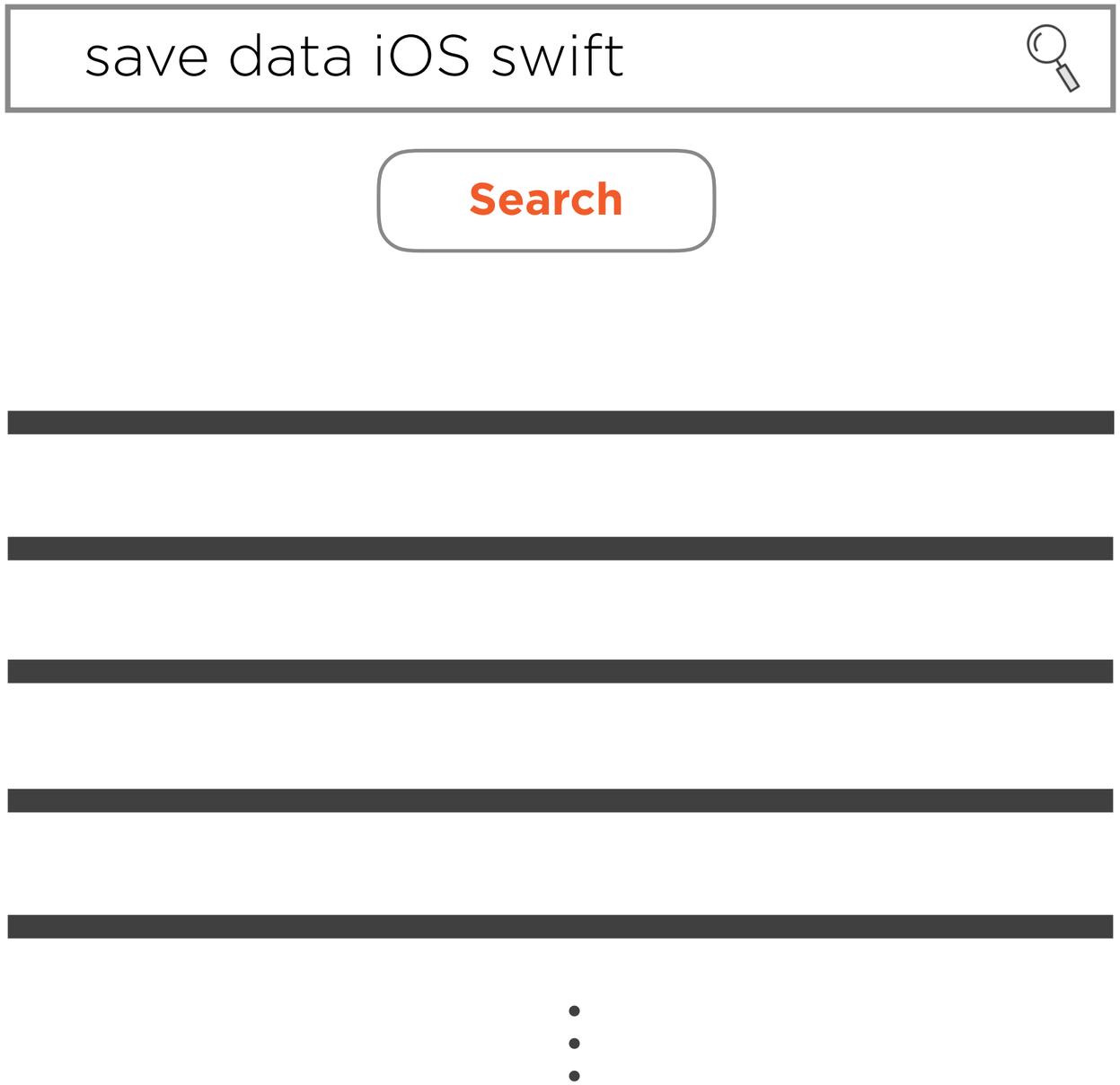
iOS Data Persistence: The Big Picture

ESTABLISHING THE DATA PERSISTENCE LANDSCAPE

save data iOS swift
Search

save data iOS swift
Search


save data iOS swift
Search

save data iOS swift

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Core Data

User Defaults

iCloud

Firebase

plist

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save data iOS swift

Search

Core Data

User Defaults

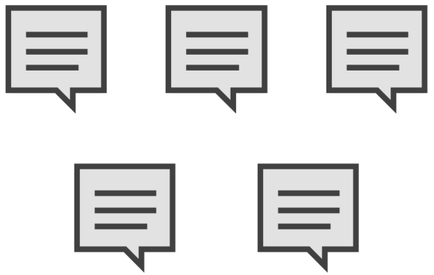
iCloud

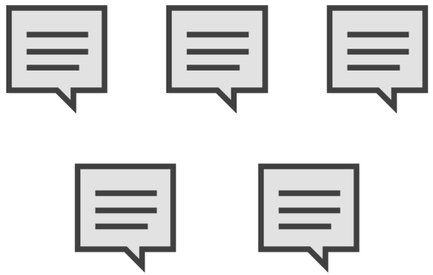
Firebase

plist

save data iOS swift
Search

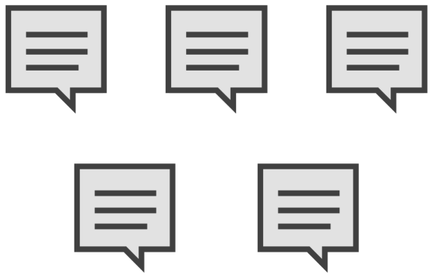
Ad

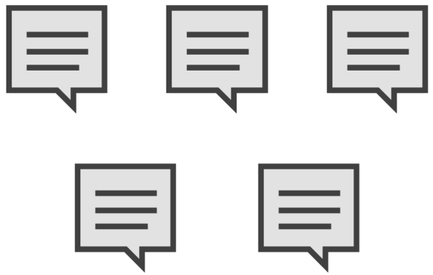


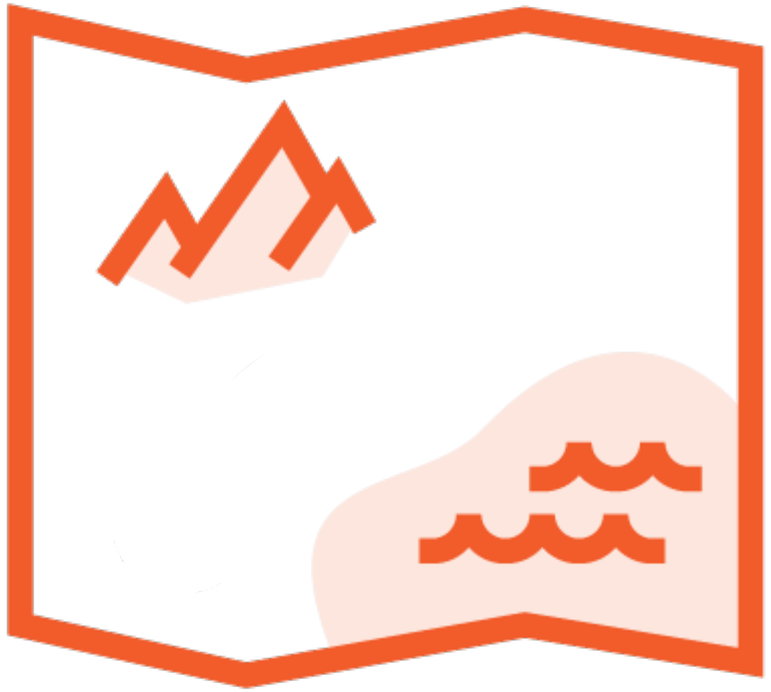


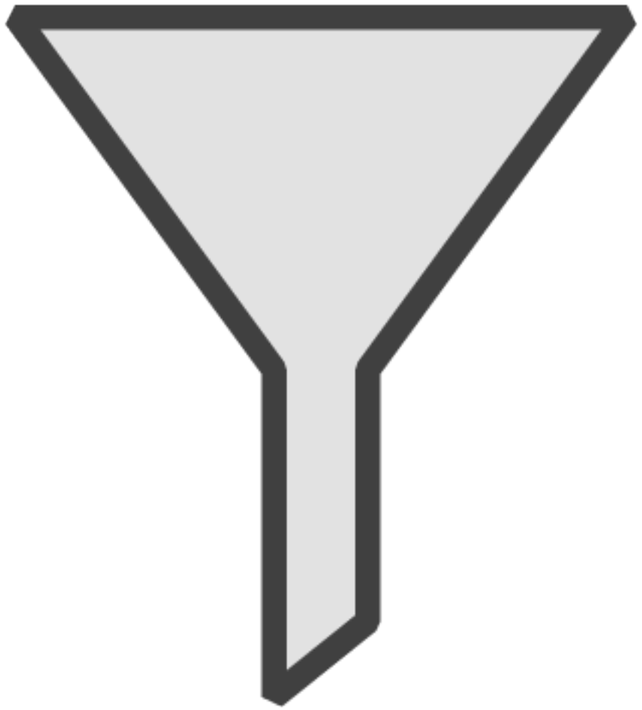
save data iOS swift
Search

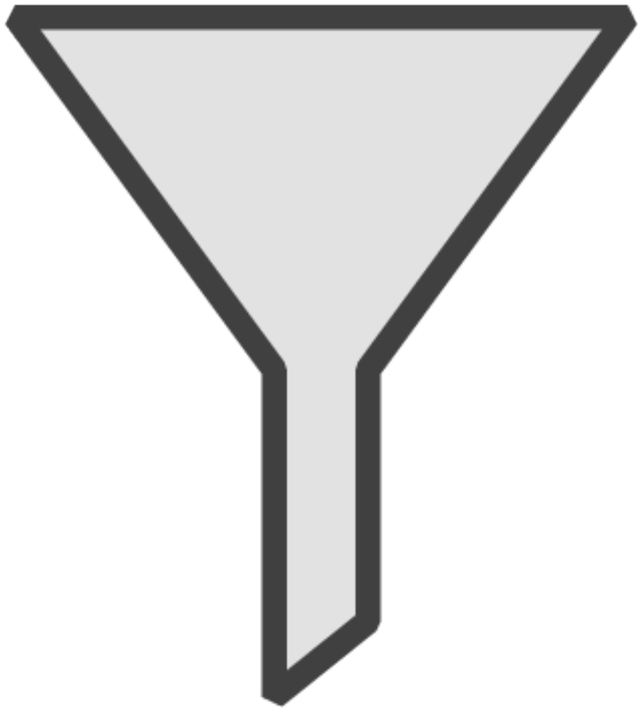
Ad

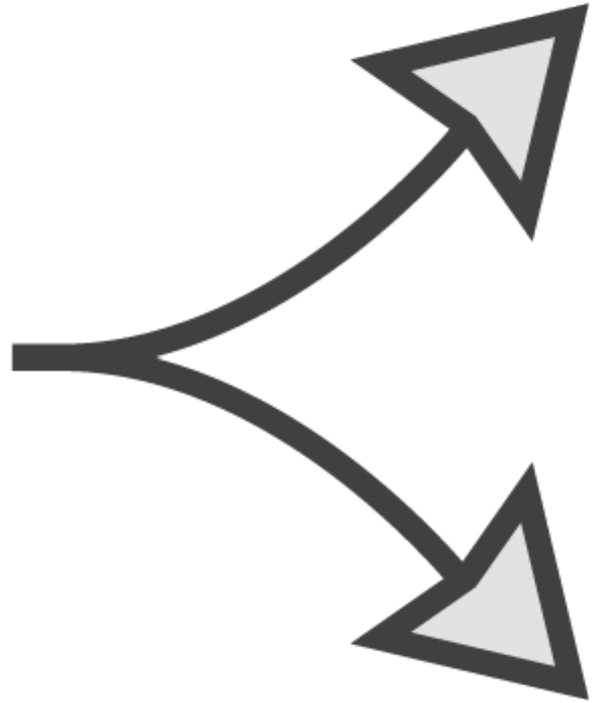


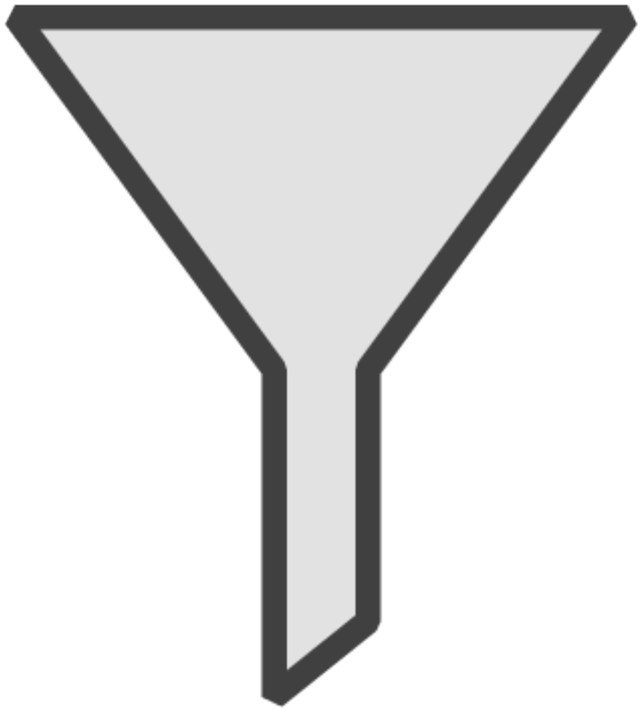




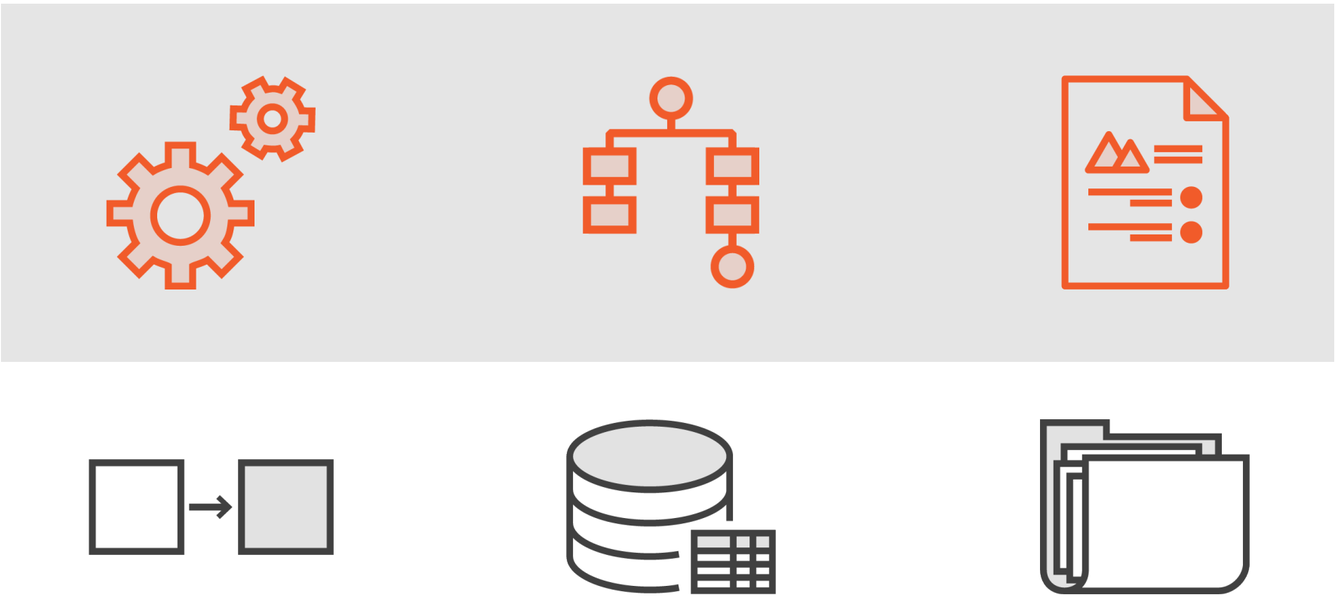


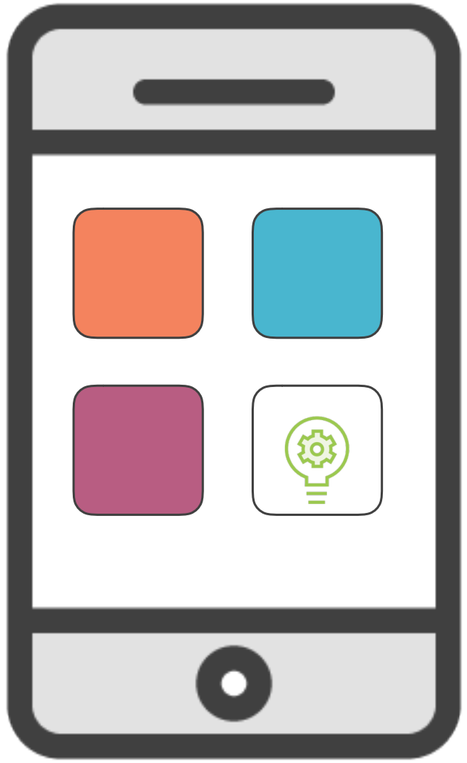


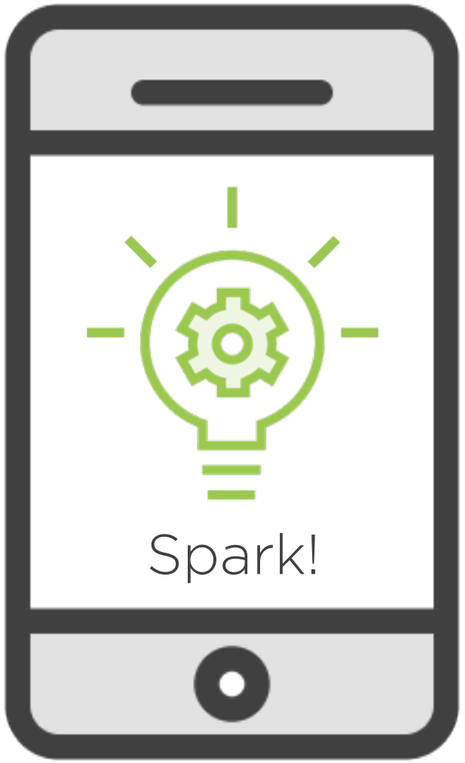


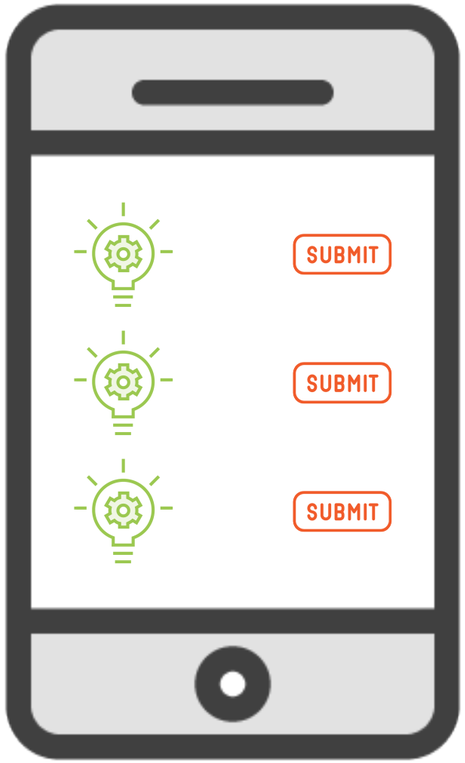


Data Storage Solutions






Spark!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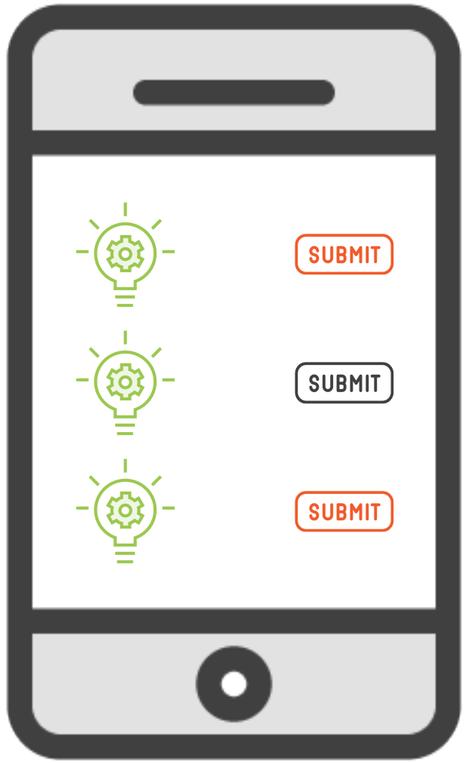
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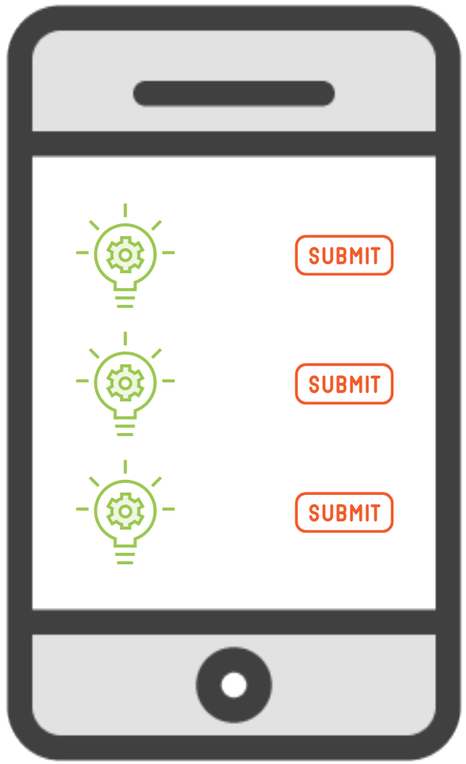
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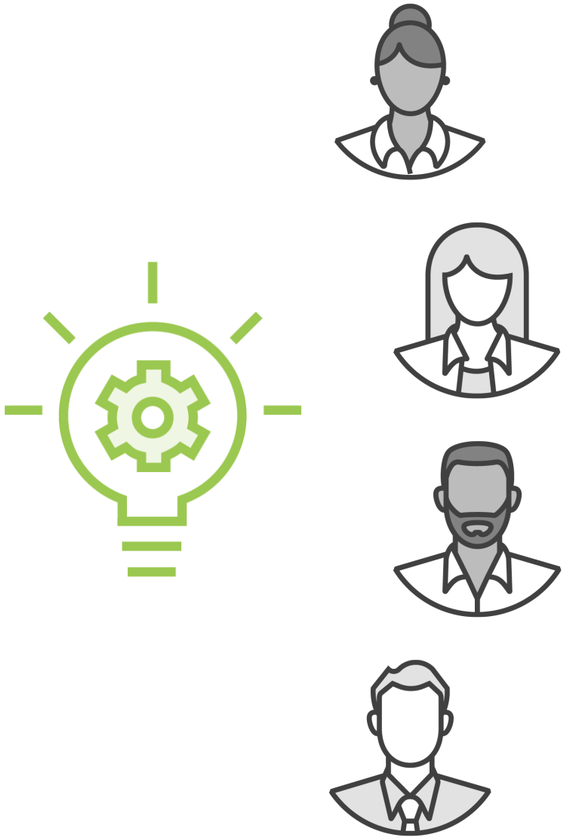
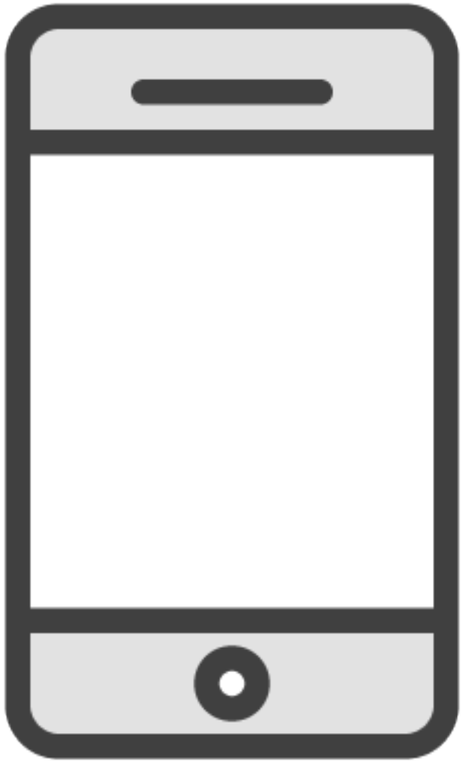
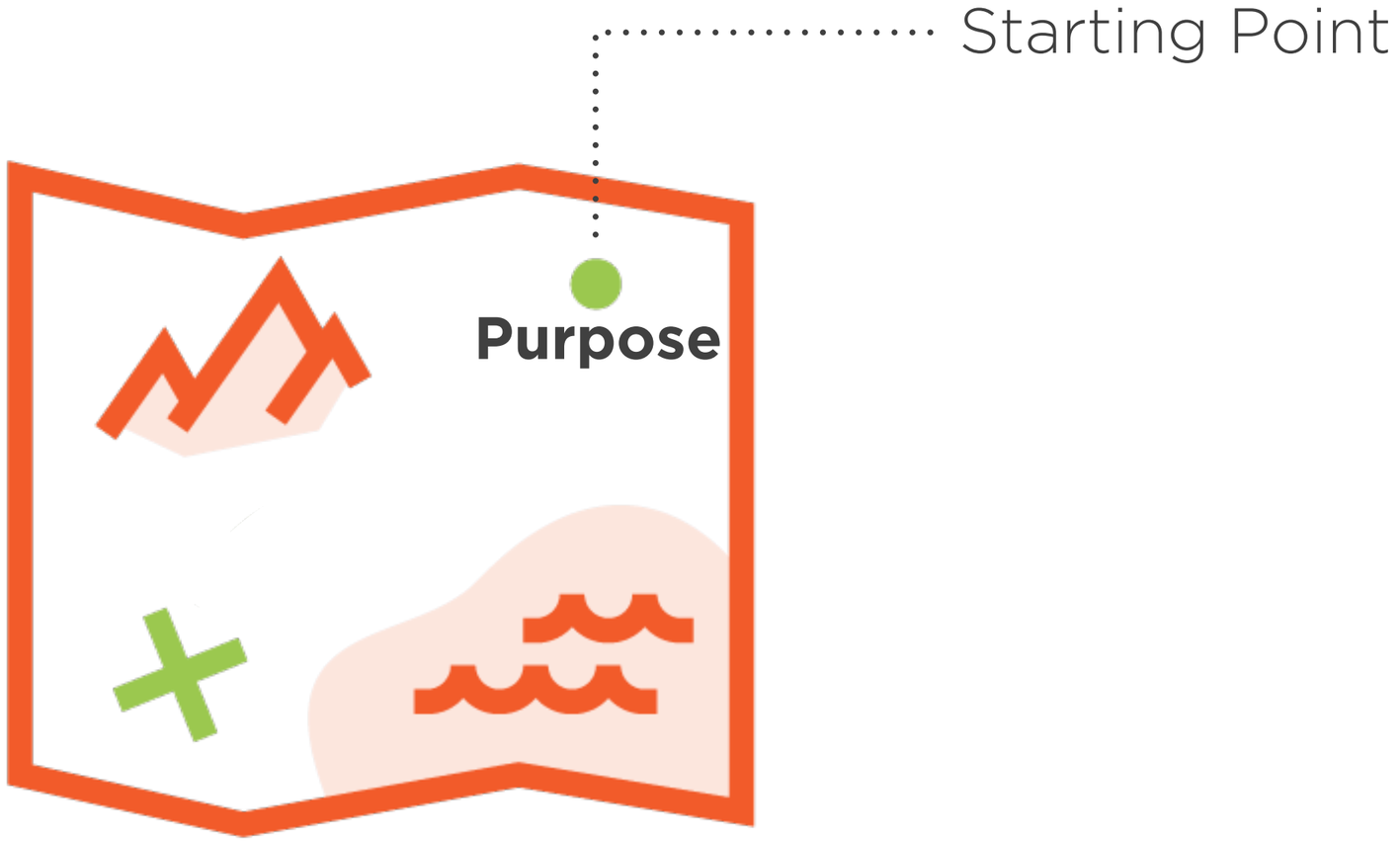
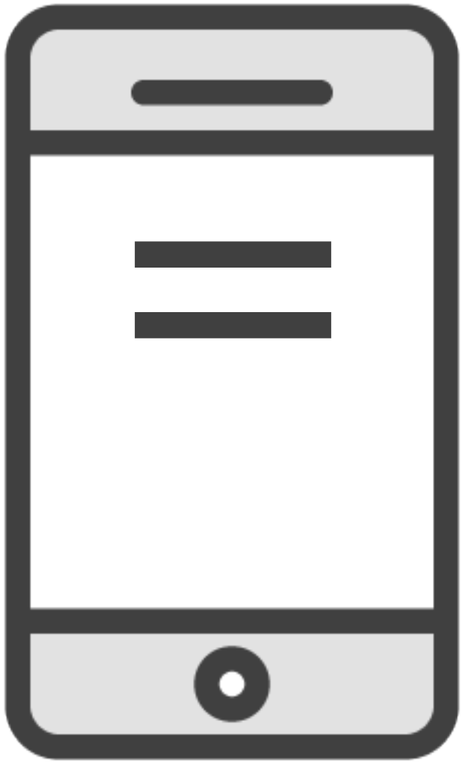




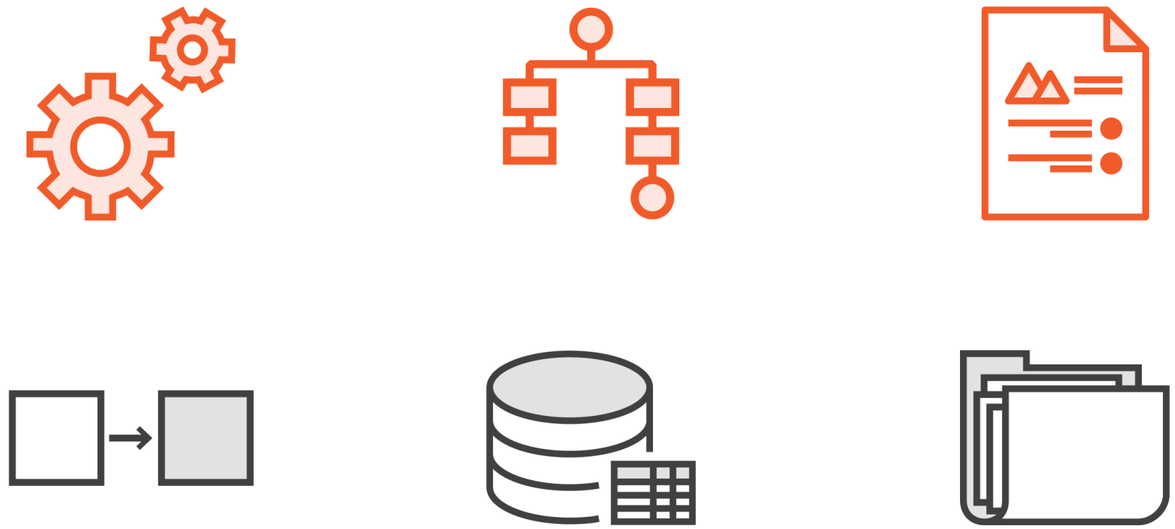
Nobody builds an app to
aimlessly save data.


Starting Point
Purpose

Persisting with a Purpose

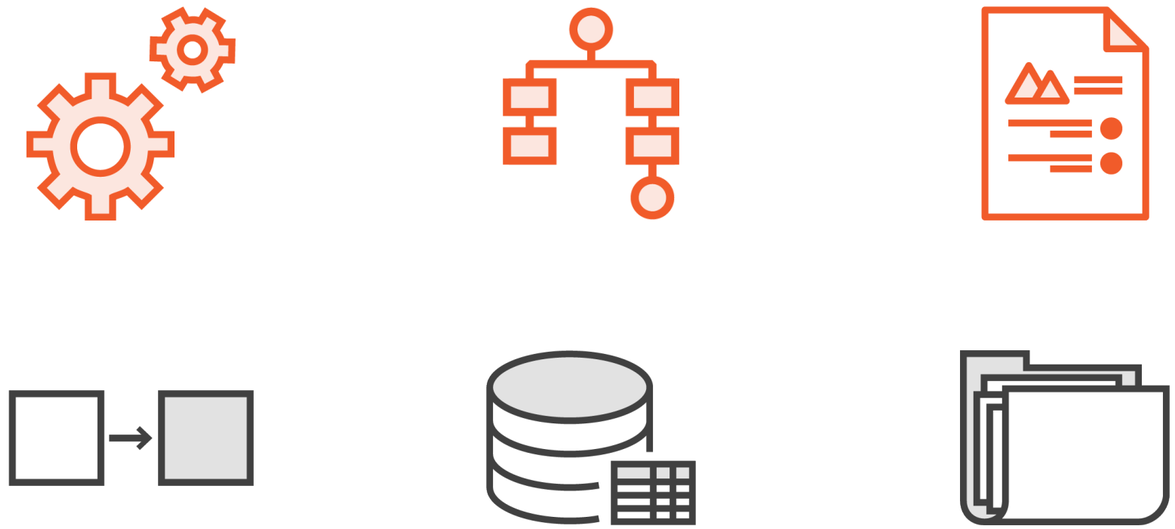


Data Storage Solutions

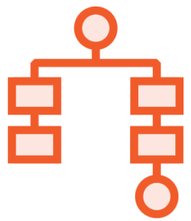


...depends on the *purpose* for which you're persisting data...

Data Storage Solutions



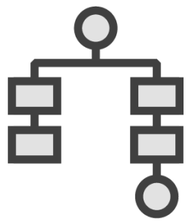
Scenarios for Persisting Data



Scenarios for Persisting Data

Settings and Configuration

Objects and Object Graphs



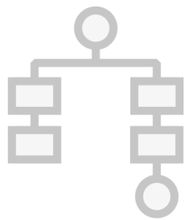
Documents and Files

Scenarios for Persisting Data

Settings and Configuration

Objects and Object Graphs

Documents and Files



App Settings and Configuration

App Settings and Configuration

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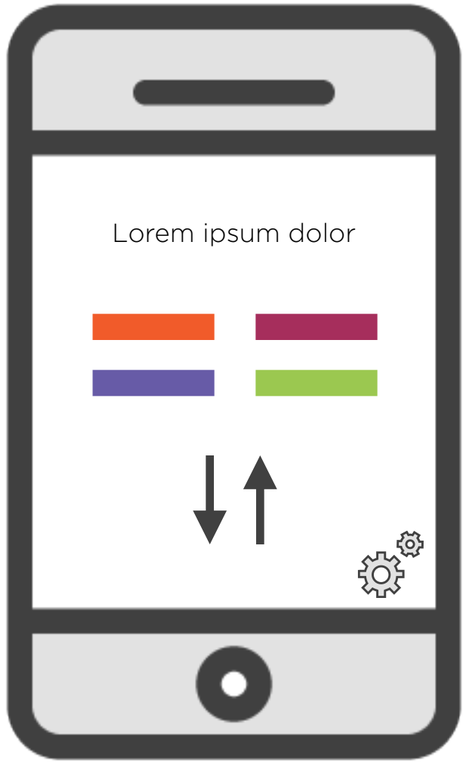


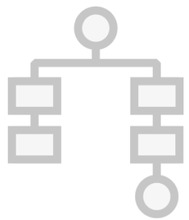
Preference-type data

Scenarios for Persisting Data

Settings and Configuration

Objects and Object Graphs

Documents and Files



Scenarios for Persisting Data

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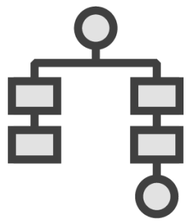
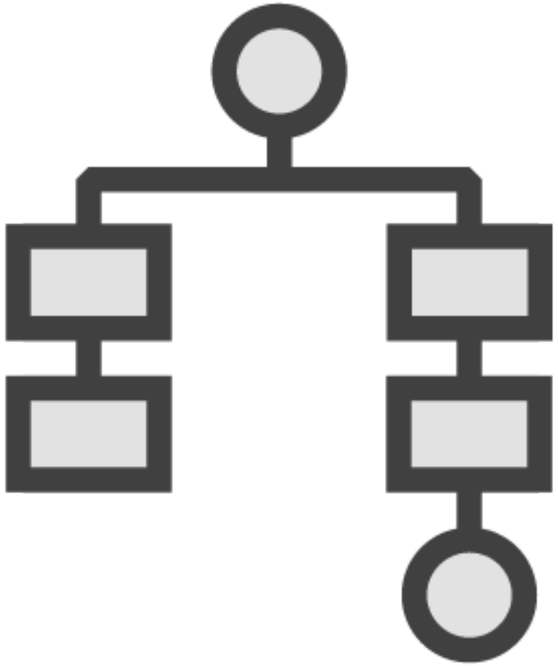
Objects and Object Graphs

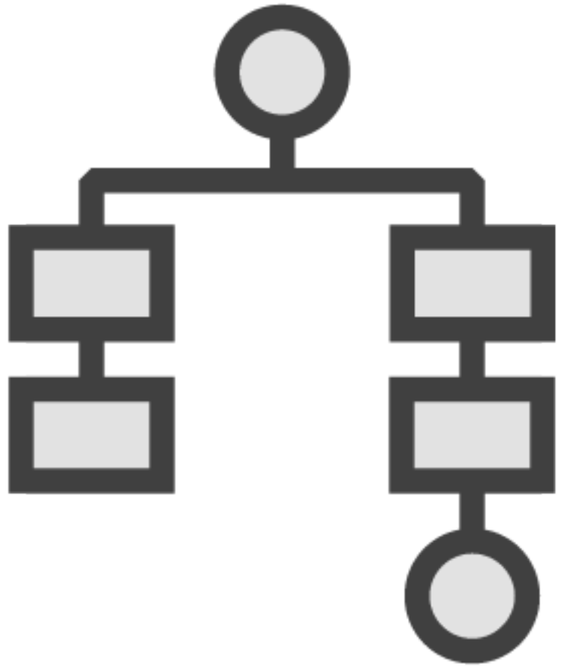


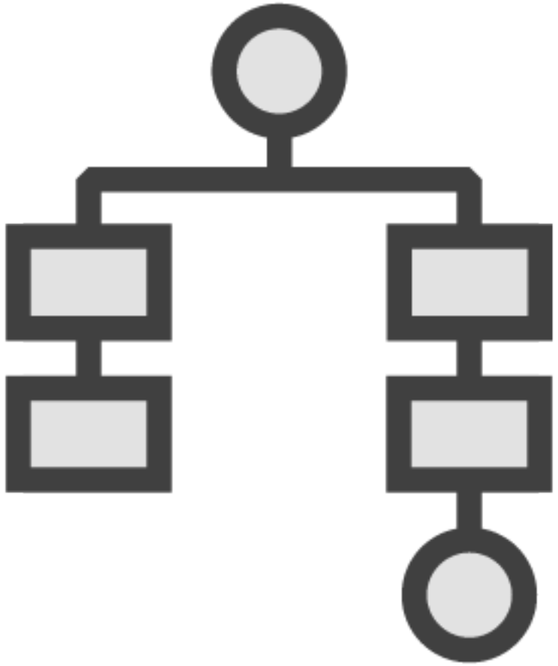
Documents and Files

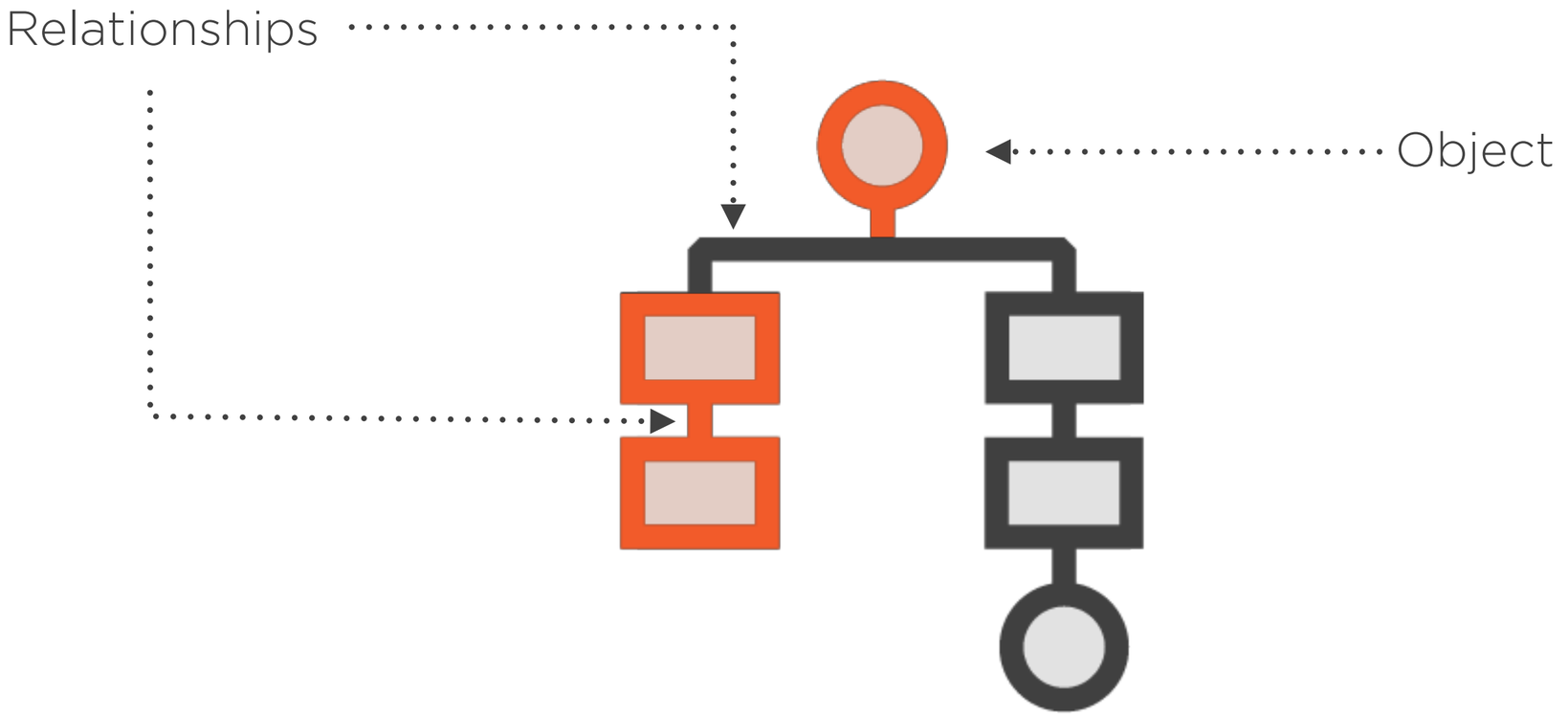


```
class InnovationIdea {
      description: String
      submittedBy: String
}
```

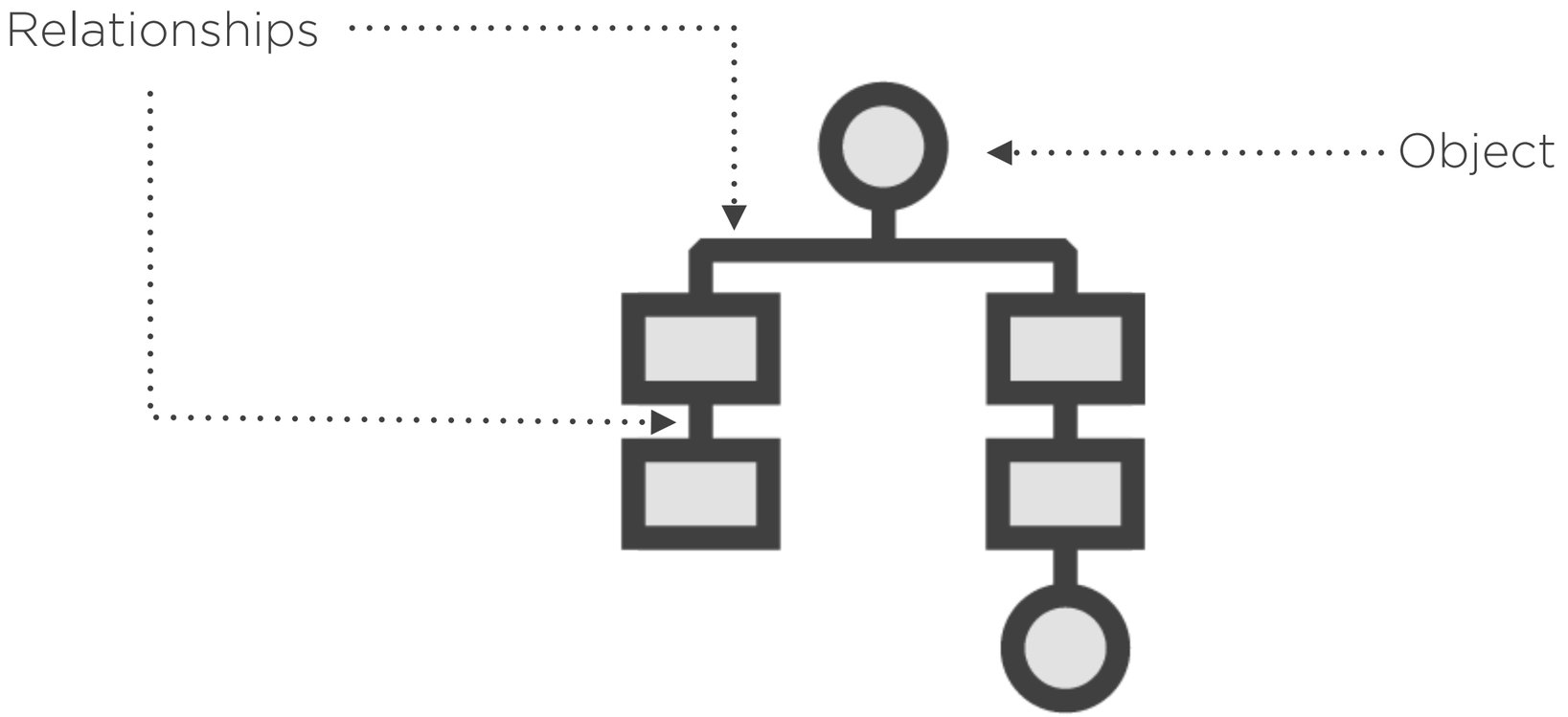
```
struct InnovationIdea {
      description: String
      submittedBy: String
}
```



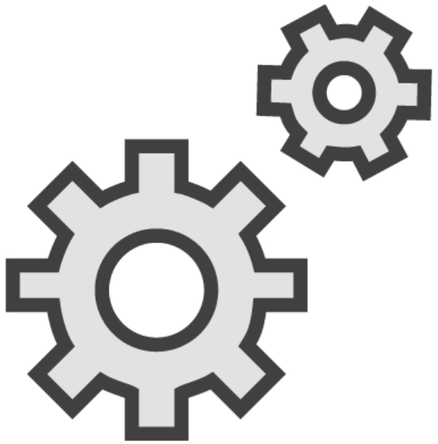




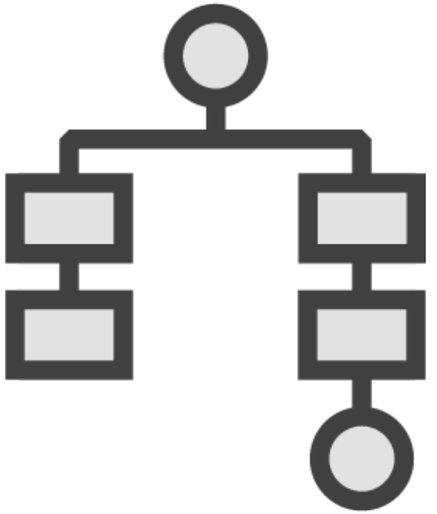
Together in a single data model



Together in a single data model

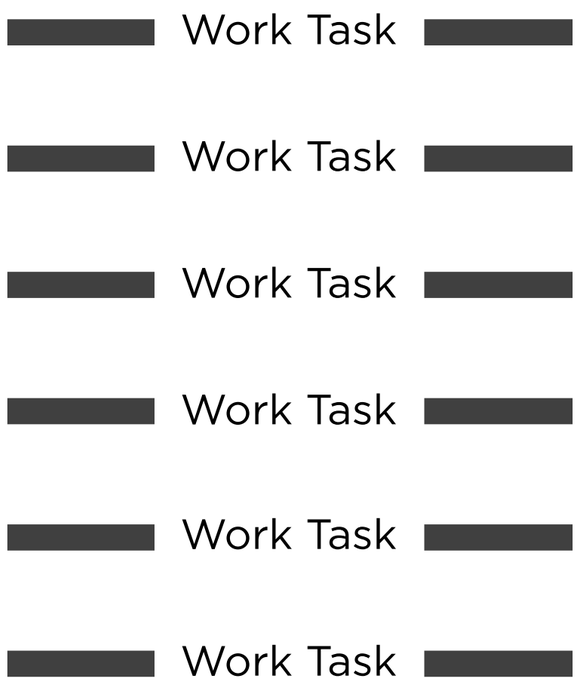


Toggles / Lookups



Growth

Objects and Object Graphs



Set of persisted objects will grow, without a known limit

Objects and Object Graphs

Set of persisted objects will grow, without a known limit

Objects and Object Graphs

- Innovation Idea
- Innovation Idea
- Innovation Idea
- Innovation Idea
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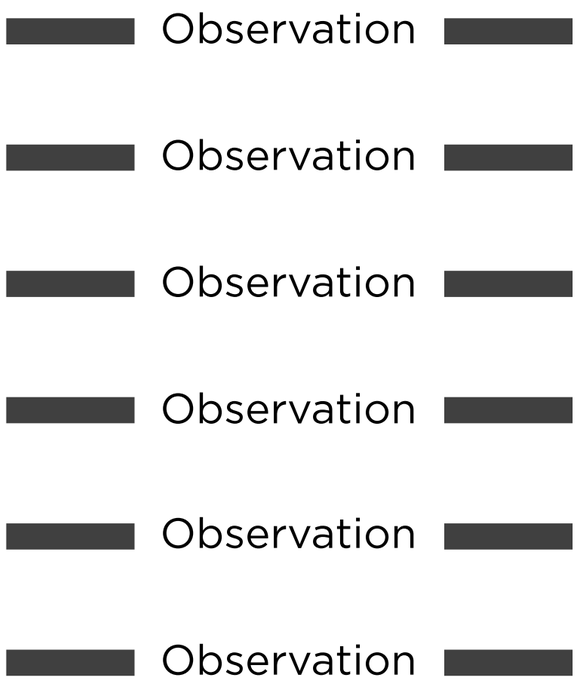
- Innovation Idea

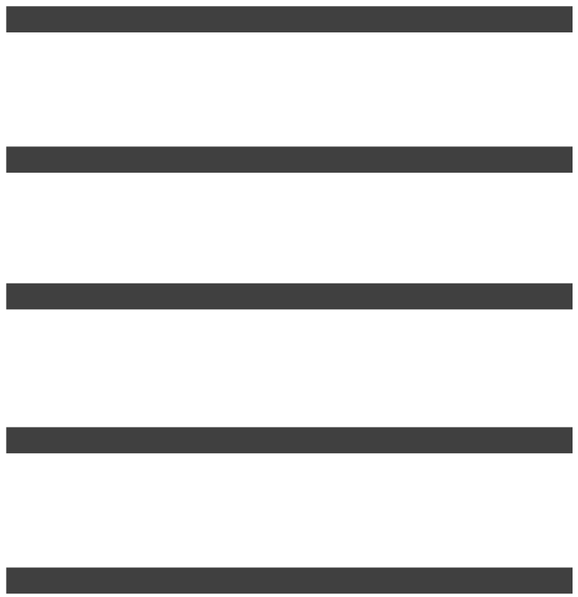
Set of persisted objects will grow, without a known limit

Objects and Object Graphs



Set of persisted objects will grow, without a known limit

Objects and Object Graphs



Record

Aggregate

Analyze

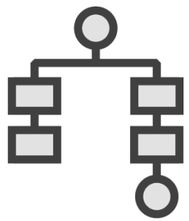
Settings and Configuration

- Not designed to handle data growth
- Not designed to model complex relationships

Scenarios for Persisting Data

Settings and Configuration

Objects and Object Graphs



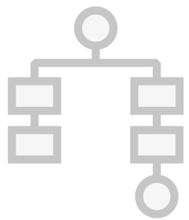
Documents and Files

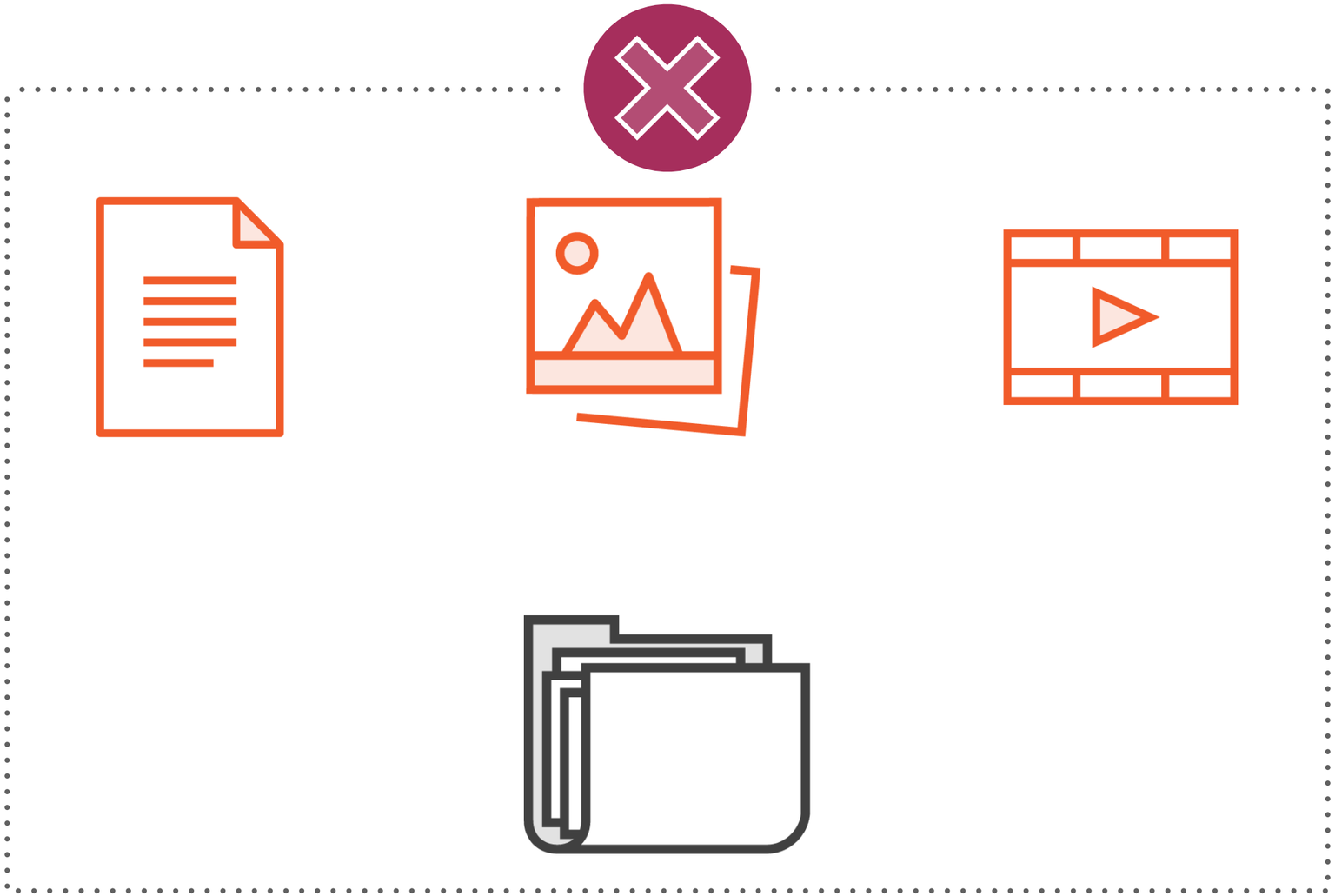
Scenarios for Persisting Data

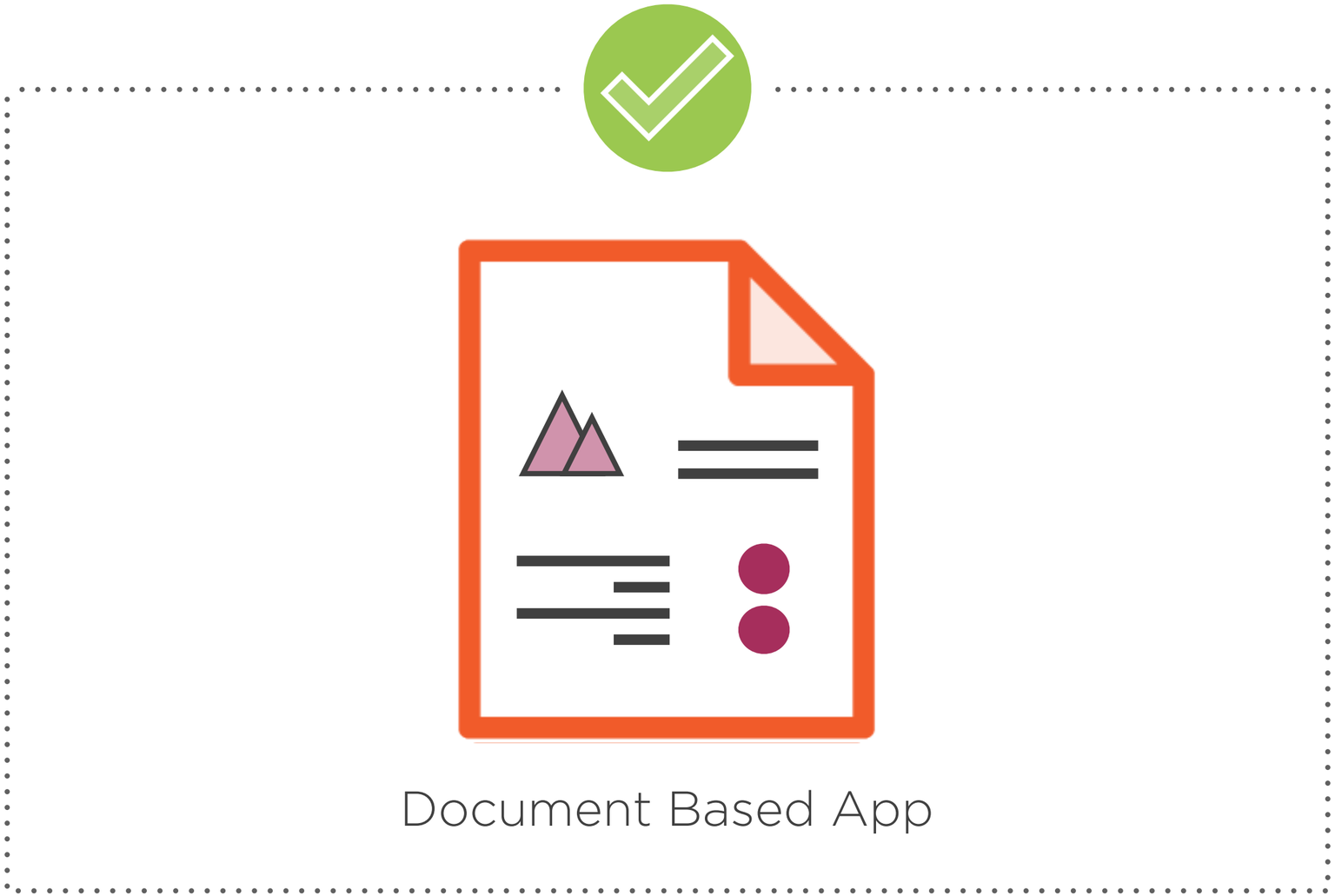
Settings and Configuration

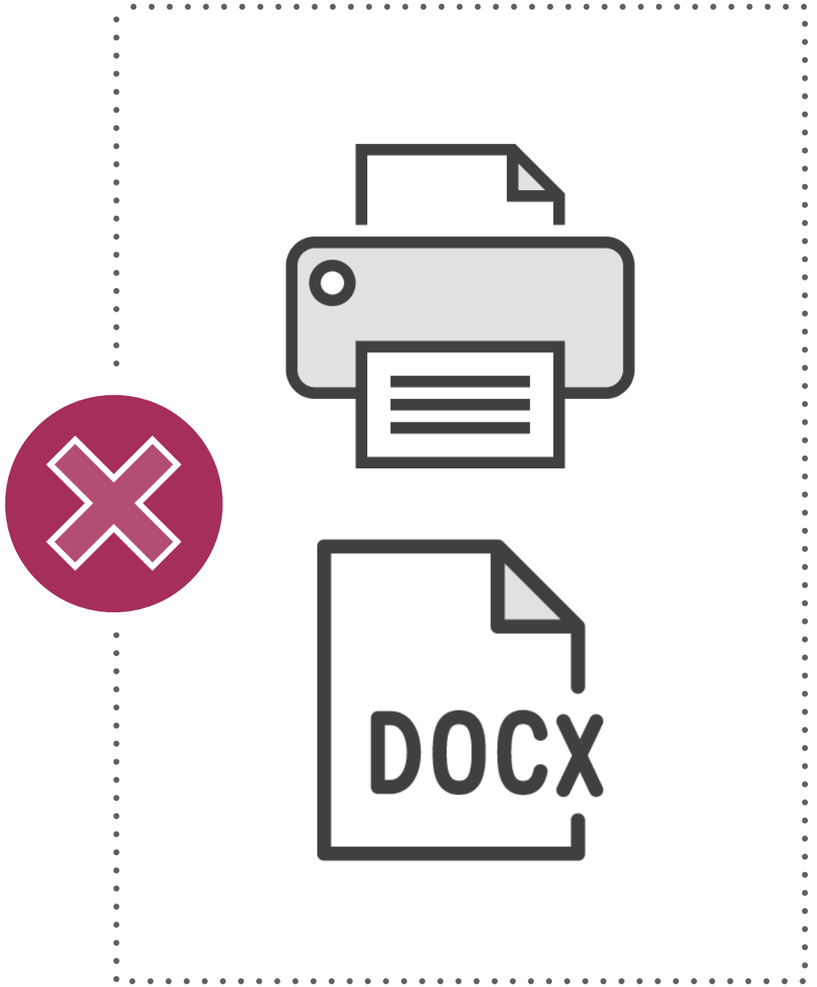
Objects and Object Graphs

Documents and Files






Document Based App

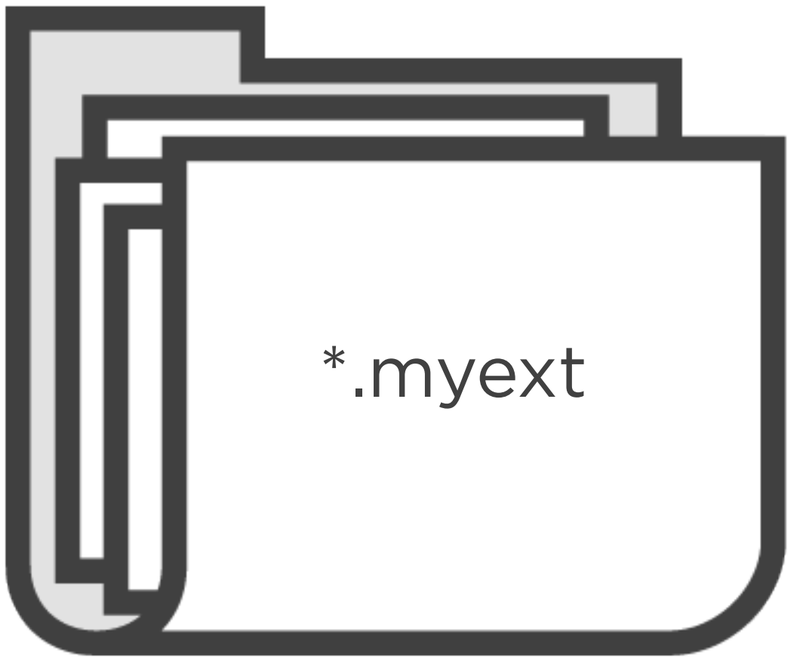

DOCX

Document

Single standalone entity

File

Holding container

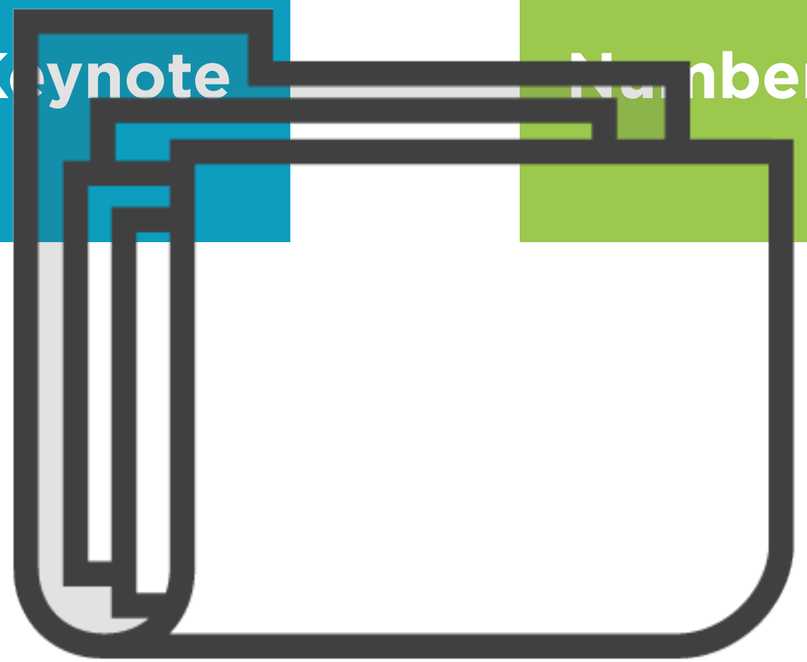

*.myext

Pages

Keynote

Numbers

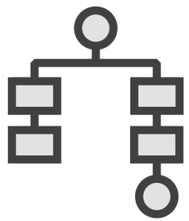
Garage Band



Scenarios for Persisting Data

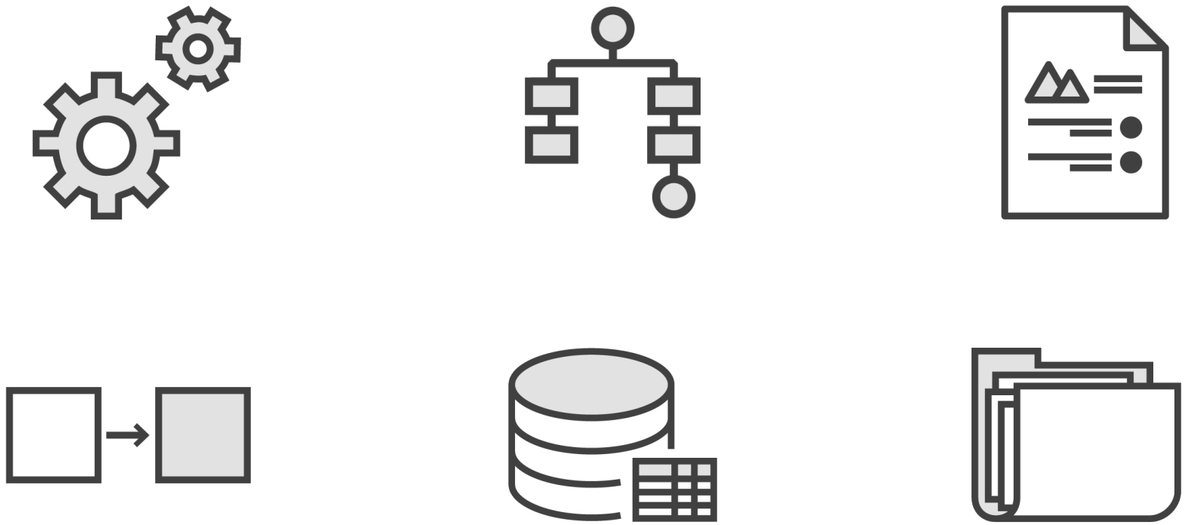
Settings and Configuration

Objects and Object Graphs



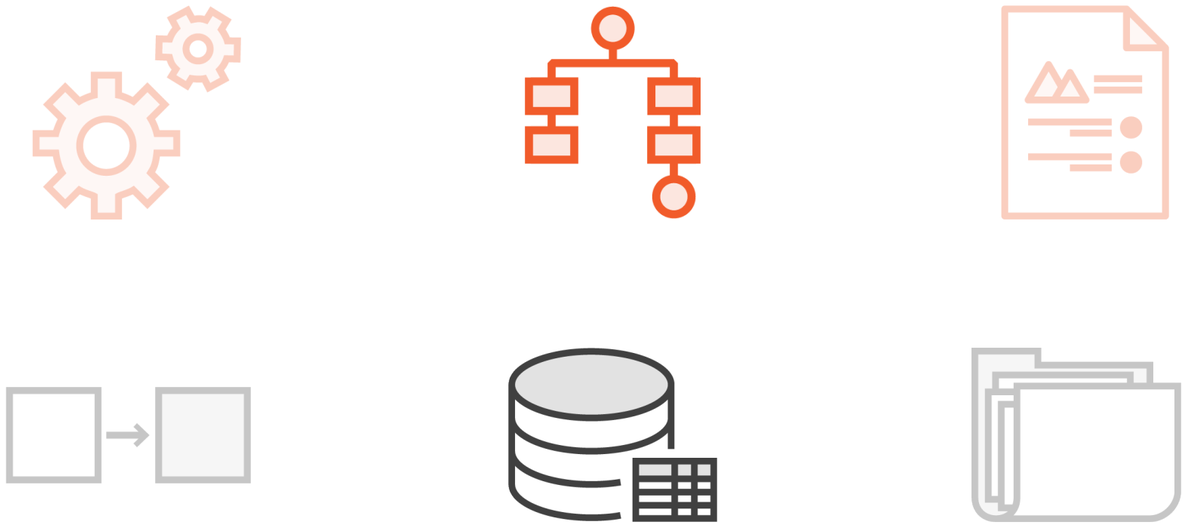
Documents and Files

Data Storage Solutions



Data Storage Solutions

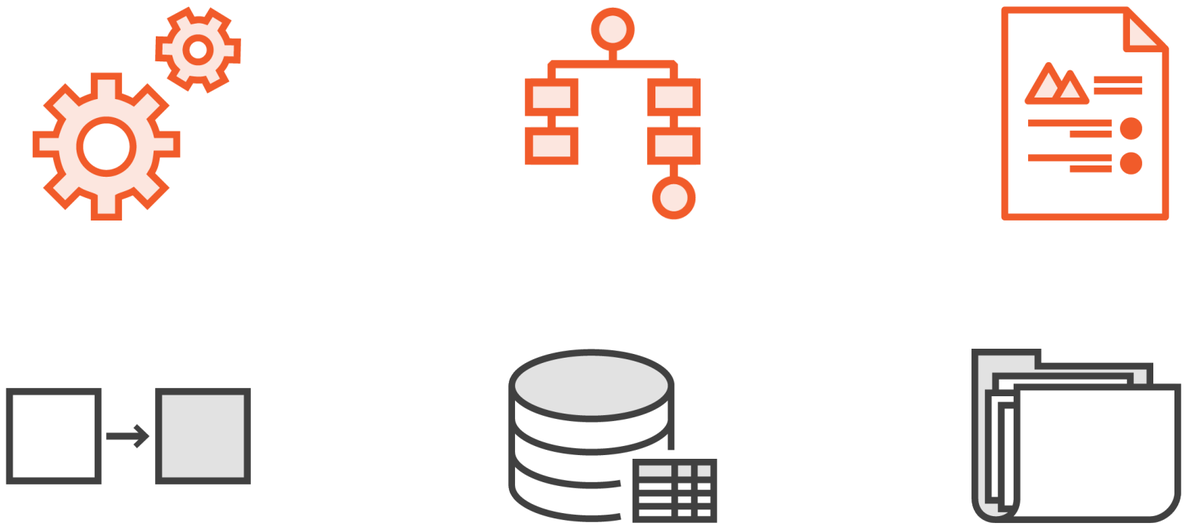
Data Storage Solutions



Data Storage Solutions

You *may* need to pick up more than one persistence solution in the same app.

Data Storage Solutions

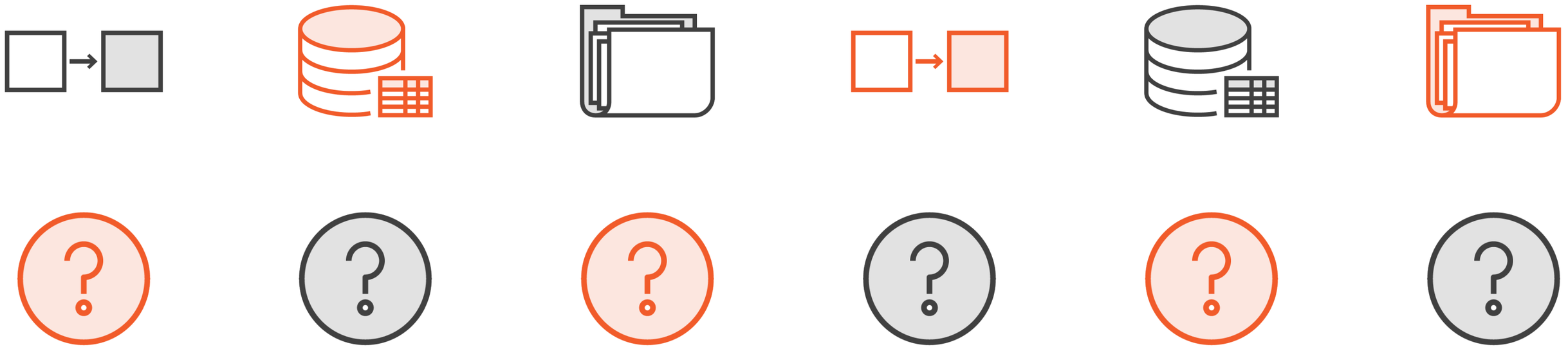


Your choice(s) depend on... the **purpose**.

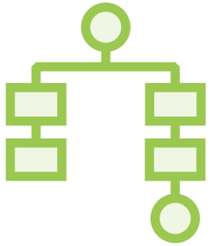
What are some of the possible platforms and frameworks for persisting data?

What are some of the angles to help analyze which might be a good fit?

Profiling the Players



Settings & Configuration



Objects & Object Graphs

Documents & Files

Settings & Configuration

User Defaults

iCloud Key-Value Store

Property List (plist)

Objects & Object Graphs

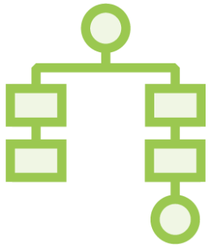
Documents & Files

Settings & Configuration

User Defaults

iCloud Key-Value Store

Property List (plist)



Objects & Object Graphs

SQLite

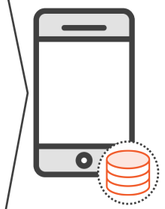
Core Data

Realm Database

CloudKit

Firebase

Realm Platform



Documents & Files

Settings & Configuration

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Documents & Files

UIDocument

iOS Files App

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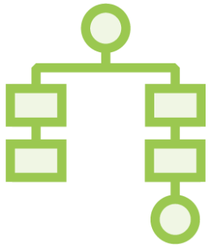

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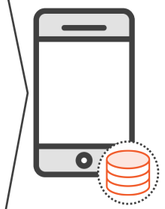

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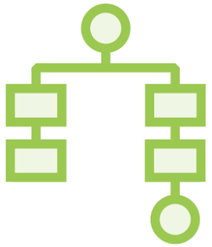

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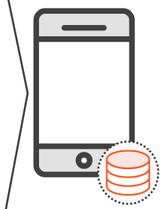

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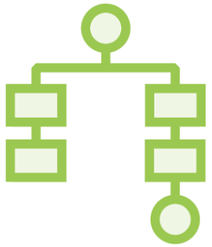

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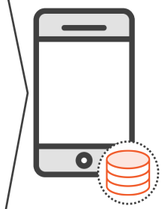

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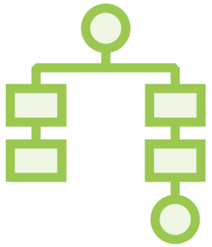

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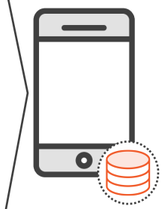

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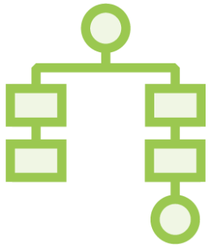

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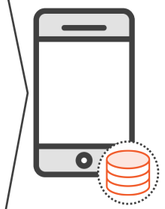

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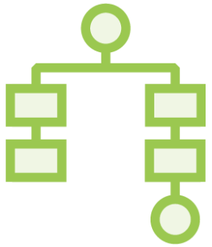

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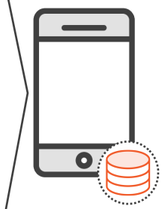

Documents & Files

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Angles for Analysis

Where data is saved

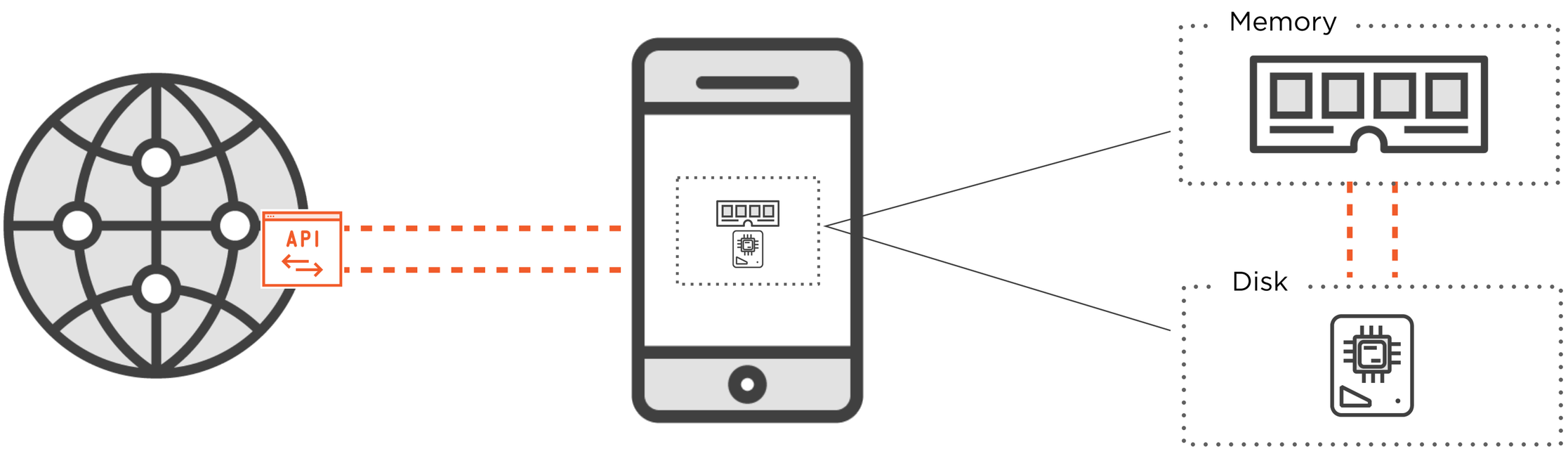
Who maintains the technology

Data model complexity

Data Size

Compatibility

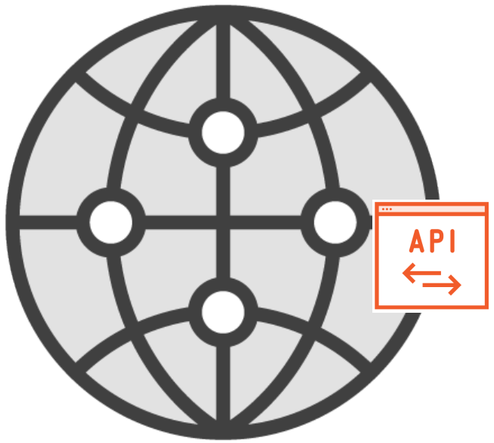
Price

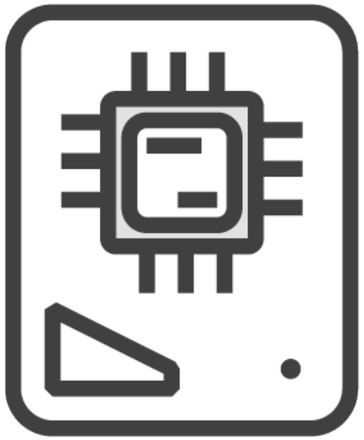

API
Memory
Disk

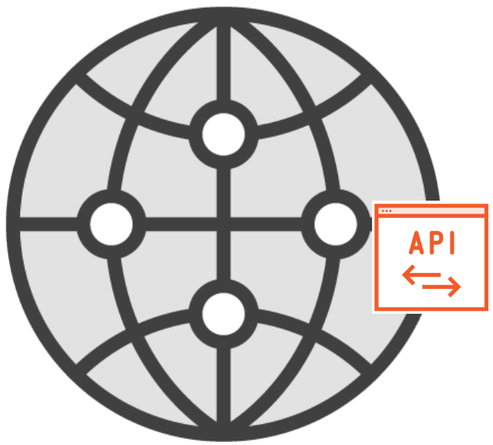
Understand protocols for encoding and decoding data

Why they matter to you

Encoding and Decoding Data


API





≠

Disk

<plist/>

≠

Memory

Swift

{JSON}

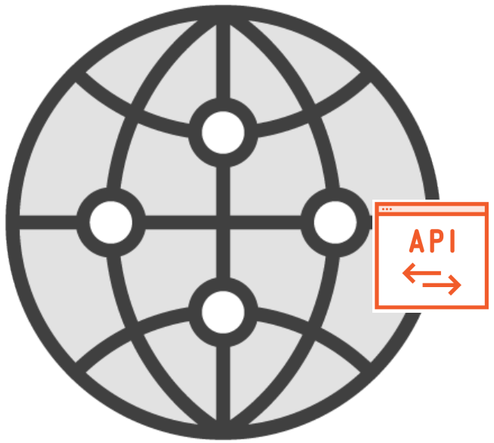
Swift {}

<plist/>

{JSON}

Swift {}

<plist/>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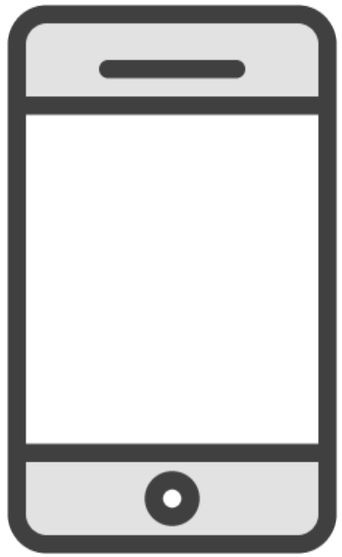


{JSON}

*En*coded

Swift {}

*De*coded

Different Property Names

{JSON}

```
{
    “title”: “...”,
    “is_draft”: “...”
}
```

Swift {}

```
{
    let title: String
    let isDraft: Bool
}
```

Dates

{JSON}

```
{
    “title”: “...”,
    “is_draft”: “...”,
    “submitted_date”: “2019-01-01”
}
```

Swift {}

```
{
    let title: String
    let isDraft: Bool
    let submittedDate: Date
}
```

Nested Data Structures

{JSON}

```
{
    “title”: “...”,
    “is_draft”: “...”,
    “submitted_date”: “2019-01-01”,
    “nest”: {...}
}
```

Other Data Formats

{JSON}

{JSON}

Swift {}

{JSON}

Swift {}

{JSON}

Swift {}

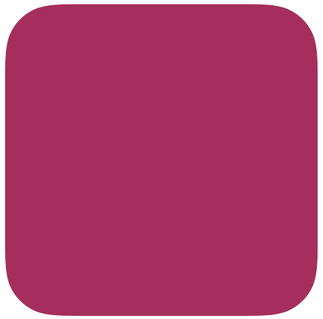
```
struct InnovationIdea: Codable {

      . . .

}
```

Codable = Decodable + Encodable

{JSON}



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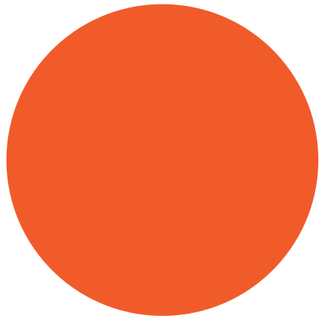

Swift{}

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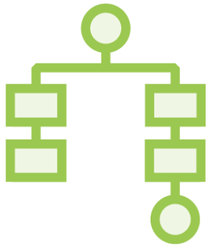

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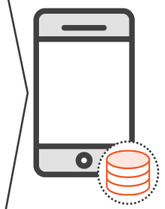

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