Java Development with MongoDB

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Outline

- MongoDB + Java Basics
 - Setting up your Java environment
 - Connecting to MongoDB
- Working with MongoDB
 - Collections + Documents
 - Inserting Documents to MongoDB
 - Querying MongoDB





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Adding the MongoDB Driver To Your Project

Assuming you're using a dependency manager, make setup simple...

- Maven Dependency
 - <dependency>
 - <groupId>org.mongodb</groupId>
 - <artifactId>mongo-java-driver</artifactId>
 - <version>1.4</version>
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- Ivy Dependency
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```
import com.mongodb.Mongo;
```

```
import com.mongodb.DB;
```

- Mongo m = new Mongo();
- Mongo m = new Mongo("localhost");
- Mongo m = new Mongo("localhost", 27017);
- Fetch a Database Handle (lazy).
 - DB db = m.getDB("javaDemo");
- If you need to authenticate...
- boolean auth = db.authenticate("login", "password");





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Getting connected to MongoDB is simple; Connections are pooled, so you only need one...

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Collections are MongoDB "tables"...

List all of the collections in a database.

```
Set<String> colls = db.getCollectionNames();
for (String s : colls) {
    System.out.println(s);
}
```

Get a specific collection (lazy)...

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Set<String> colls = db.getCollectionNames();
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Count the number of documents in a collection...



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 coll.getCount();





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- "Documents" are MongoDB's "rows".
- MongoDB's Internal Document representation is 'BSON'
 - BSON is a binary optimized flavor of JSON
 - Corrects JSON's inefficiency in string encoding (Base64)
 - Supports extras including Regular Expressions, Byte
 Arrays, DateTimes & Timestamps, as well as datatypes for Javascript code blocks & functions.
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From Java: BasicDBObject

- Java representation of BSON is the map-like DBObject (Java 2.0 driver has a new base class of BSONObject related to the BSON split-off)
- Easiest way to work with Mongo Documents is BasicDBObject...

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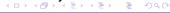


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MongoDB Documents From Java: BasicDBObjectbuilder

For those who prefer immutability...

- BasicDBObjectBuilder follows the Builder pattern.
- add() your keys & values:

```
BasicDBObjectBuilder builder = BasicDBObjectBuilder.start();
builder.add("username", "bwmcadams");
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```
builder.add("presentation", "Java Development with MongoDB");
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- A BasicDBObjectBuilder is not a DBObject.
- Call get() to return the built-up DBObject.
- add() returns itself so you can chain calls instead

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BasicDBOBjectBuilder.start().add("username", "bwmcadams").add("password"
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- If you want to create your own concrete objects, extend & implement DBObject
 - Requires you implement a map-like interface including ability to get & set fields by key (even if you don't use them, required to deserialize)
 - Instances of DBObject can be saved directly to MongoDB.
- Feeling Fancy? Reflect instead...
 - Use ReflectionDBObject as a base class for your Beans.
 - HeflectionDBObject uses reflection to proxy your getters & setters and behave like a DBObject.
 - Downside: With Java's single inheritance you are stuck using this as your base class.
- Existing Object Model? ORM-Like Solutions (Detailed later)...
 - Daybreak
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// DBCollection coll
coll.insert(doc):
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- Got multiple documents? Call insert() in a loop, or pass DBObject[] or List<DBObject>
- Three ways to store your documents:
 - INSERT (insert()) always attempts to add a new row
 - SAVE (save()) only attempts to insert unless _id is defined.
 Otherwise, it will attempt to update the identified document
 - UPDATE (update()) Allows you to pass a query to filter by and the fields to change. Boolean option "multi" specifies if multiple documents should be updated. Boolean "upsert" specifies that the object should be inserted if it doesn't exist (e.g. query doesn't match).

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- Find a single row with findOne(). Takes the first row returned.
- Getting a cursor of all documents (find() with no query):





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