codecentric
agile software factory

NoSQL Unit & Travis CI

Test Automation for NoSQL Databases

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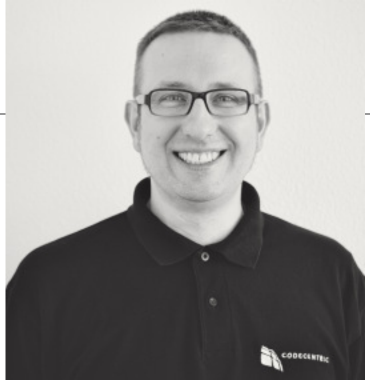
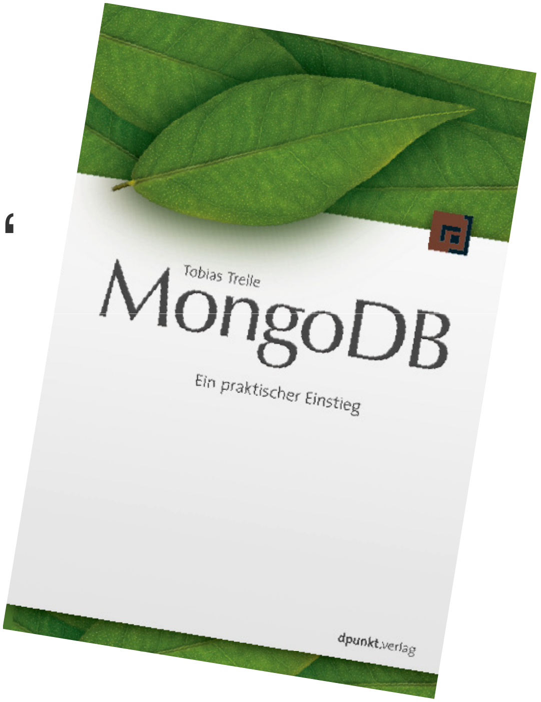
Tobias Trelle



- Senior IT Consultant @ codecentric AG
- Organizer of MongoDB User Group Düsseldorf
- Author of

  „MongoDB – Ein praktischer Einstieg“

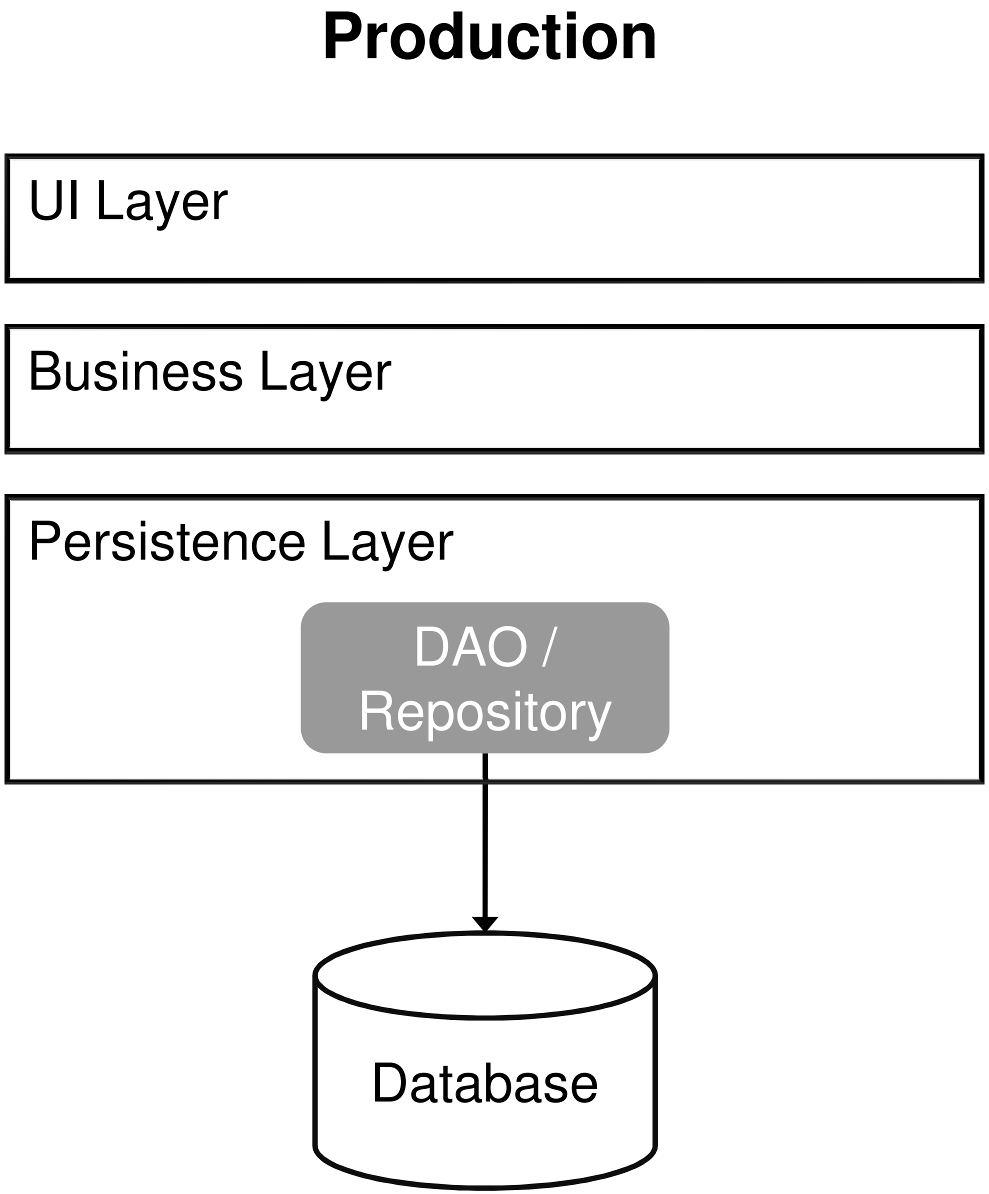
  (dpunkt-Verlag)



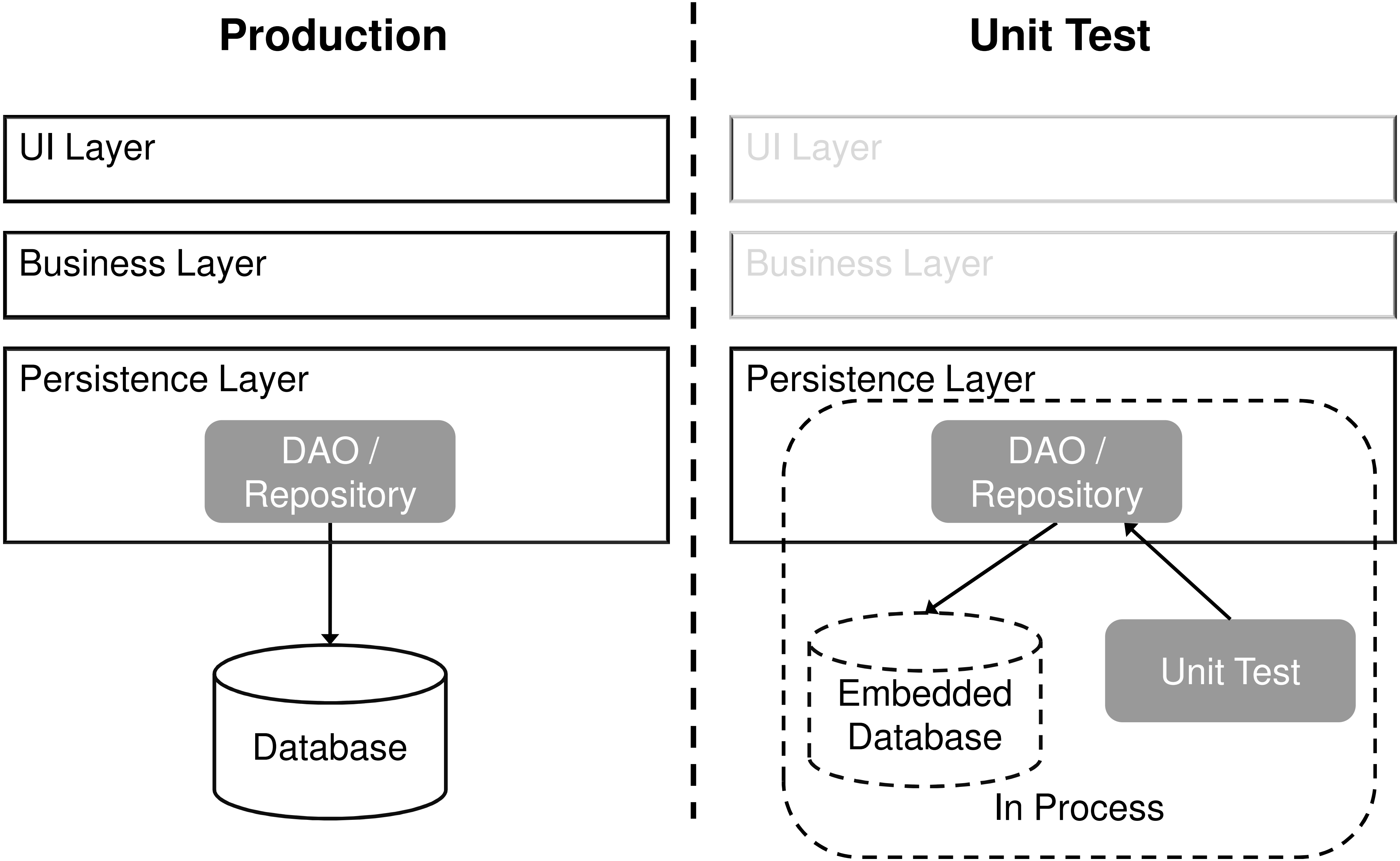
Agenda

- Unit Testing
- NoSQL Unit
- Travis CI

Unit Testing Your Persistence Layer



Unit Testing Your Persistence Layer



Unit tests should …

- be fast
- run in isolation
- load test data
- compare data

NoSQL Unit

Github - https://github.com/lordofthejars/nosql-unit

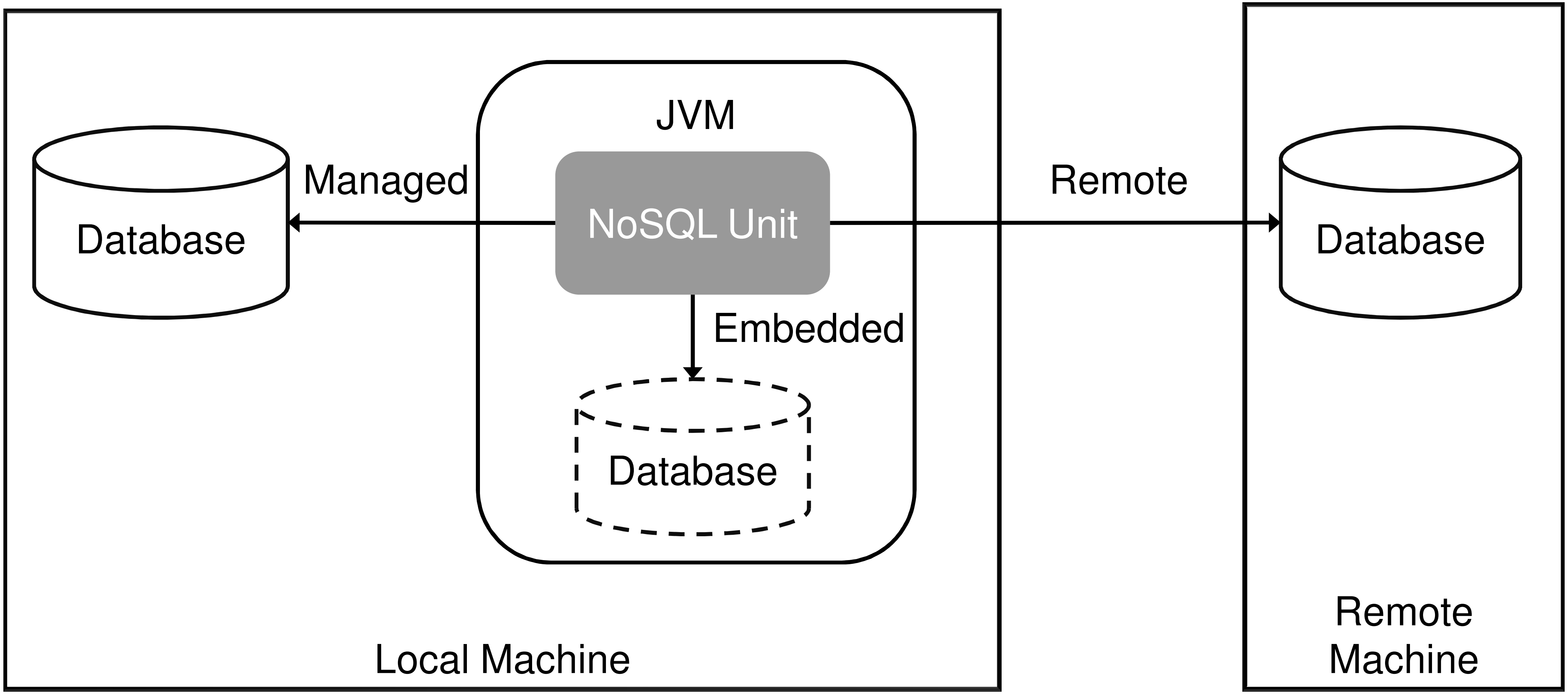
Benefits

- Database Lifecycle Management
- Connection Management
- Load Test Data
- Compare Data

How does it work?

- JUnit Extension
- JUnit Rules
- Annotations

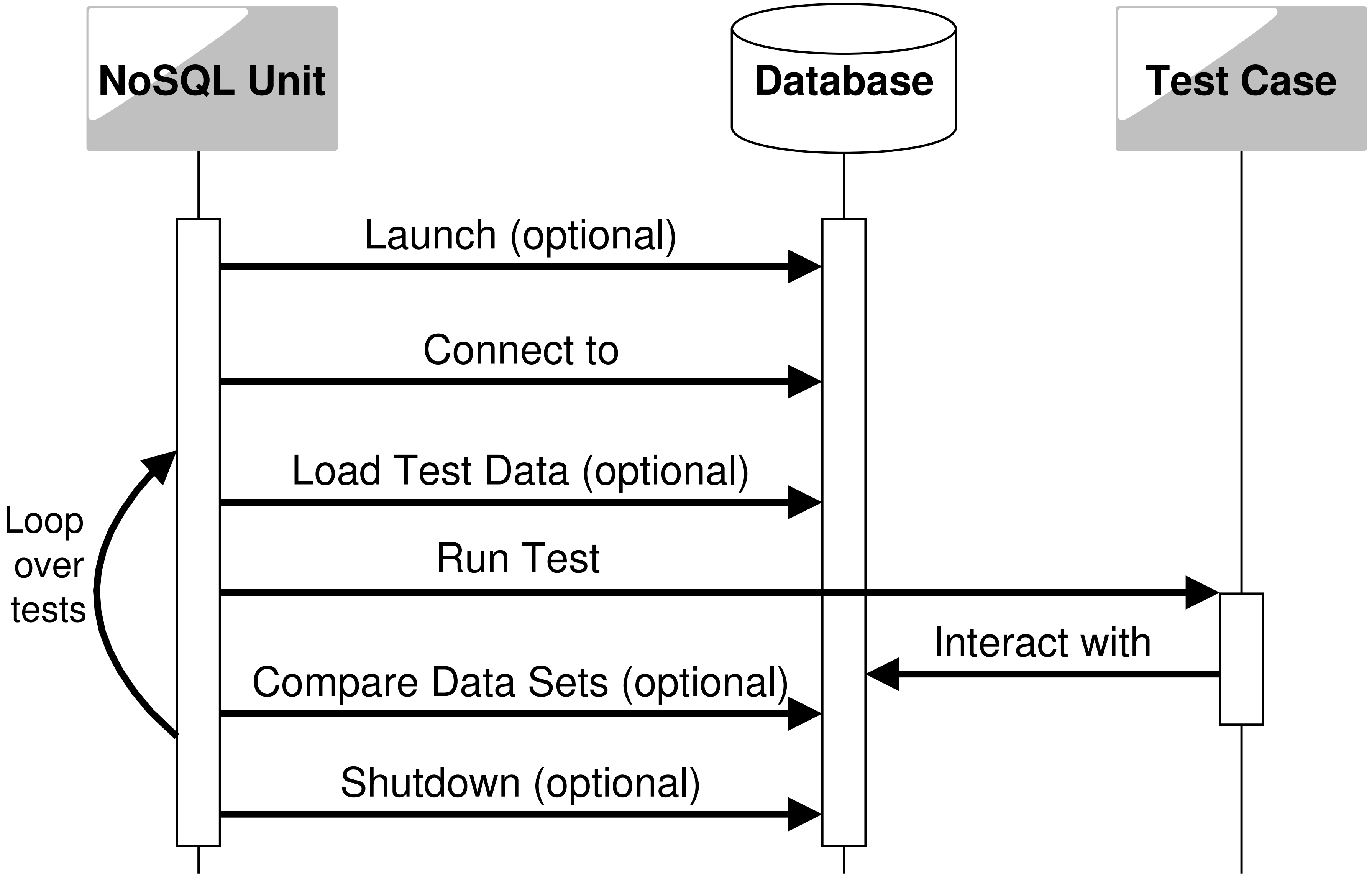
NoSQL Unit > Database Management Options



NoSQL Unit > Supported Databases

Database	Type	Impl Language	Embedded	Managed / Remote
Cassandra	Column	Java	✓	✓
CouchDB	Document	Erlang	---	✓
Elasticsearch	Document	Java	✓	✓
HBase	Column	Java	✓	✓
Infinispan	In Memory	Java	✓	✓
MongoDB	Document	C++	fongo Mock	✓
Neo4j	Graph	Java	✓	✓
Redis	Key/Value	C/C++	NoSQL Unit Mock	✓

NoSQL Unit > Lifecycle



NoSQL Unit > Redis Example

```
public class EmbeddedRedisTest {

@ClassRule
public static EmbeddedRedis embeddedRedis = newEmbeddedRedisRule().build();

@Rule
public RedisRule redisRule = newRedisRule().defaultEmbeddedRedis();

/** Unit under test. */
private KeyValueRepository repository;

   @Test
   @UsingDataSet( loadStrategy = LoadStrategyEnum.DELETE_ALL )
   @ShouldMatchDataSet( location="keyvalue.json" )
   public void should_insert_string() {
     // given
     KeyValueRepository repo = new KeyValueRepository( getJedisInstance() );

     // when
    repo.setValue("hello", "redis");

    // then: should match data
   }
}
```

Create embedded instance once for all tests

Get connection once per test

Prepare data

Compare given and expected data after test

NoSQL Unit > Redis Example > keyvalue.json

```
{
    "data": [
        {"simple": [
            { "key":"hello", "value":"redis"}
        ]
        }
    ]
}
```

NoSQL Unit > MongoDB Example

```
public class RemoteMongoDBTest {

@Rule // use already running "remote" instance
public MongoDbRule mongoRule = new MongoDbRule(
   mongoDb().databaseName("test").host("localhost").port(27017) .build()
);

/** Unit under test. */
private OrderRepository repository;

   @Test
   @UsingDataSet(locations = "orders.json", loadStrategy =
                                            LoadStrategyEnum.CLEAN_INSERT)
   public void should_find_all_orders() {
      // given
      repository = createOrderRepository();

      // when
      List<DBObject> orders = repository.findAll();

      // then
      assertThat(orders, notNullValue());
      assertThat(orders.size(), is(2));
   }
```

Load test data from JSON file

NoSQL Unit > MongoDB Example > orders.json

```json
{
    "orders": [
    {
        "type": 4711,
        "desc": "1st order"
    },
    {
        "type": 42,
        "desc": "2nd order"
    }
    ]
}
```

NoSQL Unit MongoDB supports

- Replica Sets
- Sharded Environments
- Sharded Env. + Replica Sets

…in managed mode.

Travis CI

http://www.travis-ci.org

Travis CI > Overview

Free Continuous Integration Platform:

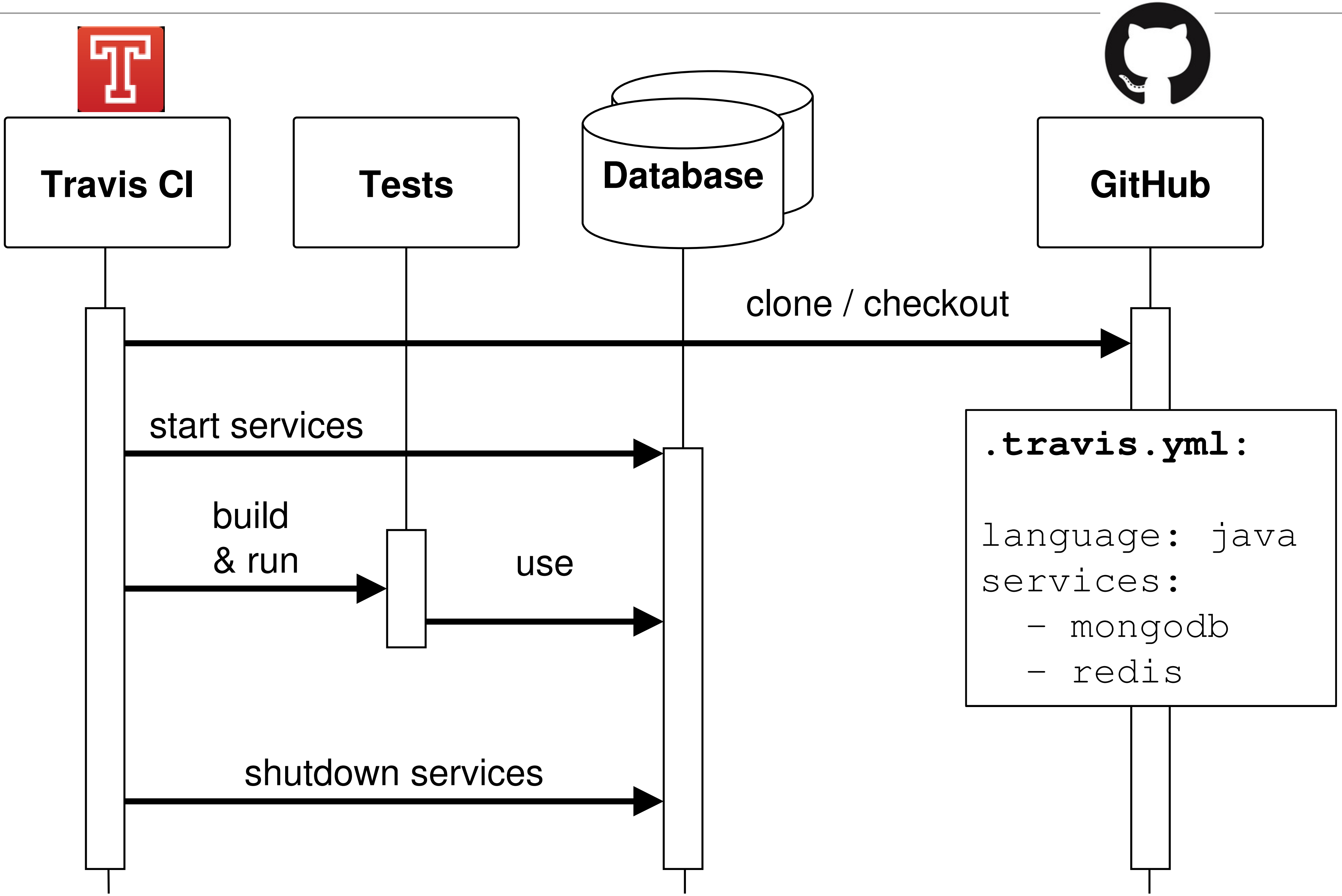
Lanuguages:

- C/C++
- Closure
- Erlang
- Go
- Groovy
- Java
- JavaScript / Node.js
- Objective-C
- Ruby
- Scala
- …

Services:

- MySQL
- PostgreSQL
- MongoDB
- CouchDB
- Redis
- Riak
- RabbitMQ
- Memcached
- Cassandra
- Neo4j
- …

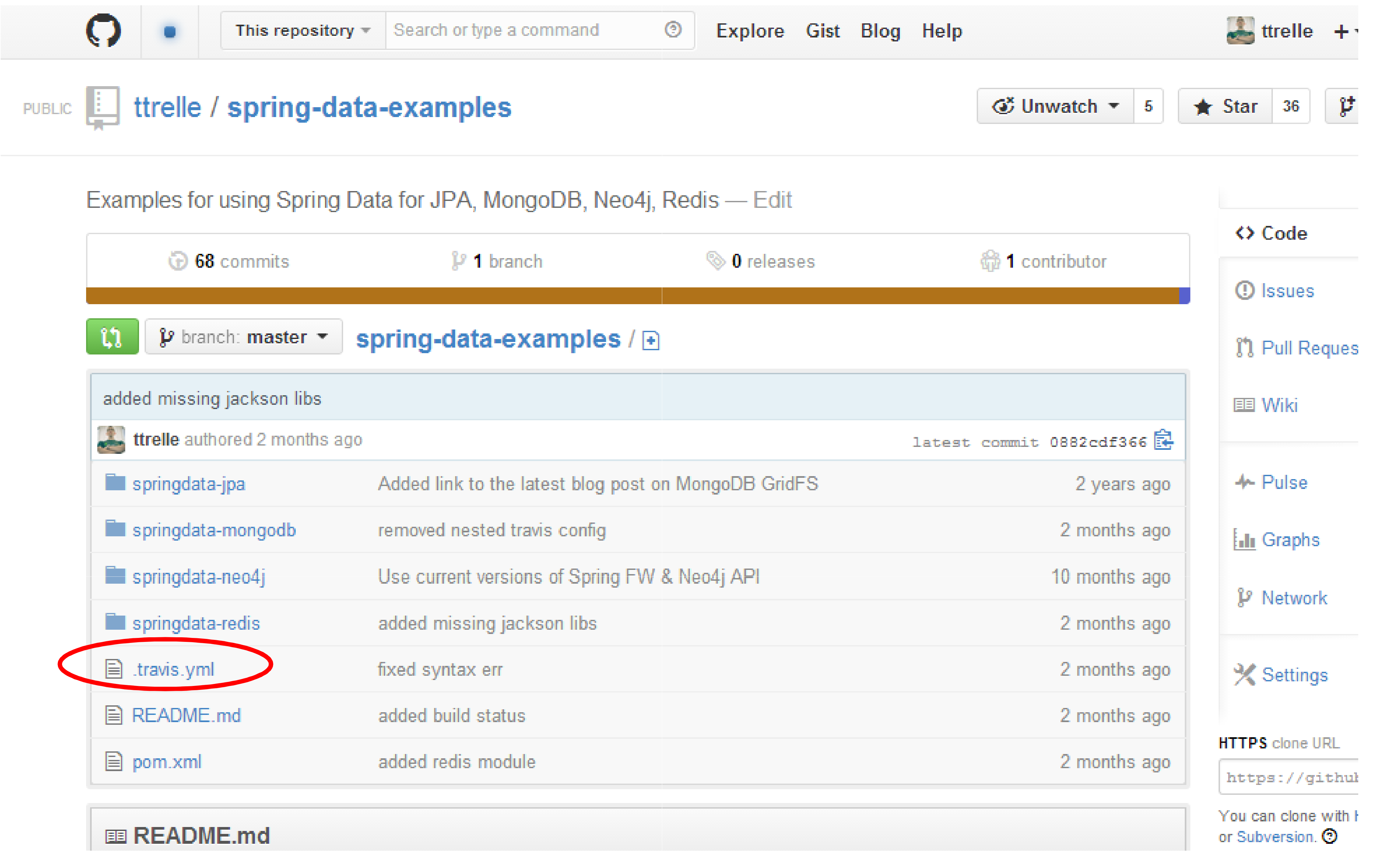
Travis CI > Lifecycle



```
.travis.yml:

language: java
services:
   - mongodb
   - redis
```

Travis CI > Demo



PUBLIC **ttrelle / spring-data-examples**

Examples for using Spring Data for JPA, MongoDB, Neo4j, Redis — Edit

68 commits **1** branch **0** releases **1** contributor

spring-data-examples / +

added missing jackson libs

ttrelle authored 2 months ago latest commit 0882cdf366

springdata-jpa	Added link to the latest blog post on MongoDB GridFS	2 years ago
springdata-mongodb	removed nested travis config	2 months ago
springdata-neo4j	Use current versions of Spring FW & Neo4j API	10 months ago
springdata-redis	added missing jackson libs	2 months ago
.travis.yml	fixed syntax err	2 months ago
README.md	added build status	2 months ago
pom.xml	added redis module	2 months ago

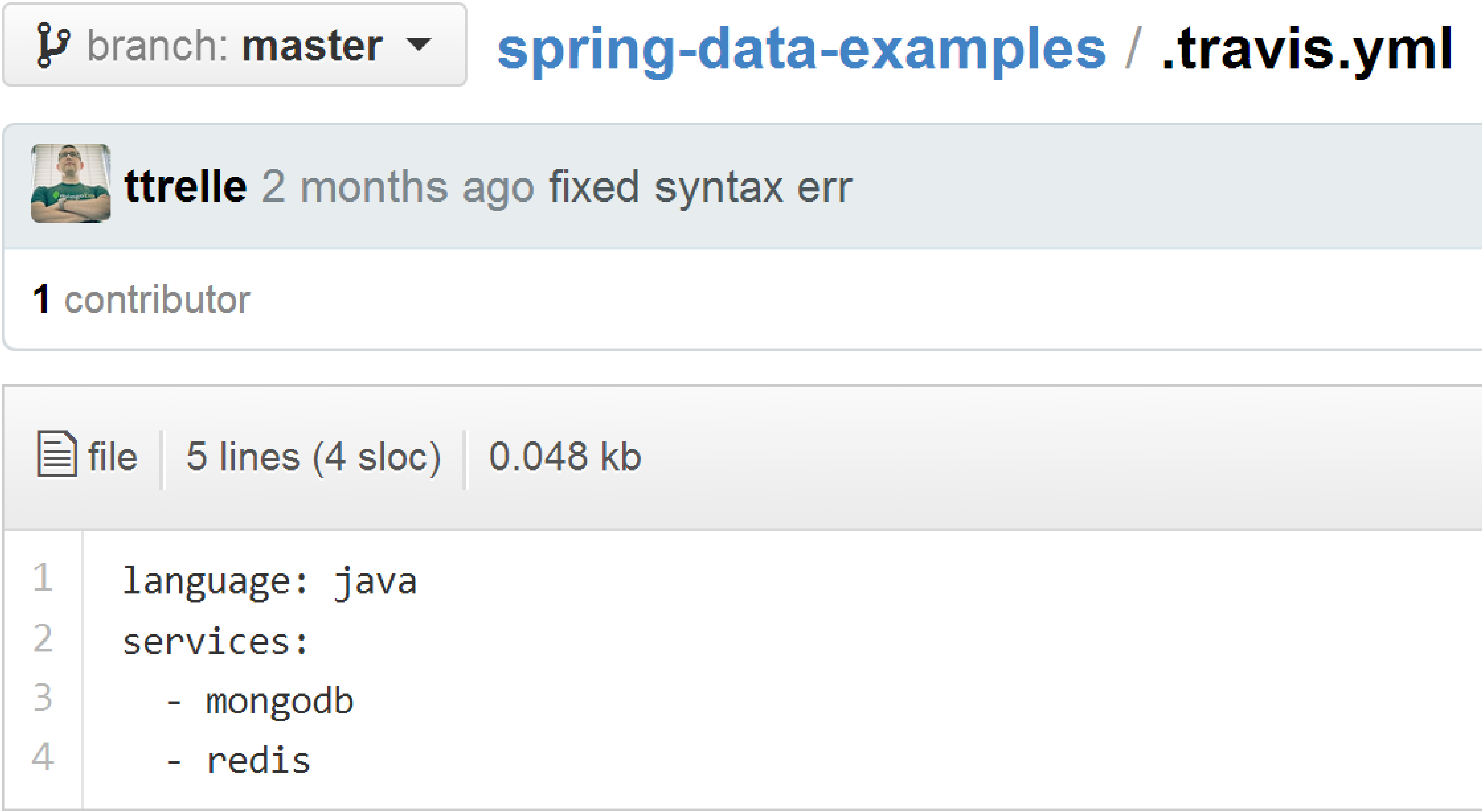
README.md

HTTPS clone URL

https://githu

You can clone with
or Subversion.

Travis CI > Demo



spring-data-examples / .travis.yml

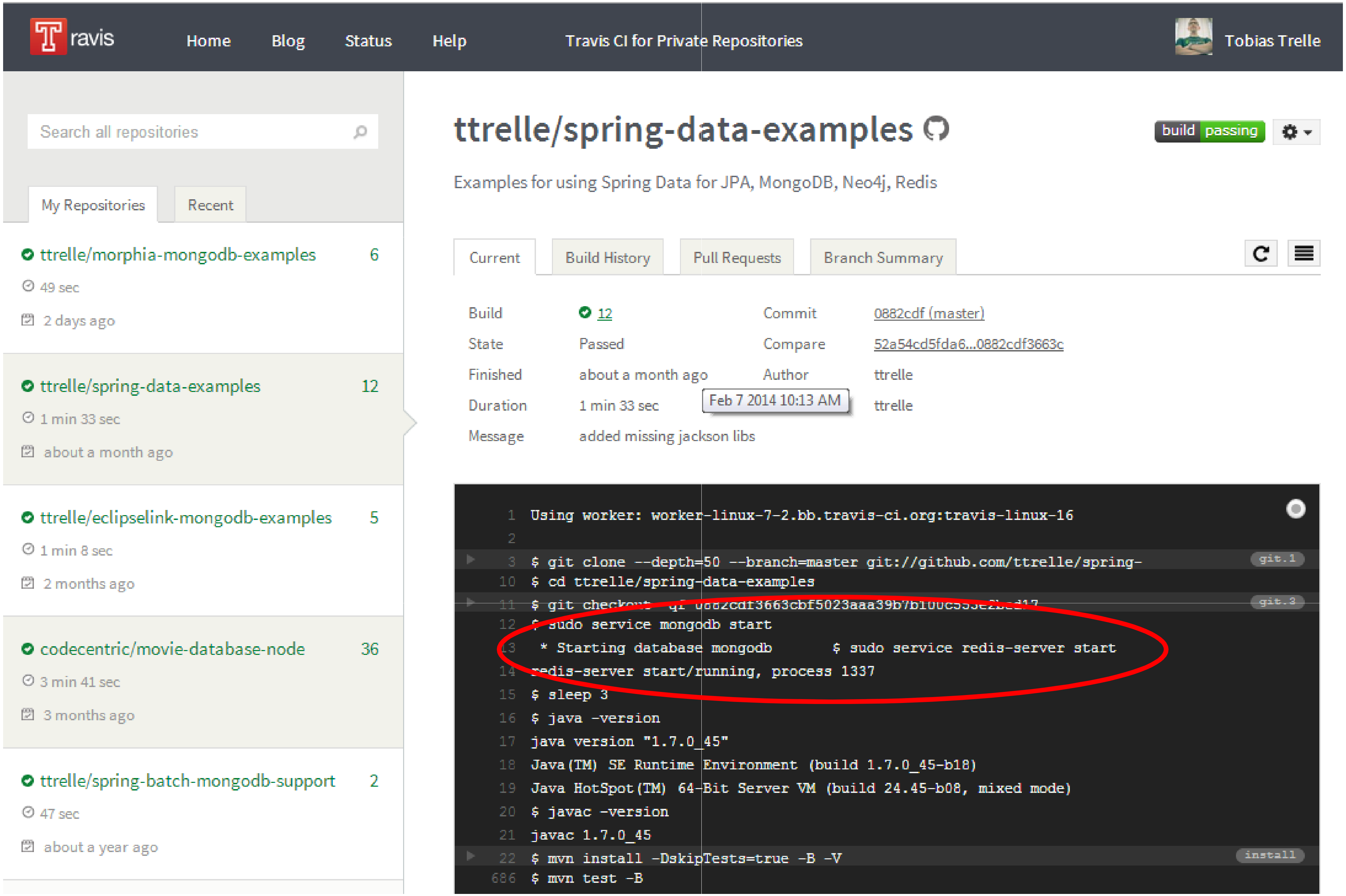
ttrelle 2 months ago fixed syntax err

1 contributor

file | 5 lines (4 sloc) | 0.048 kb

```yaml
language: java
services:
  - mongodb
  - redis
```

Travis CI > Demo



ttrelle/morphia-mongodb-examples 6
49 sec
2 days ago

ttrelle/spring-data-examples 12
1 min 33 sec
about a month ago

ttrelle/eclipselink-mongodb-examples 5
1 min 8 sec
2 months ago

codecentric/movie-database-node 36
3 min 41 sec
3 months ago

ttrelle/spring-batch-mongodb-support 2
47 sec
about a year ago

ttrelle/spring-data-examples

Examples for using Spring Data for JPA, MongoDB, Neo4j, Redis

Build	✓ 12	Commit	0882cdf (master)
State	Passed	Compare	52a54cd5fda6...0882cdf3663c
Finished	about a month ago	Author	ttrelle
Duration	1 min 33 sec	Feb 7 2014 10:13 AM	ttrelle
Message	added missing jackson libs		

```
Using worker: worker-linux-7-2.bb.travis-ci.org:travis-linux-16

$ git clone --depth=50 --branch=master git://github.com/ttrelle/spring-
$ cd ttrelle/spring-data-examples
$ git checkout -qf 0882cdf3663cbf5023aaa39b7b100c5 [illegible]
$ sudo service mongodb start
 * Starting database mongodb       $ sudo service redis-server start
redis-server start/running, process 1337
$ sleep 3
$ java -version
java version "1.7.0_45"
Java(TM) SE Runtime Environment (build 1.7.0_45-b18)
Java HotSpot(TM) 64-Bit Server VM (build 24.45-b08, mixed mode)
$ javac -version
javac 1.7.0_45
$ mvn install -DskipTests=true -B -V
$ mvn test -B
```

Online Resources

NoSQL Unit

https://github.com/lordofthejars/nosql-unit

Travis CI

https://travis-ci.org/

NoSQL Unit Examples

https://github.com/ttrelle/nosqlunit-examples

MongoDB User Group Düsseldorf

https://www.xing.com/net/mongodb-dus/

http://www.meetup.com/Dusseldorf-MongoDB-User-Group/

@MongoDUS

Meetup #10:

MongoDB at LUMsearch.com (by Christian Douven)

03.07.2014, 19:00

QUESTIONS?

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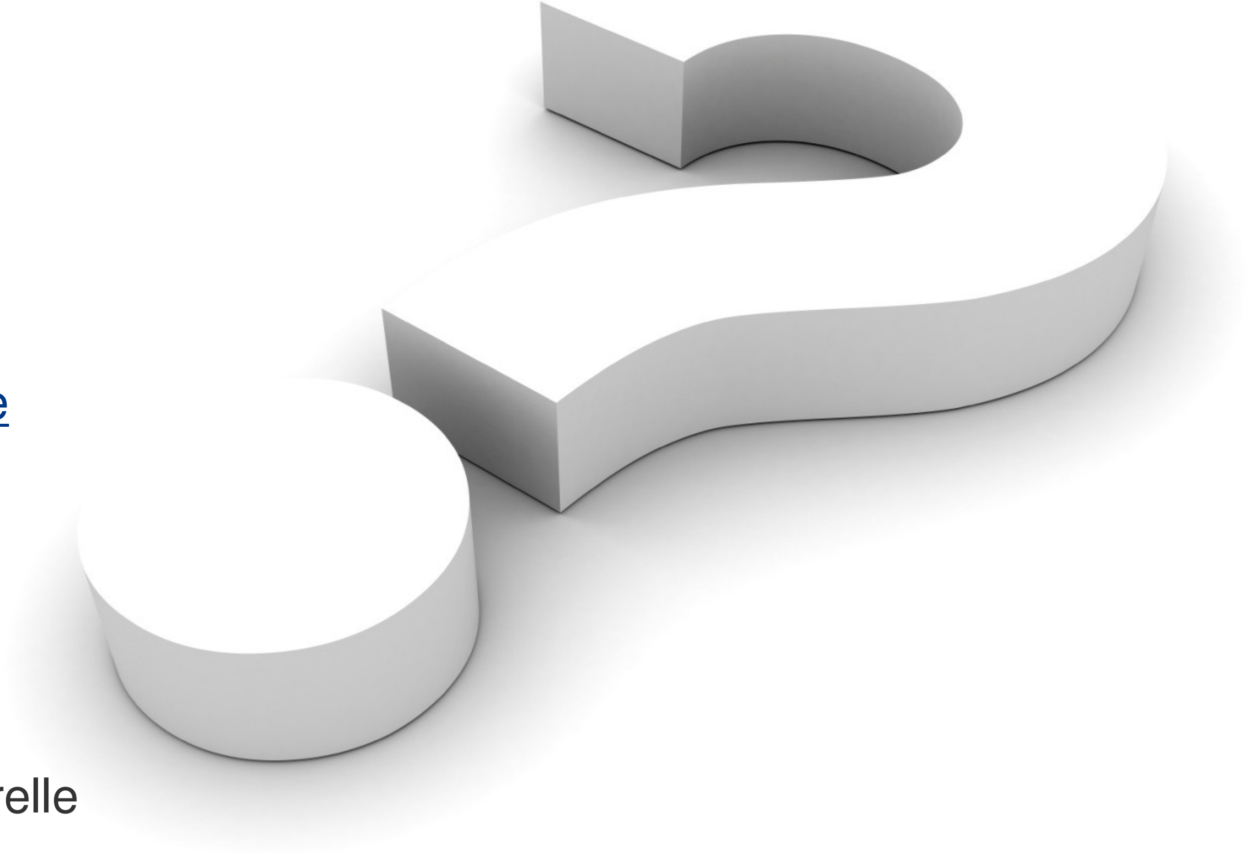

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www.xing.com/net/mongodb-dus