Flutter Databases
Part II - Realm

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What is Realm?

Realm

Mobile-first, simple

- first database built from the ground up to run directly on almost all platforms
- object-oriented data model is easy to learn, the API lets you write less code to get apps up & running in minutes

Modern

- Realm supports latest Dart and Flutter versions and is build with sound null-safety

Realm

Fast

- Realm is faster than even raw SQLite on common operations while maintaining an extremely rich feature set

Device Sync:

- Makes it simple to keep data in sync across users, devices, and your backend in real-time
- (Paid service), but free tier available

What are the features?

Realm

Features

- Part of MongoDB
- object-oriented data model
- Persistent or in memory
- Indexes - based on one column (property)
- Sync with cloud integrated (part of the MongoDB Atlas Cloud Service - free tier available)
- Mostly synchronously calls, but async supported for add, modify or delete
- Streaming via query(") or all<DTO>() + mapping to local dto-class
- Encryption documentation available here

Realm

Features
- Support for
  - int, double, bool, String and DateTime stored in UTC (add .toUtc() to store it)
- Has own query language - RQL
  - Text search via CONTAINS or LIKE with support for ? (wildcard matches any character) or * (wildcard matches zero or more of any character)
- Testing documentation
- Realm Studio to inspect the database - but need to transfer db file from phone to computer first
- NO web support

Queries

Expressions

- `"progressMinutes > 1 AND assignee == $0", "Ali"`

Dot Notation

- `"workplace.address.zipcode == 10019"`

Different Operators for int, logical, String, Arithmetic, Type, Date, Aggregate and more

- `"name BEGINSWITH[c] 'e'"`
- `"name CONTAINS 'ie'"`

Sort, Distinct, Limit

- `"assignee == 'Ali' SORT(priority DESC) DISTINCT(name) LIMIT(5)"`

Performance

- I couldn't find any charts or performance metrics
- Details about implementation can be found here: https://www.mongodb.com/docs/realm/sdk/flutter/realm-database/database-internals/
- Interesting issue in GitHub relating performance https://github.com/realm/realm-dart/issues/1261

Comparison of Drift and Realm

Comparison

	Drift	**Realm**
Platform support	iOS, Android, Mac, Windows, Linux, Web	iOS, Android, Mac, Windows, Linux
Underlying technology	SQLite	MongoDB
Encryption	Yes	Yes
Stream	Yes	Yes
Testing	Yes - good docs	Yes - good docs
Documentation	Very good	Very good

Comparison

Quite similar features...so what is the difference?
- Let's discuss about it

Syntax

Type Safety

Web/No web

SQL vs NoSQL

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Realm

- https://pub.dev/packages/realm
- https://www.mongodb.com/docs/realm/sdk/flutter/
- https://www.mongodb.com/docs/realm/realm-query-language/#std-label-rql

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Happy Fluttering and see you at the next meetup :-)