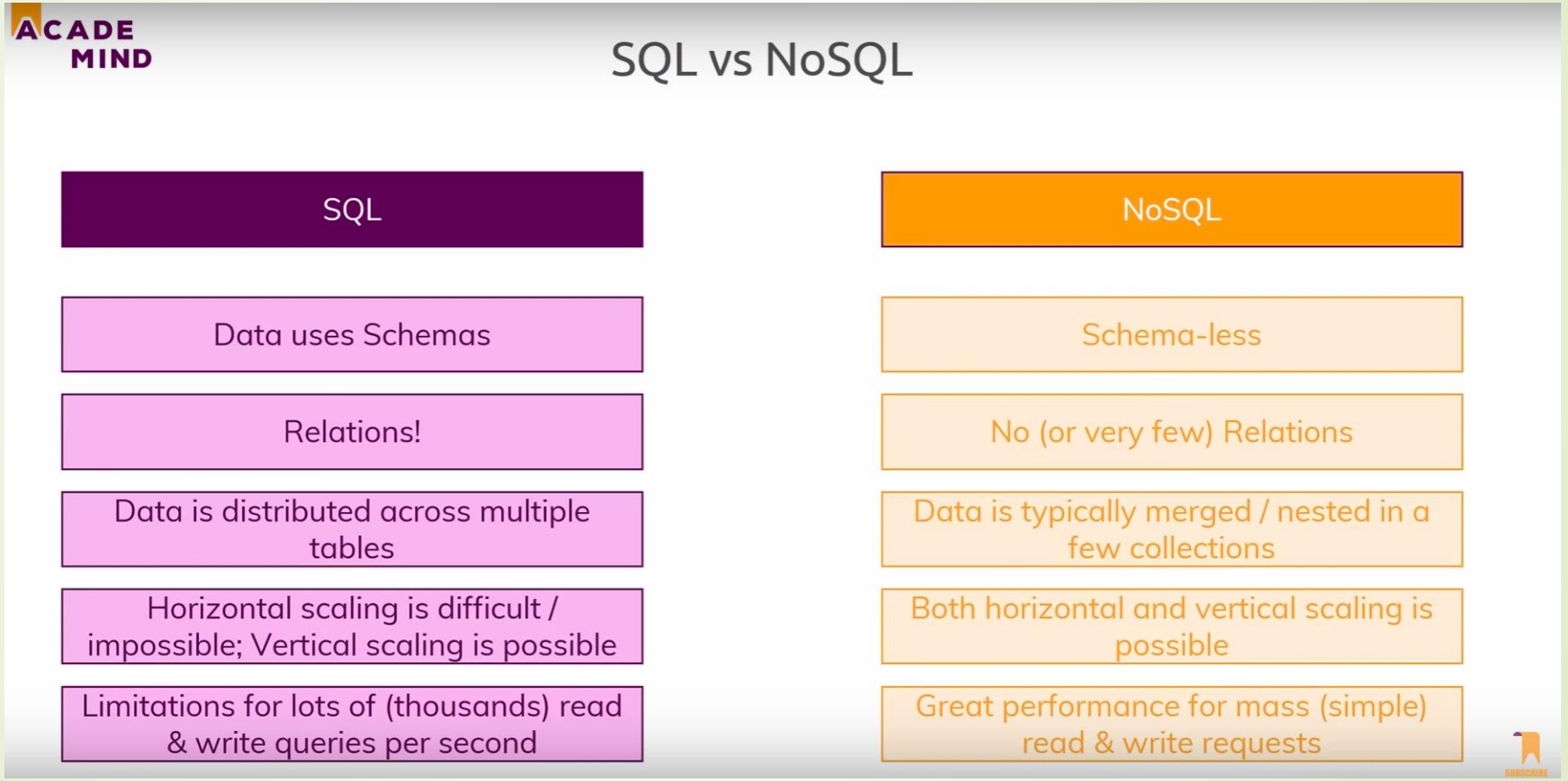
mongodb

SQL Vs. NoSQL


ACADEMIND
SQL vs NoSQL
SQL
NoSQL
Data uses Schemas
Schema-less
Relations!
No (or very few) Relations
Data is distributed across multiple tables
Data is typically merged / nested in a few collections
Horizontal scaling is difficult / impossible; Vertical scaling is possible
Both horizontal and vertical scaling is possible
Limitations for lots of (thousands) read & write queries per second
Great performance for mass (simple) read & write requests

Mongo-tools

- mongodump : is a utility for creating a binary export of the contents of a database
- mongorestore: loads data from either a binary database dump created by mongodump.
- mongoexport: is a utility that produces a JSON export of data stored in a MongoDB instance.
- mongoimport: is a tool imports content from an Extended JSON

Cursor

- A pointer to the result set of a query.
- Clients can iterate through a cursor to retrieve results.
- Cursor methods

```
var myCursor = db.users.find( { type: 2 } );

while (myCursor.hasNext()) {
   print(tojson(myCursor.next()));
   // your logic
}
```

Operators

- Query and Projection Operators (Read).
- Update Operators.
- Aggregation Operators.

Query and Projection Operators

Query Selectors

- Locate Data

Projection Operators

- Modify data presentation

Query Selectors

Comparison

- $eq
- $gt
- $gte
- $in
- $lt
- $lte
- $ne
- $nin

Logical

- $and
- $or
- $not
- $nor

Element

- $exist
- $type

Projection Operators

- $elemMatch
- $slice
- $

Update Operators

- $set
- $unset
- $inc
- $push
- $pullAll

Indexing

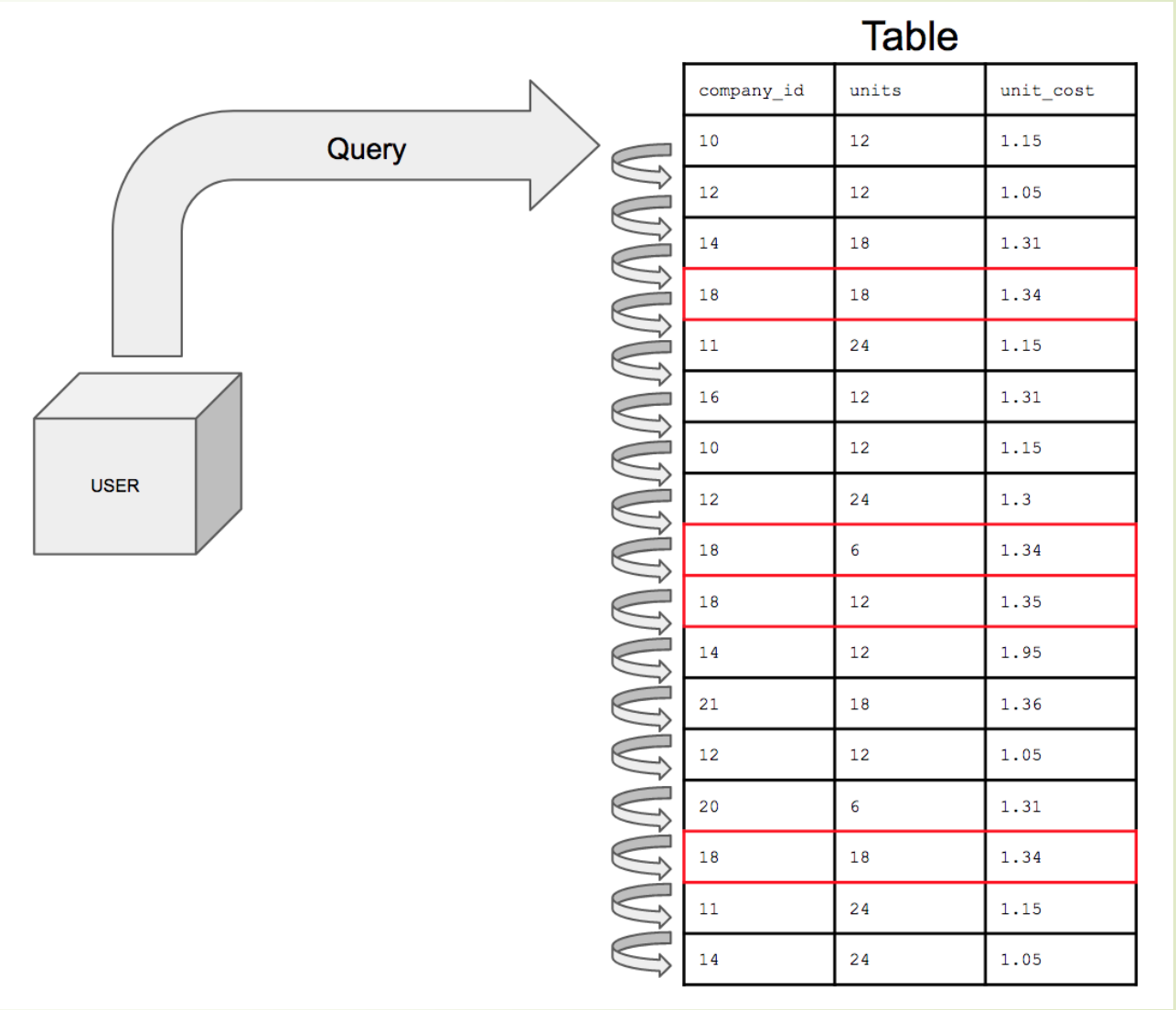
- “If you don’t find it in the index, look very carefully through the entire catalog.” – Sears, Roebuck, and Co., Consumers’ Guide 1897

The Working Set

- The working set is the portion of your data that's accessed frequently.
- If the working set fits in RAM you can serve most queries from the OS's in-memory cache, without waiting for the disk.

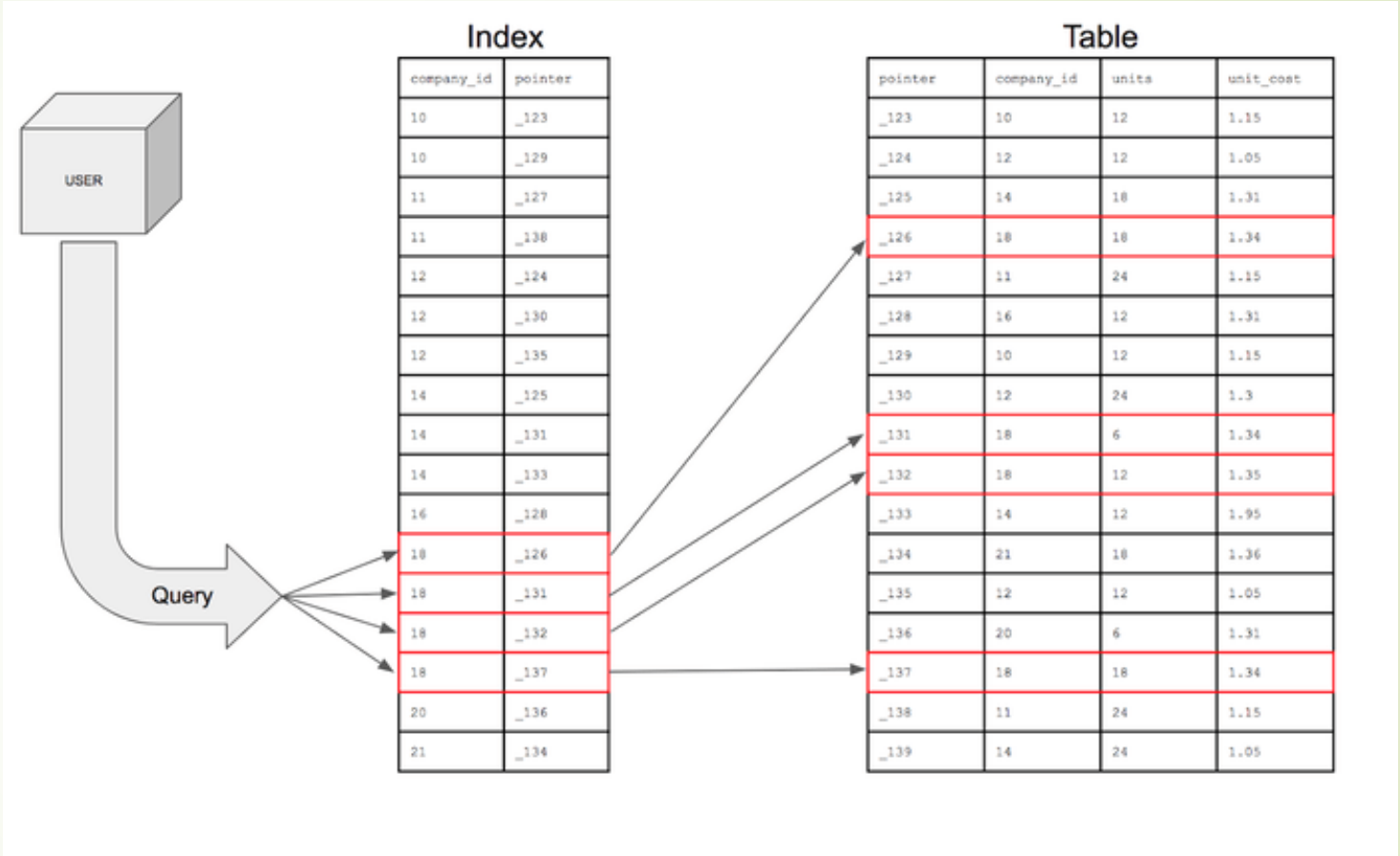
How find works

- Search the entire data to get the matched elements.

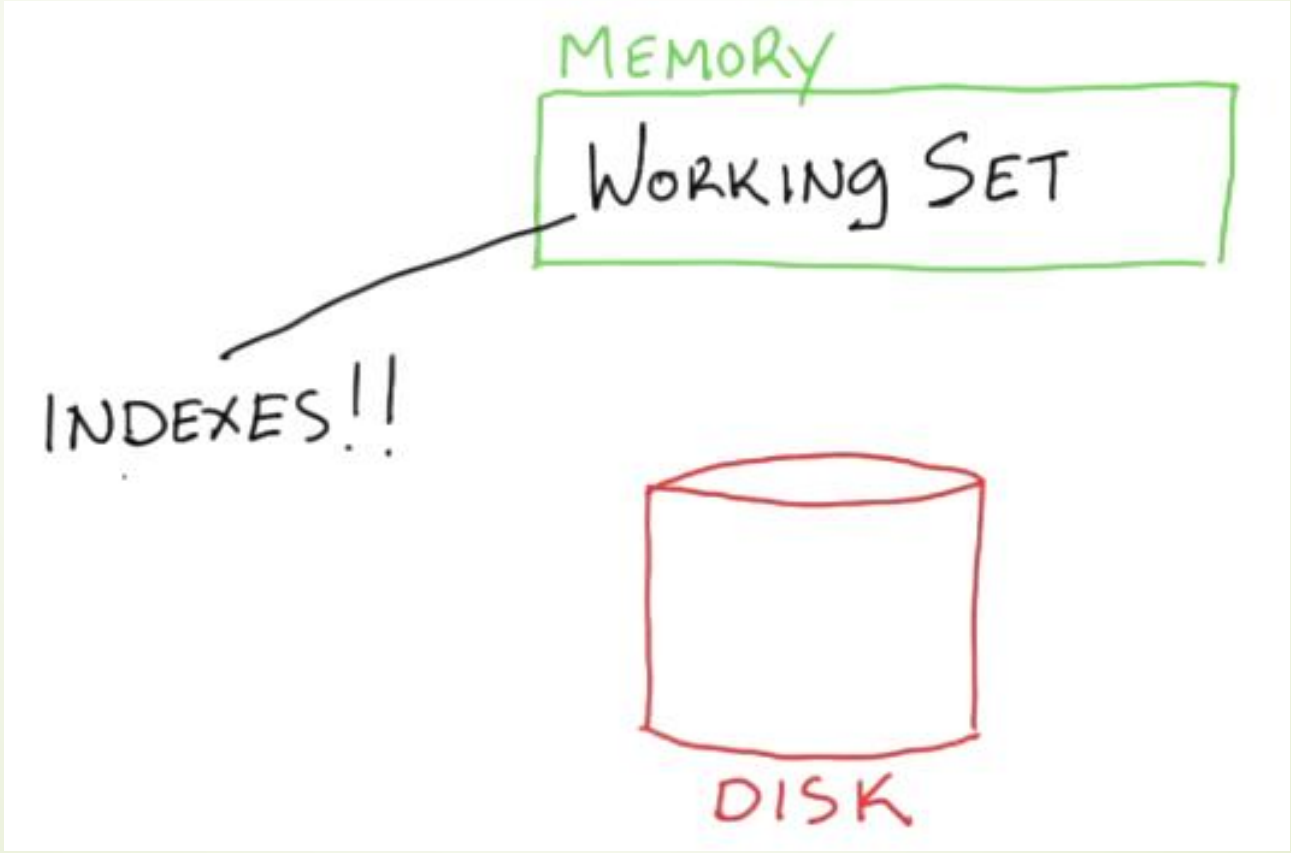


Indexing

- Search the index and then fetch the elements using pointers.



Indexing



Create an Index

db.collection.createIndex(<key and index type specification>, <options>)

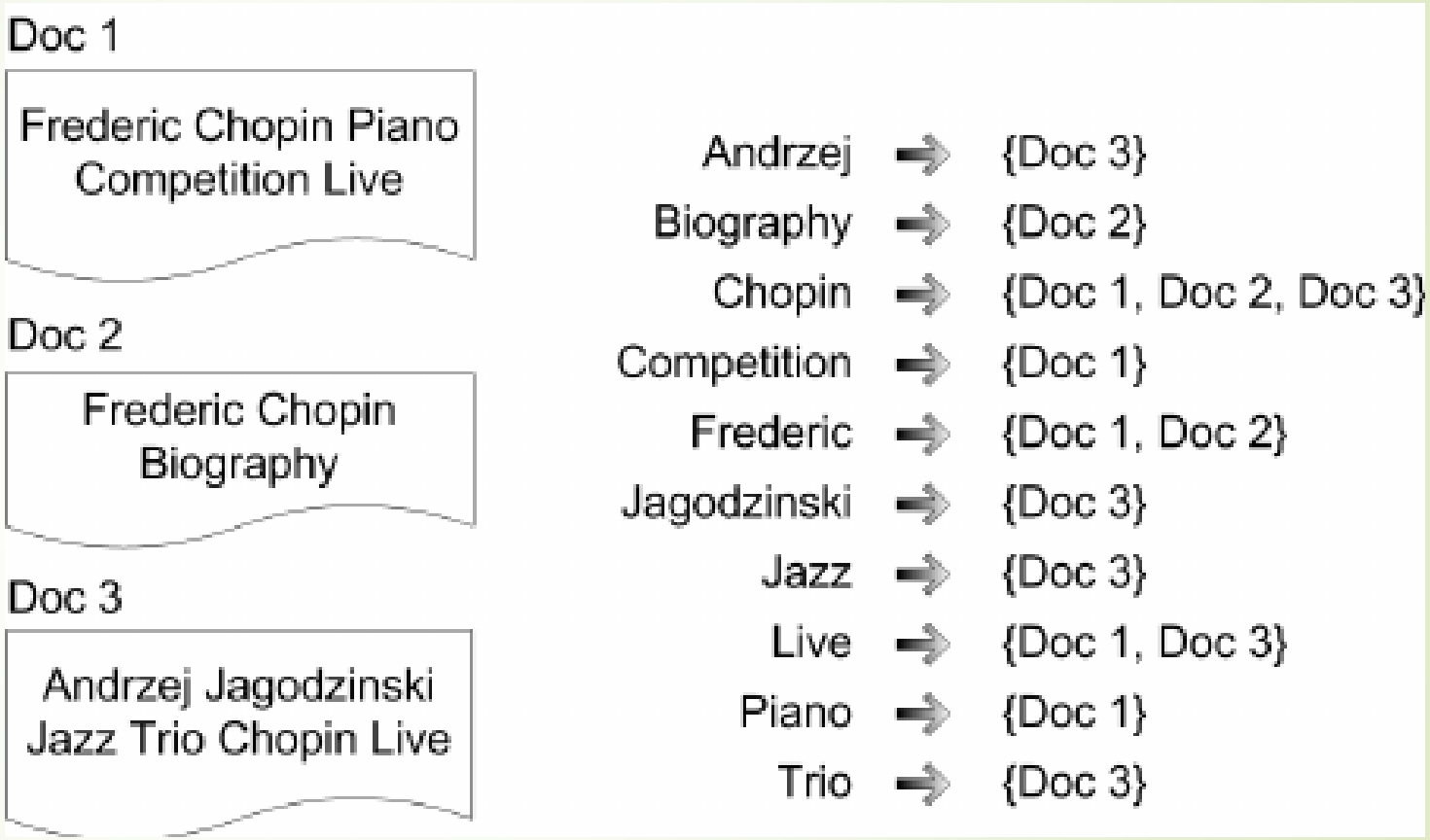
db.collection.createIndex({ name: -1 })

Index Types

- Single Field
- Compound Index
- Multikey Index
- Text Indexes

Text Search

- Search Long Texts
- Remove Stop Words
- Stemming
- One Per Collection
- Cost Performance



Lab 2

- Import Inventory Database using this command in terminal.

  mongorestore --db <database name> path_to_database
- select products with price greater than 1000 and less than 5000.
- display products which have phone number for vendor “using 2 ways ”
- display products which available in 4 stocks at the same time.
- increase all products by 500 EGP.
- replace stock #30 with #60 in all products.
- remove stock 70 from all products.
- display only product name and vendor phone number.
- display the most expensive product.
- Import books from json file into new database use **mongoimport.**
- Create text index on shortDescription field
- Retrieve all books which have“android”
- Retrieve all books which have "web applications" exactly