In this lecture, we will discuss…

- ✧ MongoDB – Schema Design
- ✧ Document store - mapping
- ✧ Application Specific vs Independent approach
- ✧ Schemaless and content richness

Document Store (Mapping)

RDBMS	MongoDB
Database	Database
Table, View	Collection
Row	JSON Document
Column	Field
Index	Index
Join	Embedded Document / Linking across Document
Foreign Key	Reference
Partition Key	Shard

MongoDB – BSON Types

- BSON - binary serialization format used to store documents and make remote procedure calls in MongoDB

- BSON supports the following data types as values in documents…

MongoDB – BSON Types

Name	Type
String	Characters (UTF-8)
Integer	Numeric value (32 or 62 bit)
Boolean	True/False
Double	Decimal numbers
Min/Max	Can be used to compare against lowest and highest value
Arrays	List of values
Timestamp	Time (added/updated)

Name	Type
Object	Embedded documents
Null	Null values
Symbol	Similar to String (“ef#12”)
Date	Date/Time (Unix format)
Object Id	Document’s id
Binary Data	Store binary data
Code	Java Script
Regular Expression	Store regular expression (/%path%)

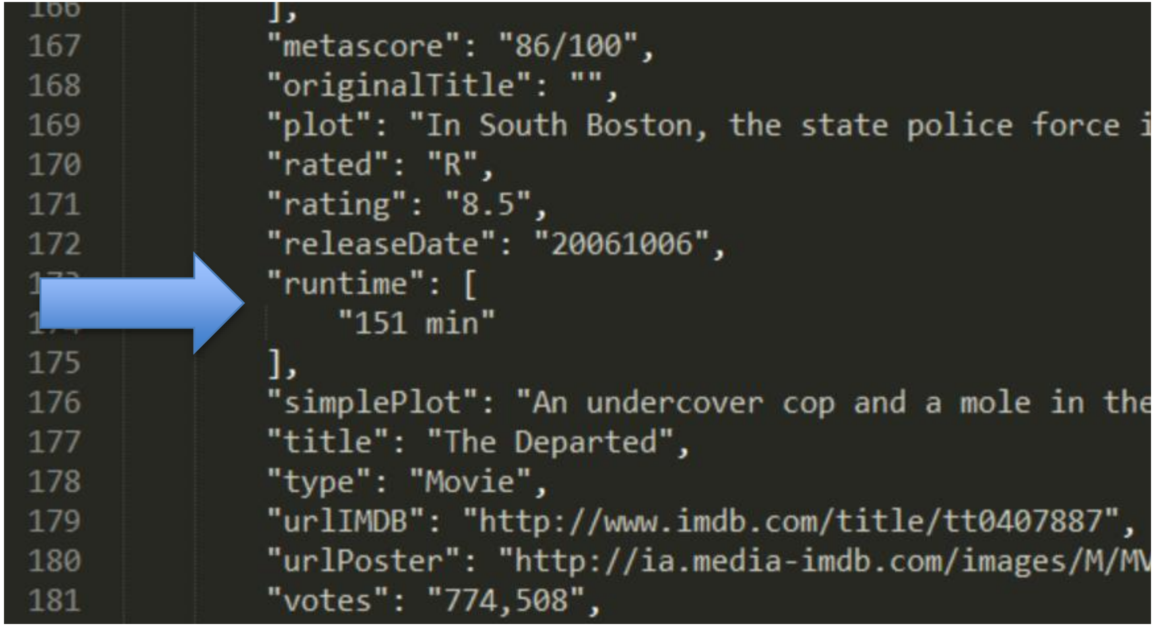
MongoDB – Schema Design

- Supports Rich Document
  - Embedded/Linked data (joins)
  - No constraints (no Foreign Key) – makes it very flexible
- Schema-Less
  - Conceptually yes, but there is still structure
    - Not strict

MongoDB – Schema Design Example

- runtime
  - “151 min”

- size & units
  - size: 151
  - units: “min”



```
],
"metascore": "86/100",
"originalTitle": "",
"plot": "In South Boston, the state police force i
"rated": "R",
"rating": "8.5",
"releaseDate": "20061006",
"runtime": [
    "151 min"
],
"simplePlot": "An undercover cop and a mole in the
"title": "The Departed",
"type": "Movie",
"urlIMDB": "http://www.imdb.com/title/tt0407887",
"urlPoster": "http://ia.media-imdb.com/images/M/MV
"votes": "774,508",
```

Summary

- ✧ Understand the application and design accordingly
  - Match the data access pattern
  - Better performance
  - Convenience (parsing/processing)

What’s Next?

- ✧ Data modeling – best practices