

Data Management Systems

MongoDB

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JSON

Basic

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

JSON

Values

```
{  
  "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

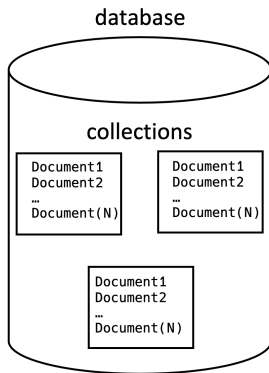
Intuitive data model

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

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

MongoDB

Databases, Collections, Documents



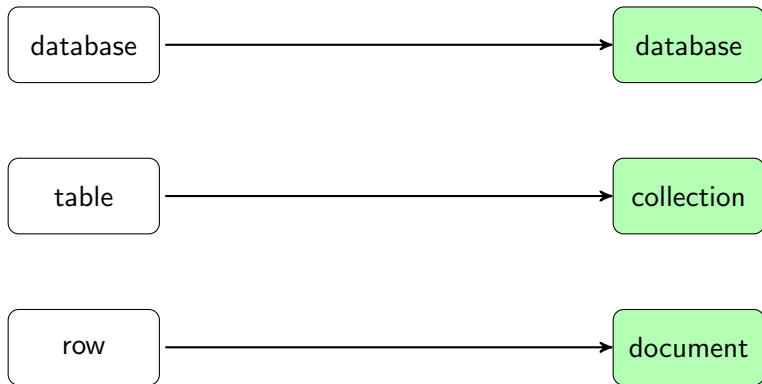
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Databases, Collections, Documents

SQL

Mongo



SQL

Example

Table: Relational way

Table A

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

Table B

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+

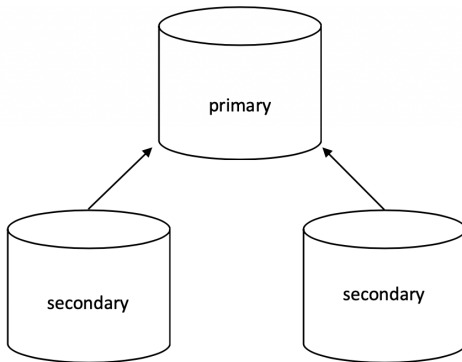
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Example

```
{
  "_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"
    }
  ]
}
```


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Replication



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Scaling

