The Redis API

Simple, Composable, Powerful

Akbar S. Ahmed
@DynomiteDB

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Simple

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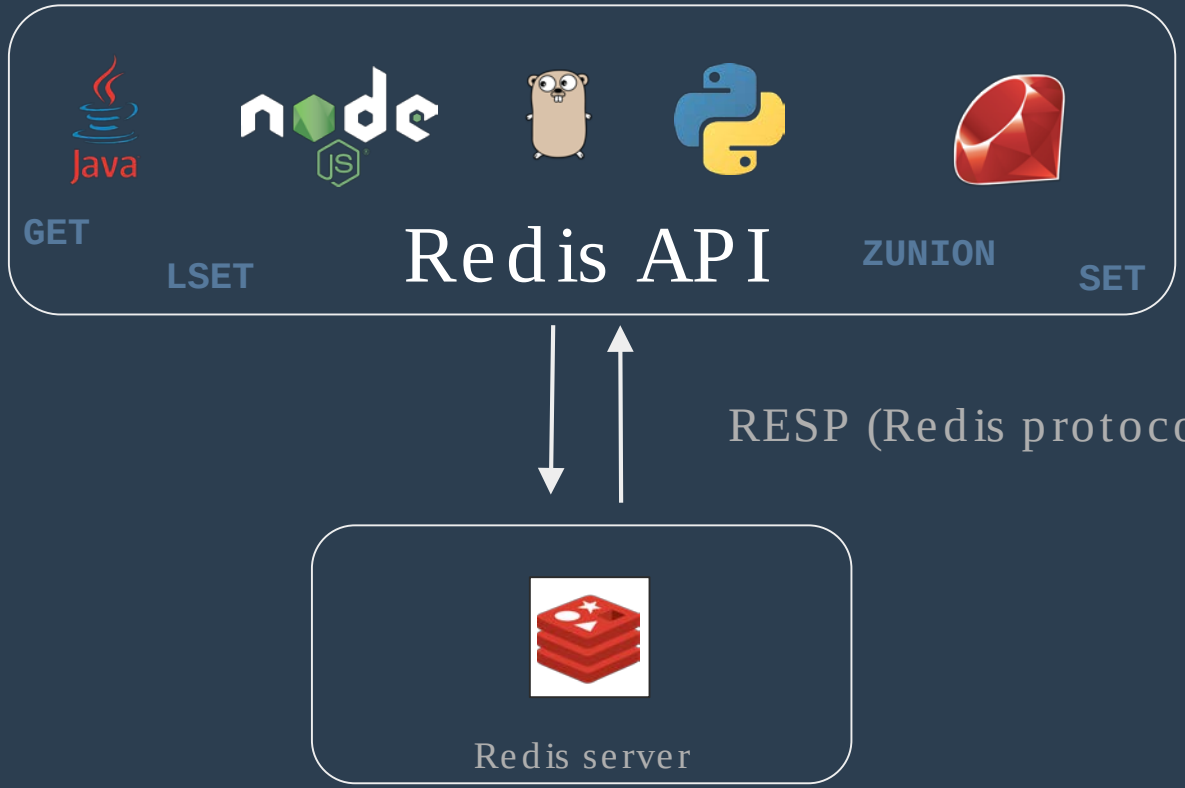

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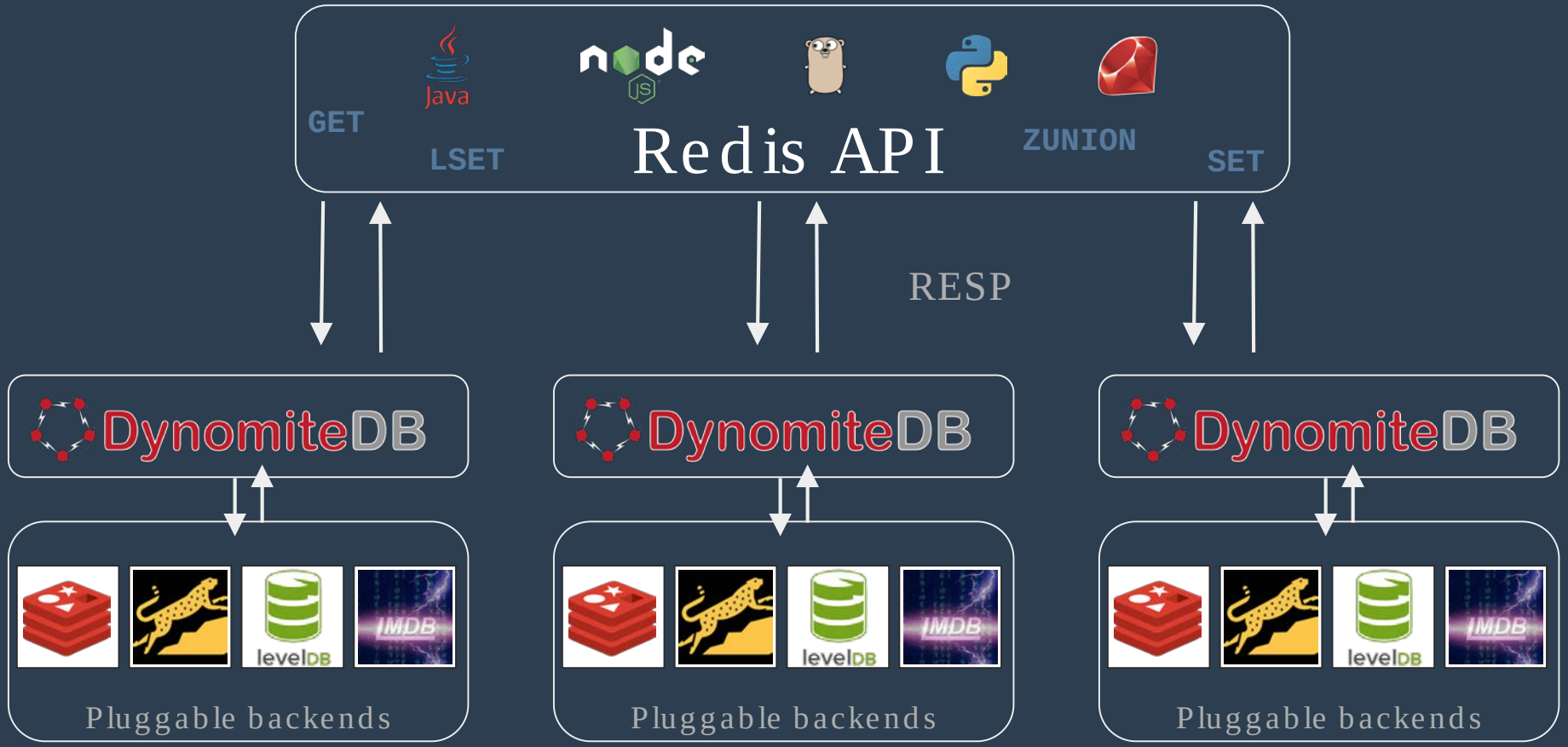

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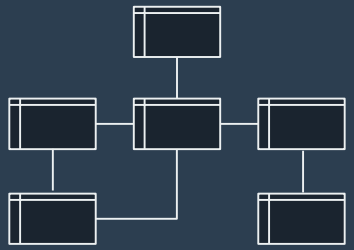

Schema

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Schema

```
SELECT firstname
FROM user
where id = 7
```

key
user:id=7

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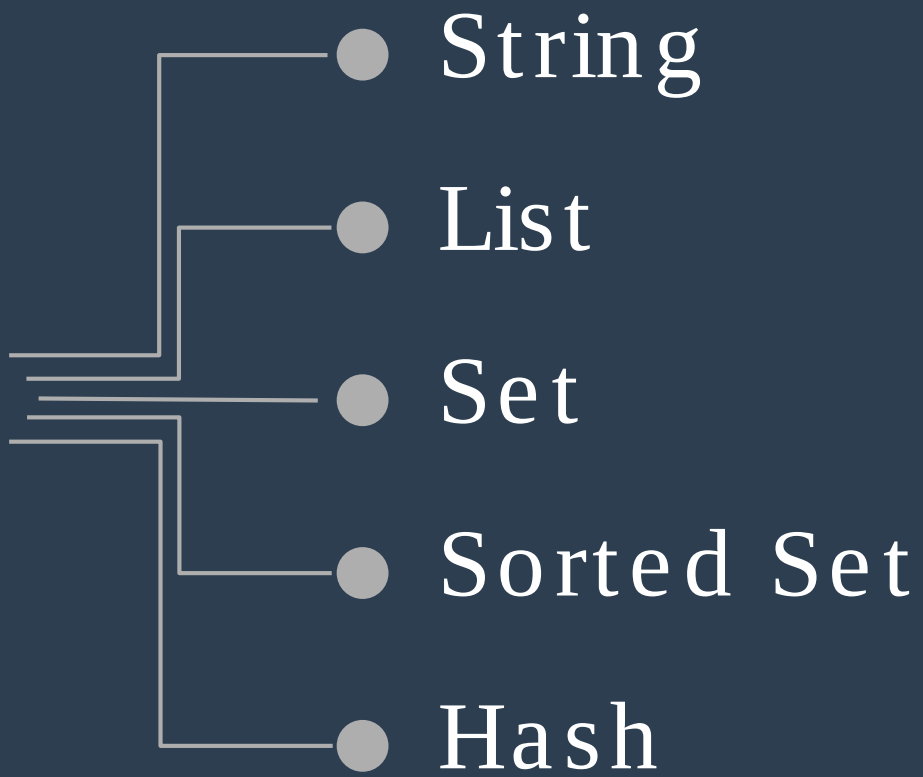
Data types



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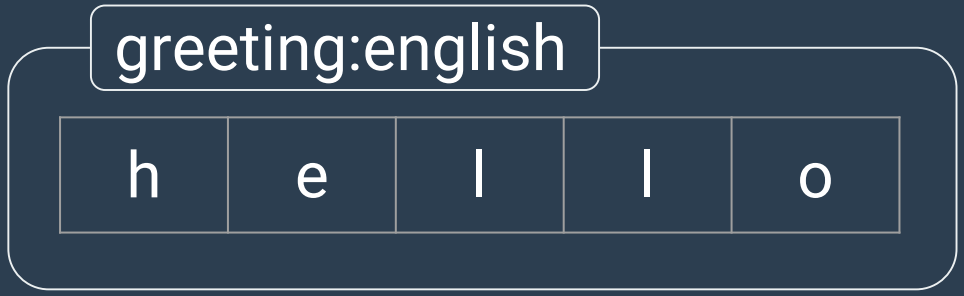
String



x Sequence of bytes

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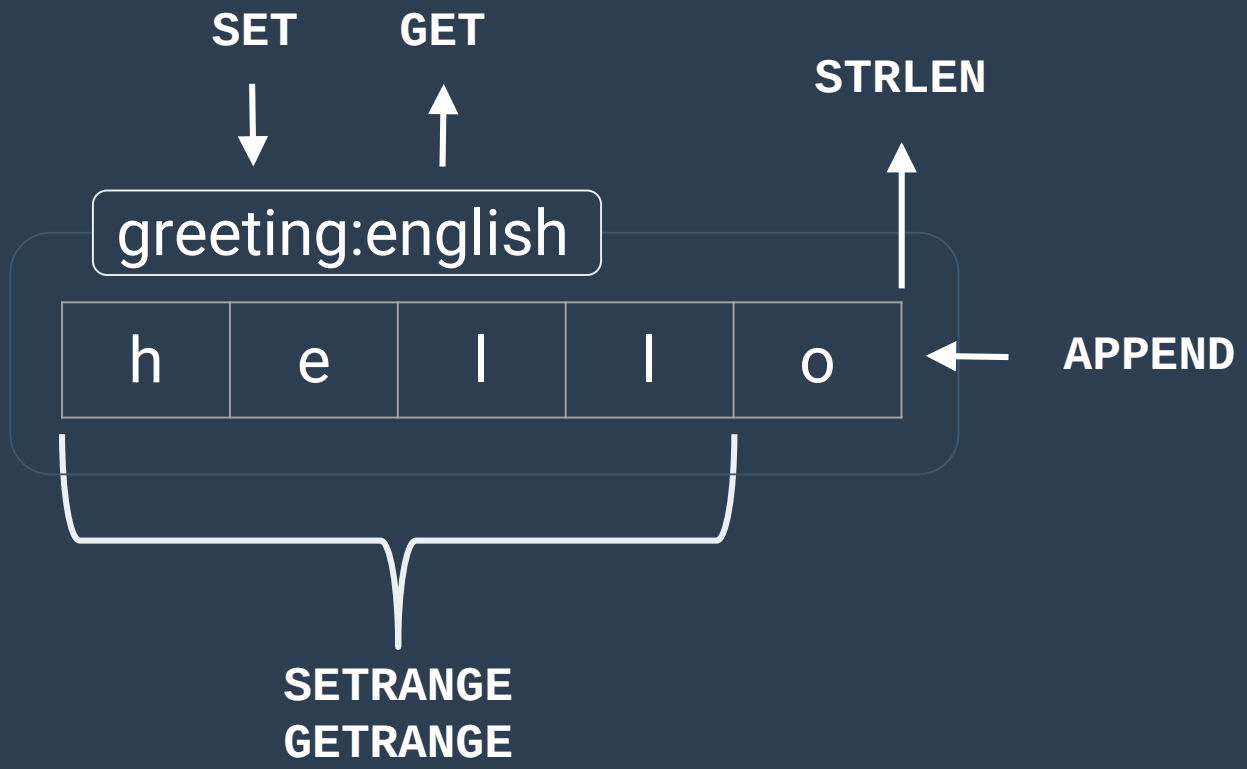
String



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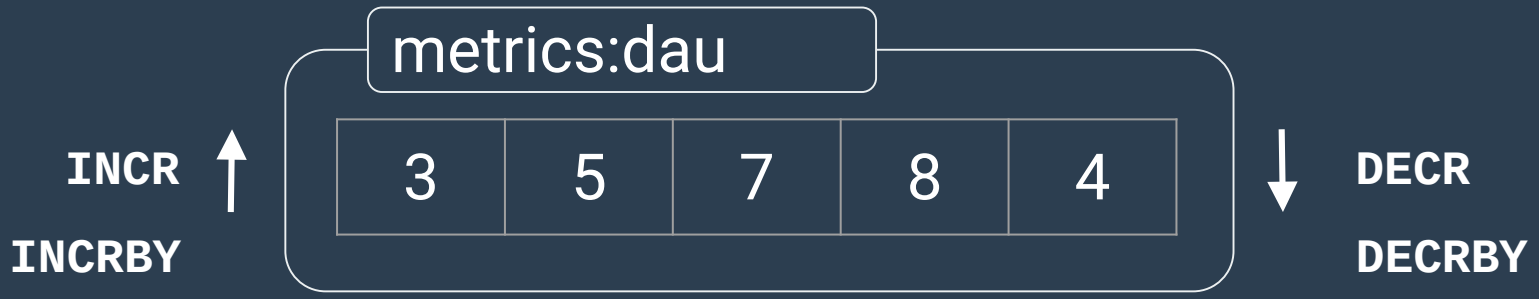
String with Integer value



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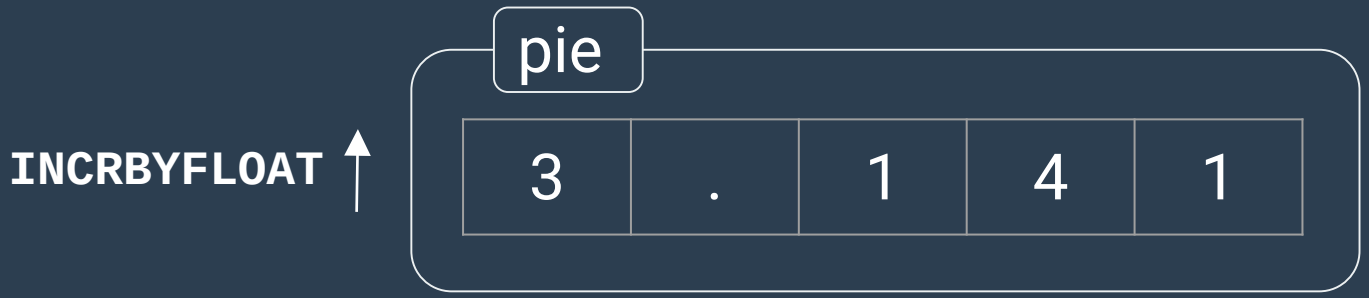
String with Float value



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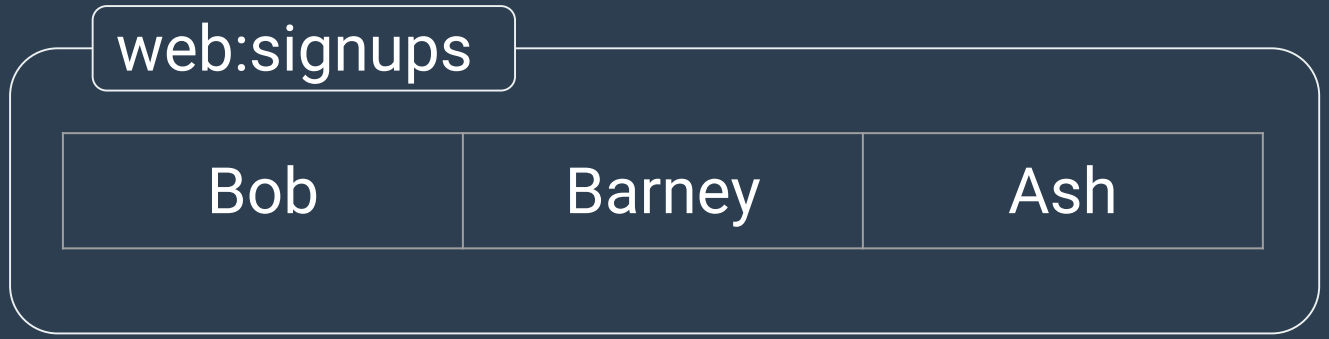
List



- [x] Ordered by insertion
- [x] Duplicates allowed
- [x] Fast head/tail operations

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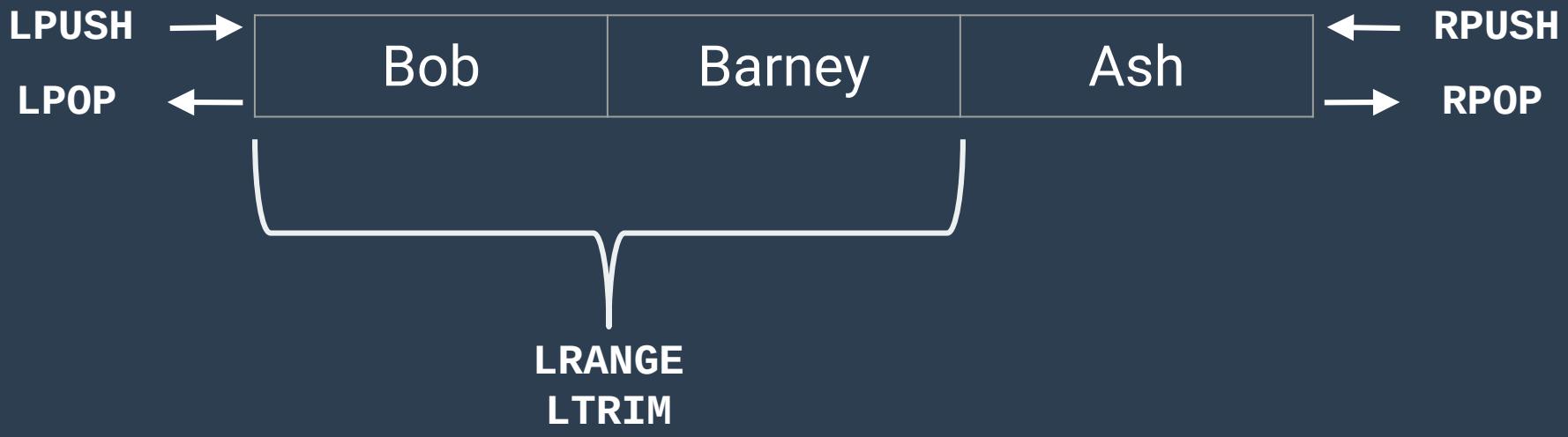
List commands



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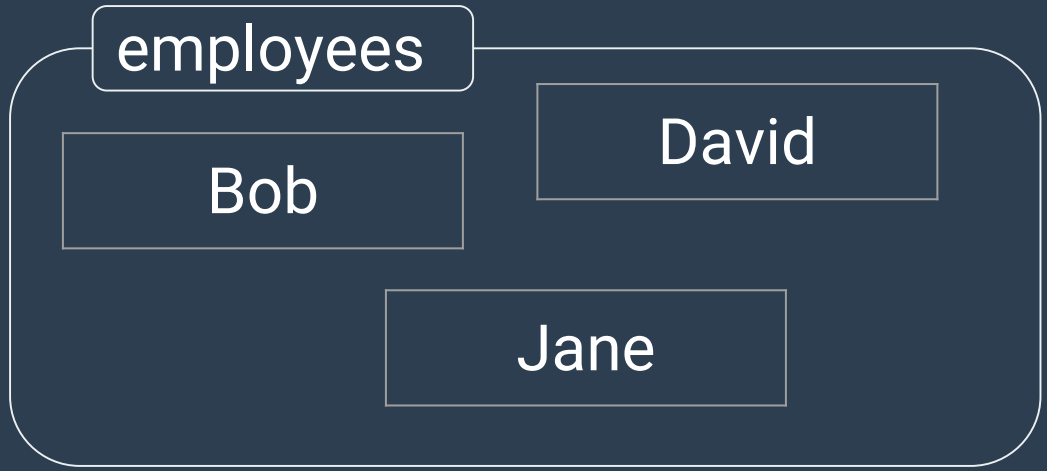
Set

- x Unordered
- x Unique members
- x Set operations



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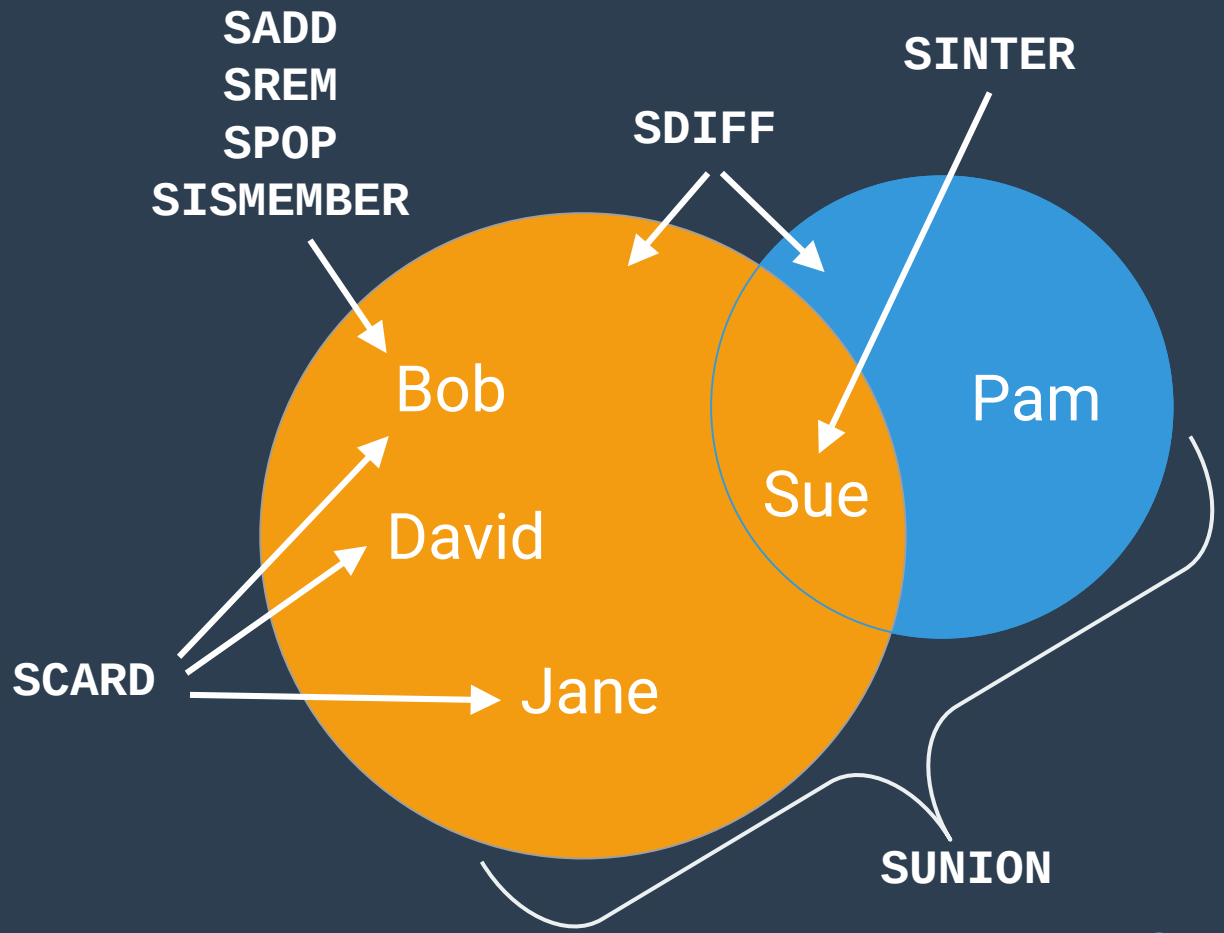
Set



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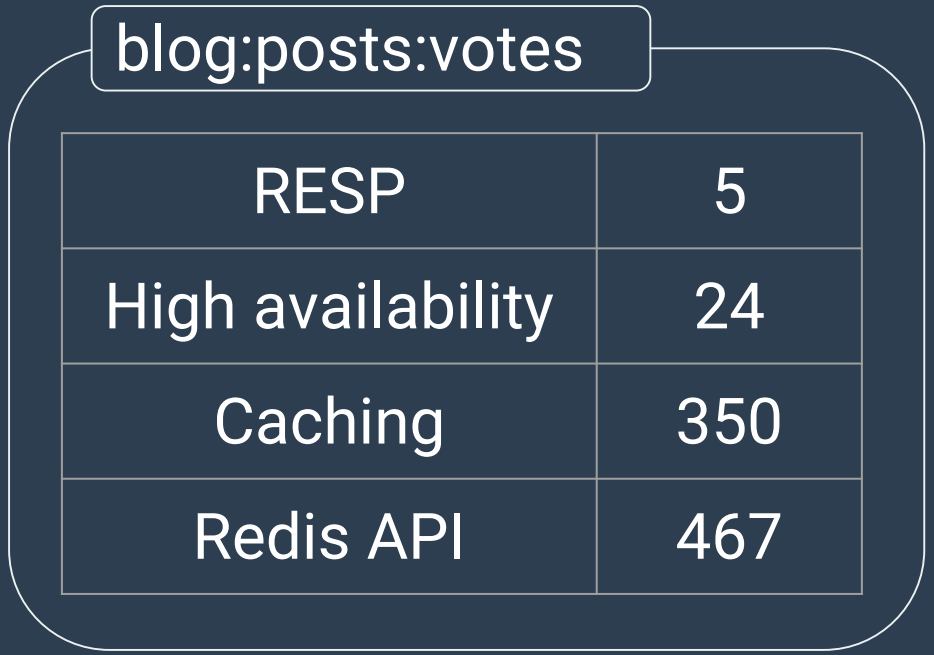
Sorted set

- [x] Ordered by score
- [x] Unique members
- [x] Set operations



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Sorted set

ZINTERSTORE
ZUNIONSTORE

ZADD

ZRANK
ZSCORE

RESP	5
High availability	24
Caching	350
Redis API	467

ZINCRBY

ZCARD

ZRANGE
ZREVRANGE

ZRANGEBYLEX

ZRANGEBYSCORE

ZCOUNT
ZLEXCOUNT

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Hash

- x Unordered
- x Unique members

company:id=7

Key	Value
Name	Apple
Revenue	233B
State	CA
City	Cupertino

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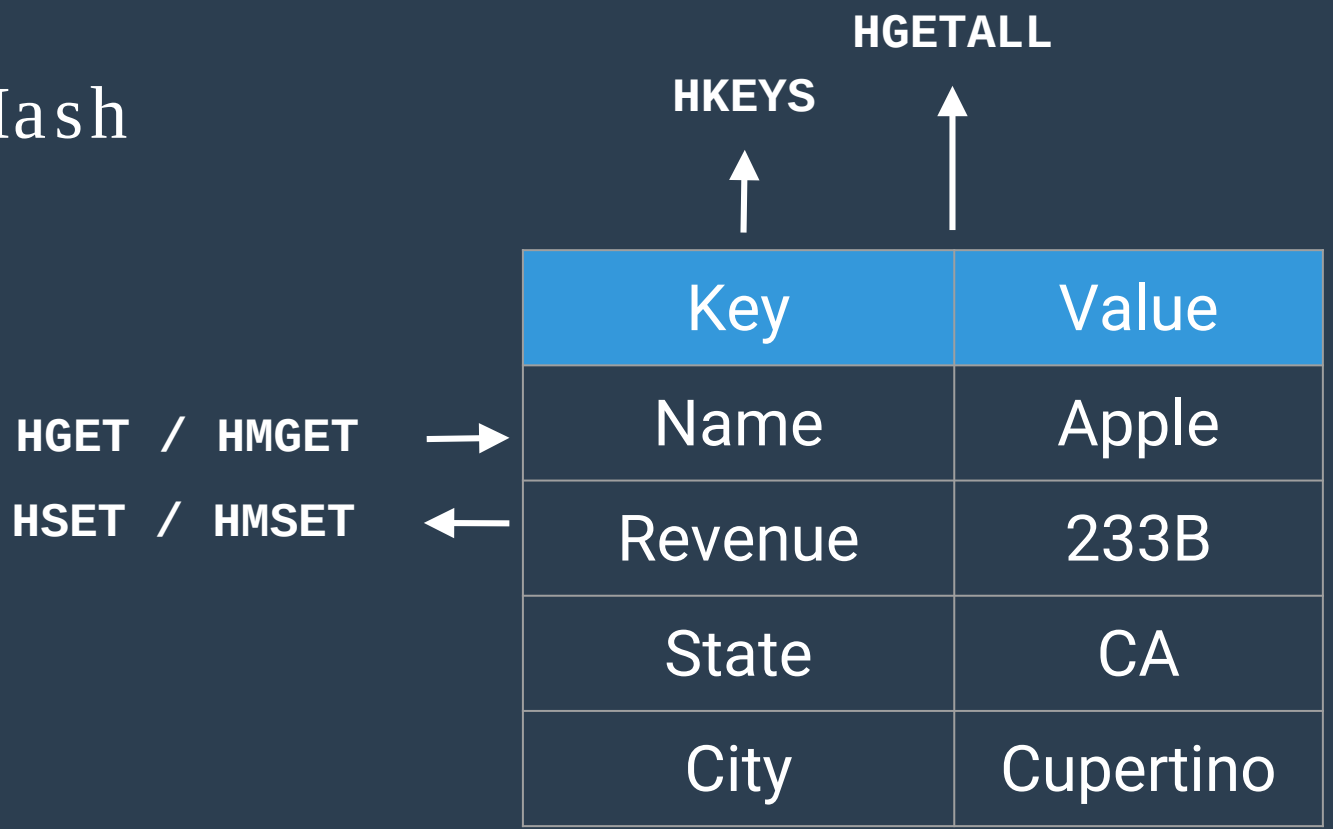
Hash



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	Ordered	Unique	Best for
String	Index	No	• Cache (text, JSON, binary) • Counting
List	Insertion	No	• Fast head/tail operations • Recent items
Set	No	Yes	• Existence / membership • Set operations
Sorted set	Score	Yes	• Top x items • Set operations
Hash	No	Yes	• Cache • Database row / document

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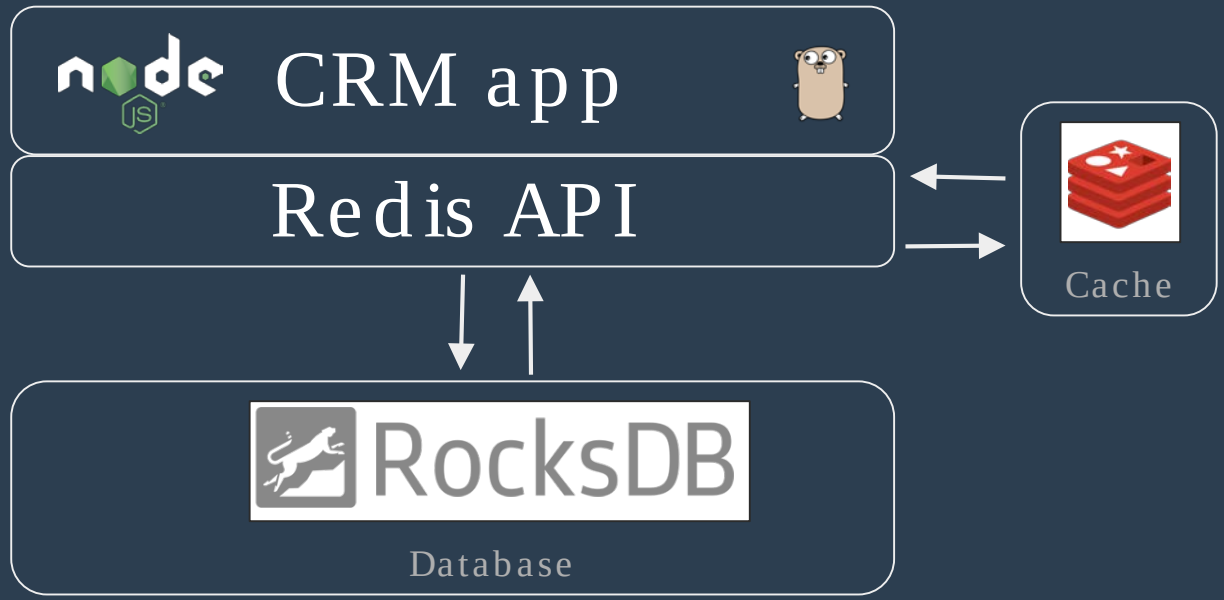
Use case



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Companies Contacts Leads Opportunities

Companies

Add company

Sort: Revenue | Recent | A to Z

Name	Phone	Revenue	Website	Type	Qualified
Apple	408-555-1234	233700000000	View website	Customer	✓
CompX Corp	843-555-4211	43321	View website	Prospect	✗
Dell Computer Corporation	770-555-0138	78822098	View website	Partner	✓
Johne Bag Co	898-555-7663	1000192	View website	Prospect	✓
Microsoft Corporation	902-555-1209	876736366	View website	Prospect	✗
Z Co	544-555-0999	7663552	View website	Customer	✓

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Microsoft Corporation	902-555-1209	876736366	View website	Prospect	✗
Z Co	544-555-0999	7663552	View website	Customer	✓

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View Companies

```
if (sort === 'az') {
    // Get the first 10 companies sorted alphabetically
    cache.zrange(murmurhash.v2('companies:atoz'), 0, 9, handler);
} else if (sort === 'revenue') {
    // Get the reverse range: sorted = high to low revenue
    cache.zrevrange(murmurhash.v2('companies:rev'), 0, 9, handler);
} else if (sort === 'recent') {
    cache.lrange(murmurhash.v2('companies:recent'), 0, 9, handler);
}
```

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handler()

```
if (reply) {
    async.map(reply, getDetails, displayCompanies);
} else {
    if (sort === 'az') {
        db.zrange(murmurhash.v2('companies:atoz'), 0, 9, handler);
    } else if (sort === 'revenue') {
        db.zrevrange(murmurhash.v2('companies:rev'), 0, 9, handler);
    } else if (sort === 'recent') {
        db.lrange(murmurhash.v2('companies:recent'), 0, 9, handler);
    }
}
```

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getDetails()

```
cache.hgetall(key.getKeyHash(company), function(err, reply) {
    if (reply) {
        reply.slug = slug(reply.name.toLowerCase());
        reply.qualified = (reply.qualified === 'true');
    } else {
        db.hgetall(key.getKeyHash(company), ...);
    }
    cb(null, reply)
});
```

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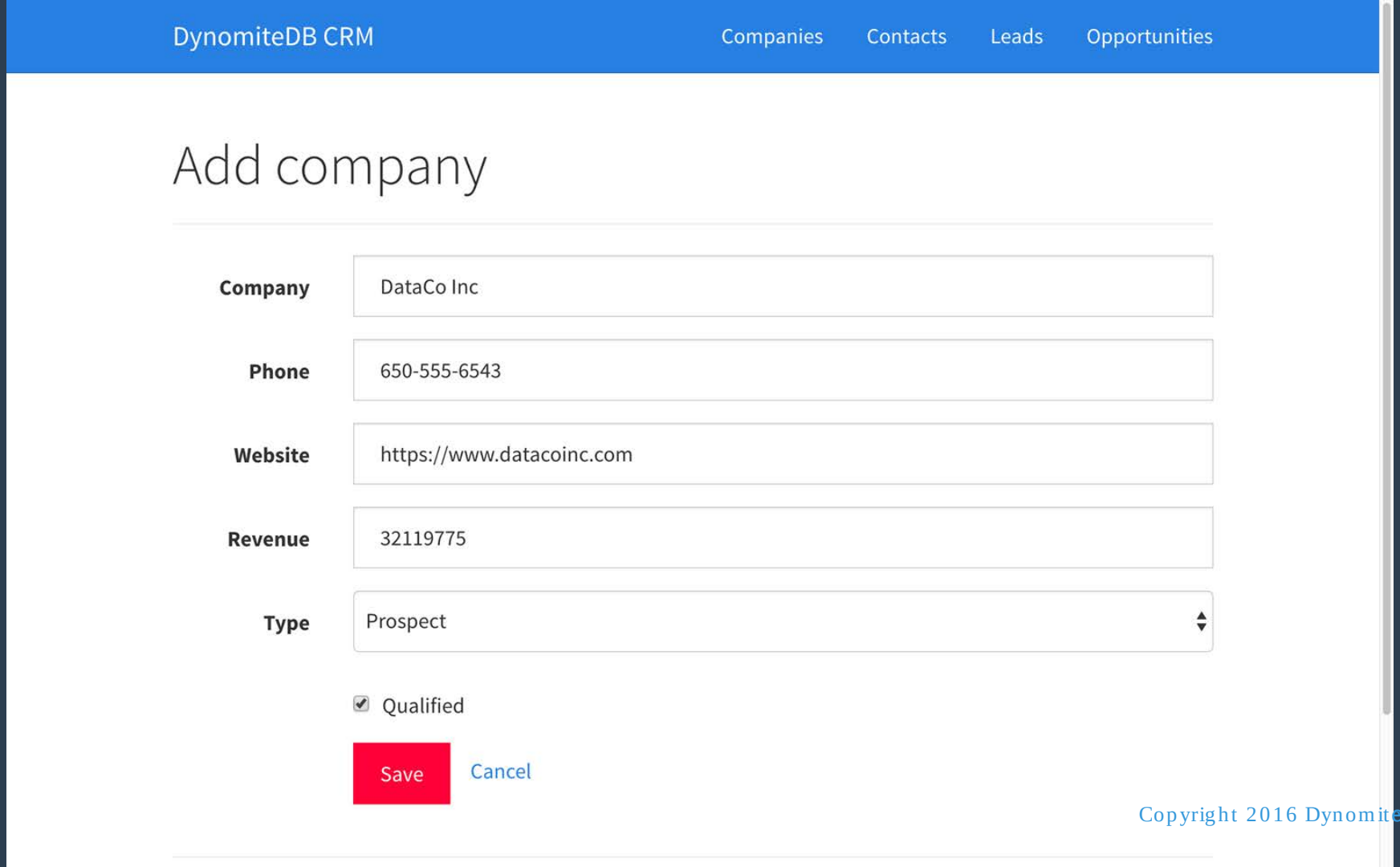
DynomiteDB CRM
Companies
Contacts
Leads
Opportunities
Add company
Company
DataCo Inc
Phone
650-555-6543
Website
https://www.datacoinc.com
Revenue
32119775
Type
Prospect
Qualified
Save
Cancel
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Generate key

```
// Generate text key
var keyText = 'company:name=' + slug(company.name);

// Generate hashed key
var keyHash = murmurhash.v2(keyText);
```

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Save company

```
cache.hmset(keyHash,
    'name', company.name,
    'phone', company.phone,
    'website', company.website,
    'revenue', company.revenue,
    'step', company.step,
    'qualified', company.qualified.toString(),
    saveToRecentCompanies
);

db.hmset(....)
```

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saveToRecentCompanies()

```
cache.lpush(
    murmurhash.v2('companies:recent'),
    company.name,
    saveToAlphabetical
);

db.lpush(
    murmurhash.v2('companies:recent'),
    company.name,
    saveToAlphabetical
);
```

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saveToAlphabetical()

```
cache.zadd(
    murmurhash.v2('companies:alphabetical'),
    1, company.name, saveToRevenue
);

db.zadd(
    murmurhash.v2('companies:alphabetical'),
    1, company.name, saveToRevenue
);
```

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saveToRevenue()

```
cache.zadd(
    murmurhash.v2('companies:revenue'),
    company.revenue,
    company.name,
    renderNextPage
);

db.zadd(
    murmurhash.v2('companies:revenue'),
    company.revenue,
    Company.name, renderNextPage
);
```

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DynomiteDB CRM

Companies Contacts Leads Opportunities

Apple

Edit

Company	Apple
Phone	408-555-1234
Website	http://www.apple.com
Revenue	233700000000
Type	Customer
	Qualified

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Company details

```
cache.hgetall(key.getKeyHash(req.params.slug), showCompany);
```

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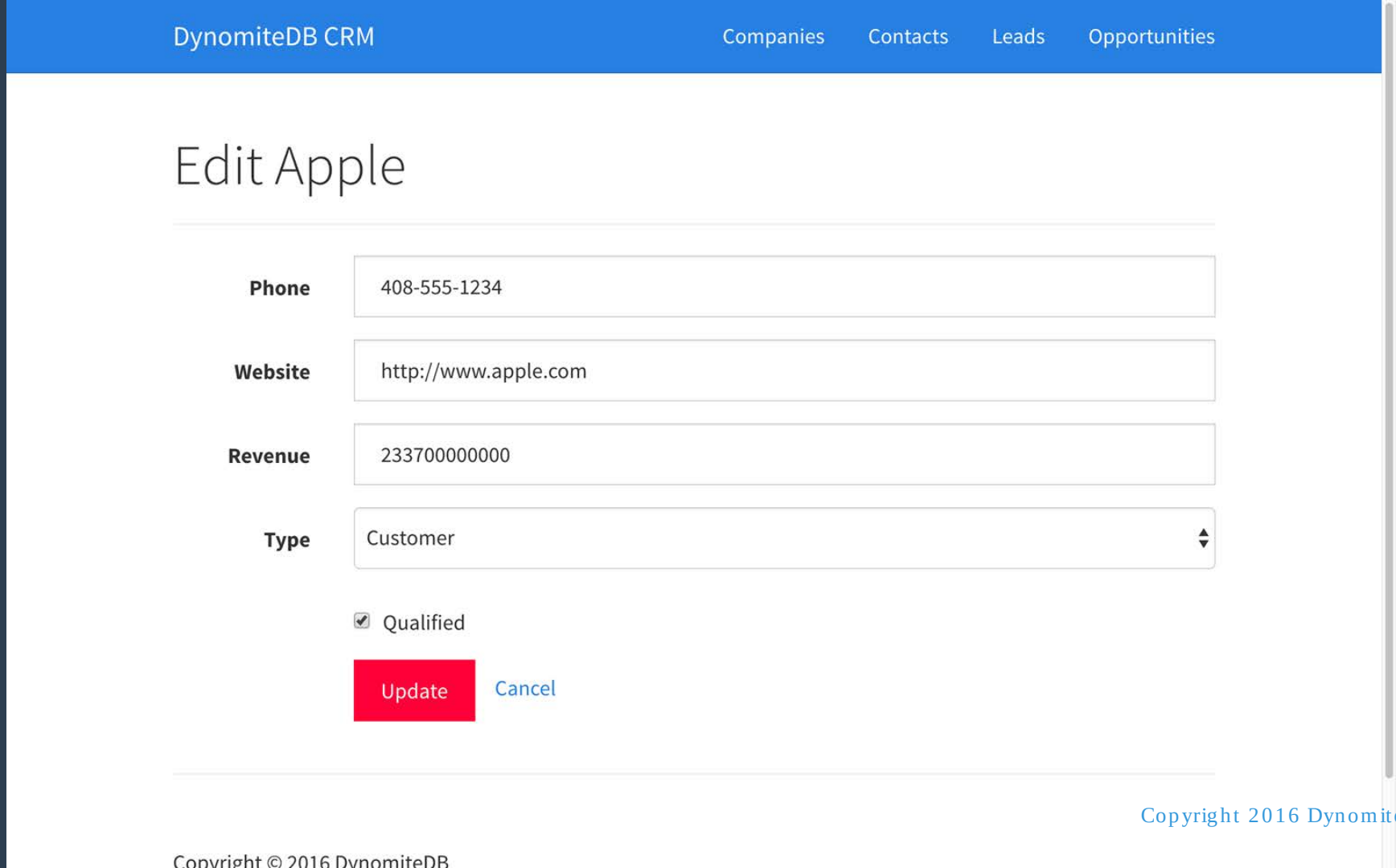
DynomiteDB CRM
Companies
Contacts
Leads
Opportunities
Edit Apple
Phone
408-555-1234
Website
http://www.apple.com
Revenue
233700000000
Type
Customer
Qualified
Update
Cancel
Copyright 2016 DynomiteDB
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Edit company

Updating a company reuses 100% of the save company database and cache code.

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Thank you

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https://github.com/DynomiteDB/redisconf-2016-nodejs
https://github.com/DynomiteDB/redisconf-2016-go (soon)
https://github.com/DynomiteDB/crm-nodejs (soon)
Java coming soon. Follow on Twitter for updates.

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