The Data Store

Persisting Data

Week 7

NoSQL vs SQL

- SQL for relational data stores
  - Tables > Rows > Columns > Cells
  - Minimizes redundancy when normalized
  - Space saving not as important in the age of cheap storage
- NoSQL for key-value data stores
  - Allows more natural data storage from software (i.e. similar to object properties)
  - Redis example – In Memory Data Store

Setting up Redis

- Install Redis
- Install redis-cli
- Operations
  - set <key> <value>
  - get <key>
  - incr <key>
- Install redis module for Node
  - Add package.json (desired way for managing dependencies

```
var redis = require("redis");
var redisClient = redis.createClient();
redisClient.incr(<key>) // all above operations also exposed with the same commands
```

Initialize variables from Redis

```
var myNumber;
redisClient.get(<key>, function (err, value) {
  // TODO error checking
  myNumber = parseInt(value, 10) || 0;
}

redisClient.incr(<key>);
myNumber = myNumber + 1;
```

Initialize variables from Redis

```
var myNumber;
redisClient.get(<key>, function (err, value) {
  // TODO error checking
  myNumber = parseInt(value, 10) || 0;
}

redisClient.incr(<key>);
myNumber = myNumber + 1;
```

Multiple get from Redis

```javascript
var myNumberA;
var myNumberB;
redisClient.mget([<keyA>, <keyB>], function (err, values) {
  // TODO error checking if err !== null
  myNumberA = parseInt(values[0], 10) || 0;
  myNumberB = parseInt(values[1], 10) || 0;
}

redisClient.incr(<keyA>);
redisClient.incr(<keyB>);

myNumberA = myNumberA + 1;
myNumberB = myNumberB + 1;
```

MongoDB

- Store data on disk in "document-oriented" format
  - i.e. JSON collections
- Can interact with it completely in JavaScript
- Can store complex data structures + binary data

Set up MongoDB

- Install MongoDB
- Start client – mongo
- Can initialize variables and collections using javascript!
  ```
  var card = { "rank" : "ace", "suit : "clubs" }
  var clubs = []
  ["two", "three", "four"].forEach(
    function (rank) {
      clubs.push({ "rank" : rank, "suit" : "clubs" });
    }
  );
  ```
- show dbs // local always exists
- use <name> // switch databases
- Mongo example

Example

- Do example