Data Management Systems
MongoDB

Matteo Devigili

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JSON
Basic

- { Document (or Object) }
- "Keys" : Values
- Fields are separated by a ','
- White space is only significant inside strings

JSON

```
{
    "string": "surrounded by double quotes",
    "number": 17.5,
    "boolean": "true" (or "false"),
    "null" : "null",
    "array": [
        "first value",
        2
        ],
    "object": {
        "string": "some string",
        "number": 4,
        "array": [...]
        ...
        }
}
```
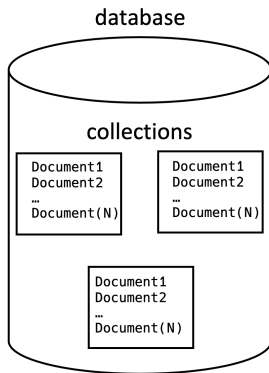
MongoDB

Intuitive data model

```
{
    "_id:" 1,
    "name": "Nikita Dawe",
    "courses": "SMM010"
}
```

```
{
    "_id": 1,
    "name": "Nikita Dawe",
    "courses": [
        "SMM010",
        "SMM090"
        ]
}
```
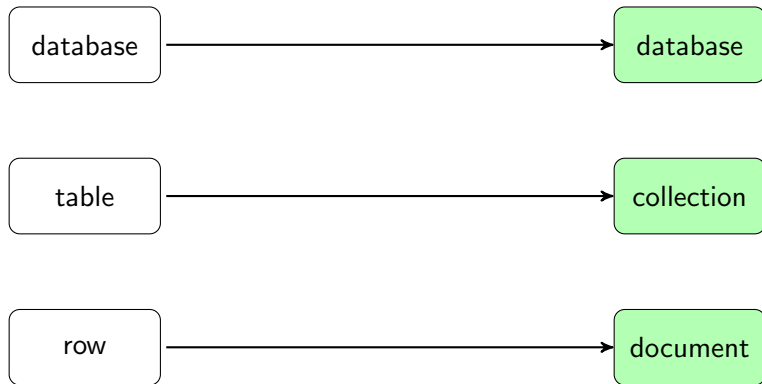
MongoDB

Databases, Collections, Documents

database

collections

| Document1 Document2 … Document(N) | Document1 Document2 … Document(N) |

Document1
Document2
…
Document(N)

MongoDB University

MongoDB
Databases, Collections, Documents

SQL		Mongo
database	→	database
table	→	collection
row	→	document

SQL

Example

Table: Relational way

Table A

                                 Table B

SMM_Code	Lecturer	Term
SMM010	Daniel Hill	T1
SMM090	Roy Williams	T2
SMM909	Oliver Powell	T3

Student_id	first_name	last_name
64768	Nikita	Dawe
64769	Maksim	Kramer
64770	Tyla	McLeod

Table C

SMM_Code	Student_id	Grade
SMM010	64768	A
SMM010	64769	A+
SMM010	64770	B+
SMM090	64768	B
SMM090	64769	B
SMM090	64770	B+

MongoDB

Example

```
{
        " _id" : 64768,
        "firstName": "Nikita",
        "lastName": "Dawe",
        "courses": [
                {
                        "smmCode" : "SMM010",
                        "lecturerName": "Daniel Hill",
                        "term" : "T1",
                        "grade": "A"
                        },
                {
                        "smmCode" : "SMM090",
                        "lecturerName": "Roy Williams",
                        "term" : "T2",
                        "grade": "B"
                        }
        ]
}
```
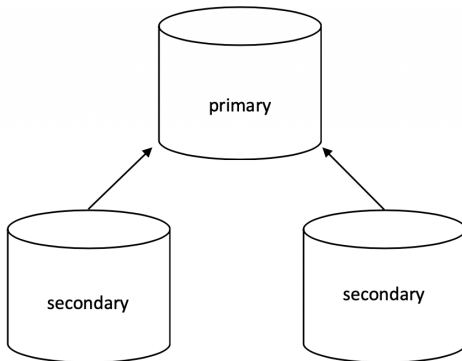
MongoDB

Replication

MongoDB

Scaling