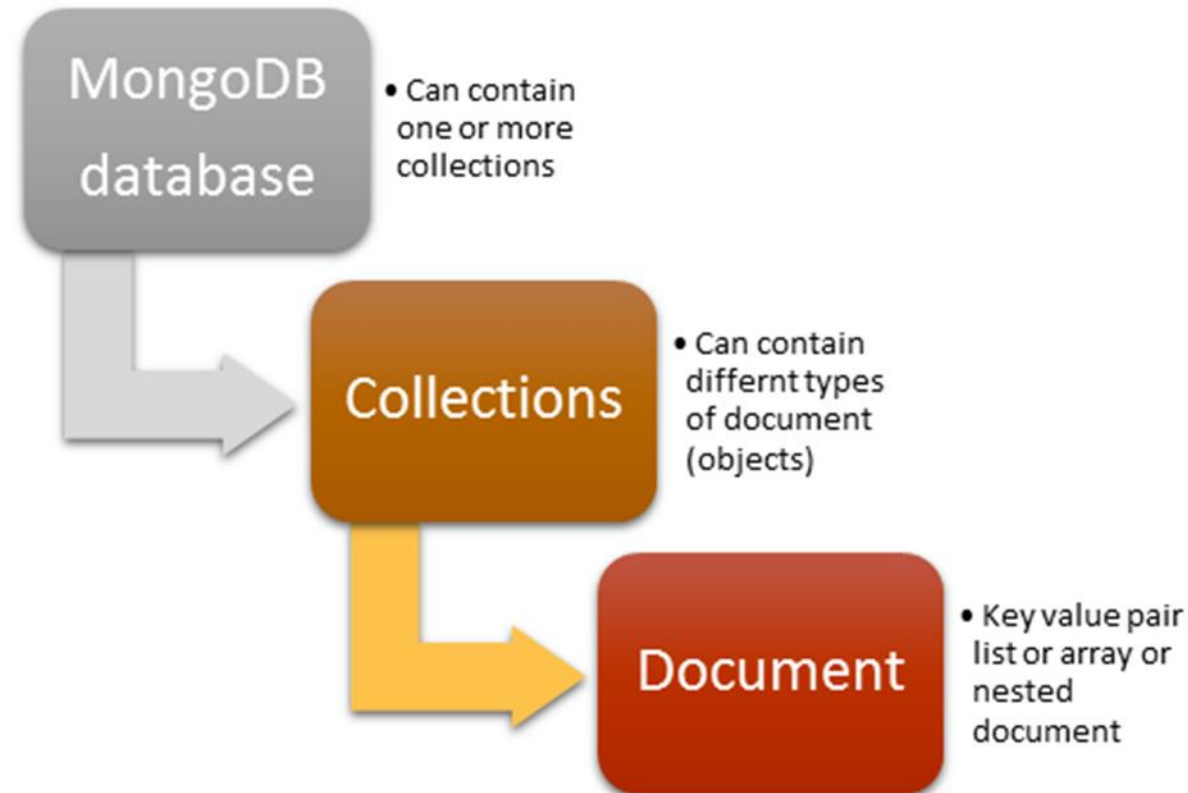
CosmosDB– Azure's offering for global distributed NoSQL database with scale. CosmosDB was built off the success of DocumentDB.

POPULAR HIGH LEVEL OVERVIEW

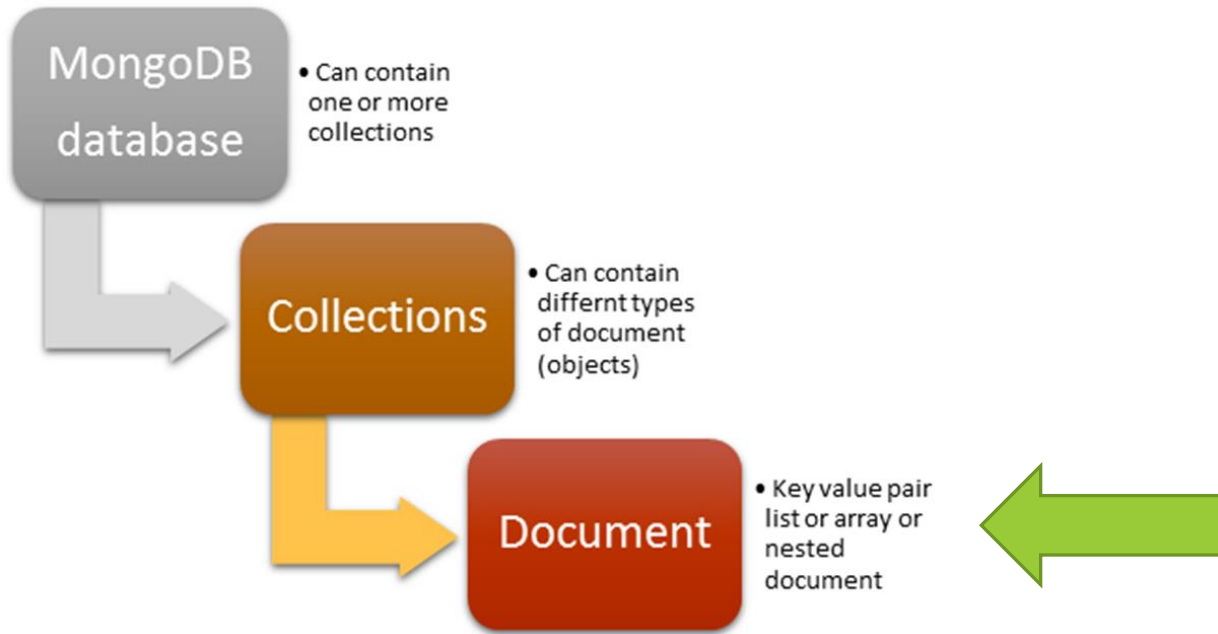


COLLECTIONS

DOCUMENTS



DOCUMENT STRUCTURE

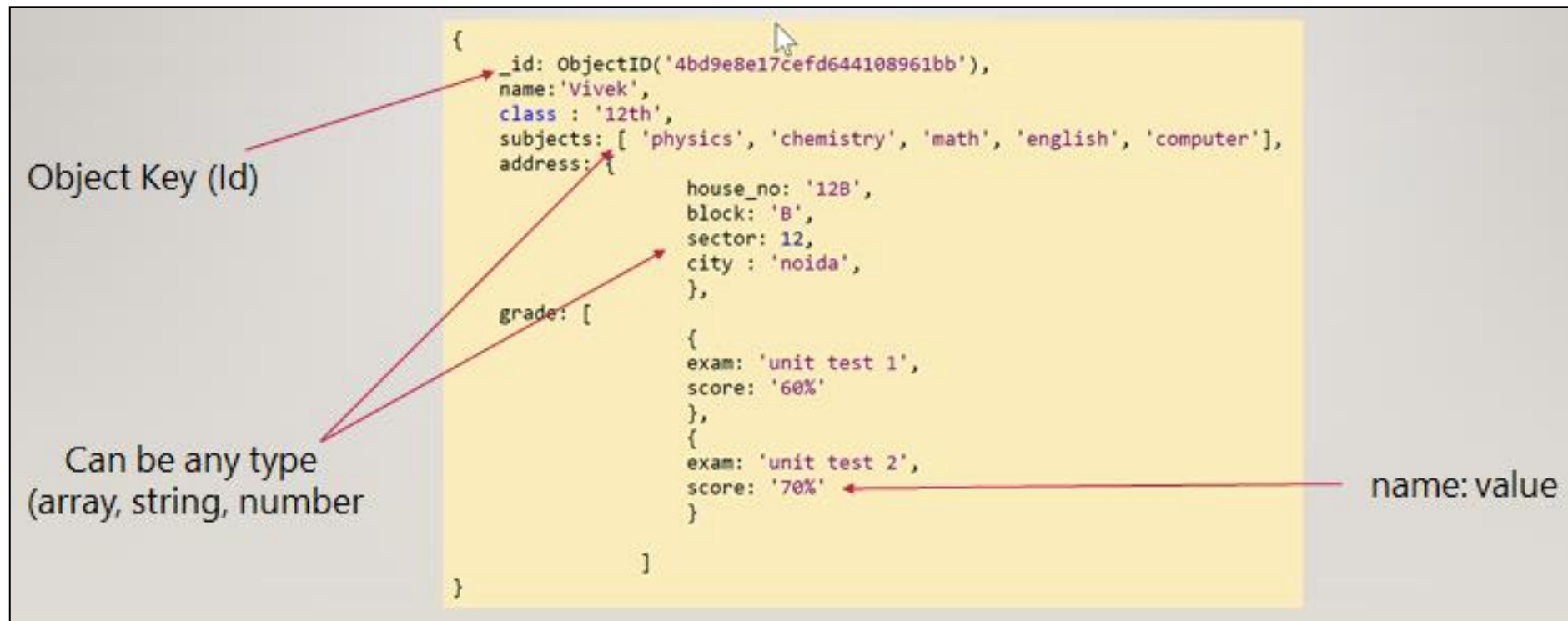


Fields can vary from document to document.

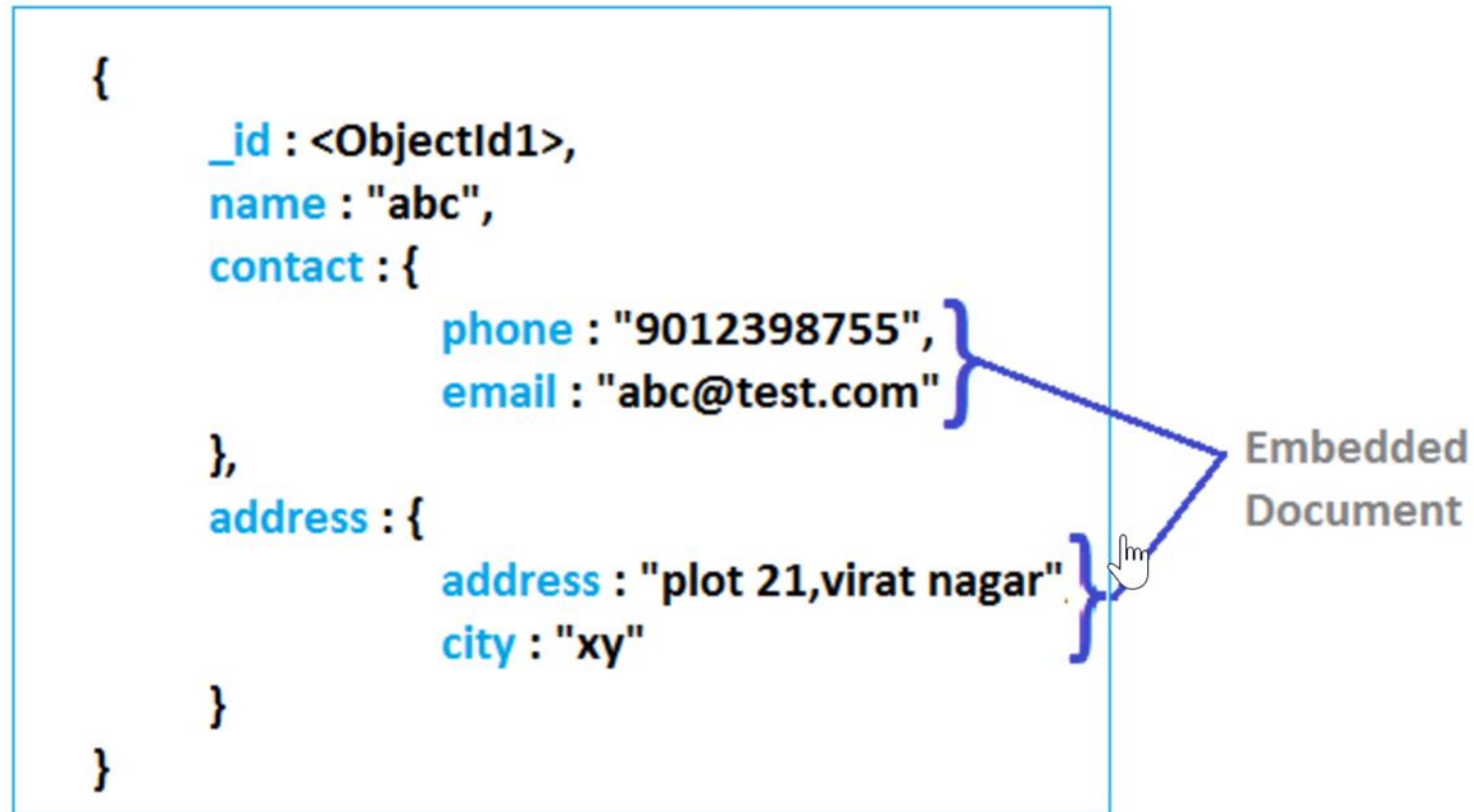
Structure can change over time.

COLLECTIONS

DOCUMENTS



EXAMPLE DOCUMENTS



DOCUMENTS LIKE AN OBJECT

Documents in a NoSQL database are very similar to the concept of an Object.

```
{  
  name : "Donald J. Trump",  
  age: 4  
  skills: ["Fires Staff", "Finger-pointier", "Embarrassing"]  
}
```

SETUP

INSTALL THE 64 BIT VERSION

Install to

C:>mongodb

Install the database files under C:/data/db