API Collection

Queries

Query health and fitness data.

Overview

Use queries to read sample data from the HealthKit store. You can also use queries to list all the sources for a particular data type, or to perform statistical calculations for a data type. For example, statistical queries can calculate the minimum and maximum heart rate for a given week, or the total step count for a given day.

You run a query by calling the HealthKit store's `execute(_:)` method. HealthKit returns a snapshot of the current results to the query's results handler. Long-running queries continue to monitor the HealthKit store, and return any relevant changes to the query's update handler. To return sorted or filtered results, give the query a sort descriptor or predicate.

Topics

Essentials

📄 Reading data from HealthKit

Use queries to request sample data from HealthKit.

Swift concurrency support

📄 Running Queries with Swift Concurrency

Use Swift concurrency to manage one-shot and long-running queries.

protocol `HKAsyncQuery`

A protocol that defines an asynchronous method for running queries.

protocol `HKAsyncSequenceQuery`

A protocol that defines a method for running queries that returns results using an asynchronous sequence.

struct `HKSamplePredicate`

A predicate for queries that return a collection of matching sample objects.

Basic queries

struct `HKSampleQueryDescriptor`

A query interface that reads samples using Swift concurrency.

class `HKSampleQuery`

A general query that returns a snapshot of all the matching samples currently saved in the HealthKit store.

class `HKCorrelationQuery`

A query that performs complex searches based on the correlation's contents, and returns a snapshot of all matching samples.

class `HKQueryDescriptor`

A descriptor that specifies a set of samples based on the data type and a predicate.

class `HKQuery`

An abstract class for all the query classes in HealthKit.

Series queries

struct `HKQuantitySeriesSampleQueryDescriptor`

A query interface that reads the series data associated with quantity samples using Swift concurrency.

class `HKQuantitySeriesSampleQuery`

A query that accesses the series data associated with a quantity sample.

struct `HKWorkoutRouteQueryDescriptor`

A query interface that reads the location data stored in a workout route using Swift concurrency.

class HKWorkoutRouteQuery

A query to access the location data stored in a workout route.

struct HKHeartbeatSeriesQueryDescriptor

A query interface that reads the heartbeat series data stored in a heartbeat sample using Swift concurrency.

class HKHeartbeatSeriesQuery

A query that returns the heartbeat data contained in a heartbeat series sample.

struct HKElectrocardiogramQueryDescriptor

A query interface that reads the underlying voltage measurements for an electrocardiogram sample using Swift concurrency.

class HKElectrocardiogramQuery

A query that returns the underlying voltage measurements for an electrocardiogram sample.

class HKWorkoutEffortRelationship

class HKWorkoutEffortRelationshipQuery

Long-running queries

struct HKActivitySummaryQueryDescriptor

A query interface that reads activity summaries using Swift concurrency.

class HKActivitySummaryQuery

A query for reading activity summary objects from the HealthKit store.

struct HKAnchoredObjectQueryDescriptor

A query interface that runs anchored object queries using Swift concurrency.

class HKAnchoredObjectQuery

A query that returns changes to the HealthKit store, including a snapshot of new changes and continuous monitoring as a long-running query.

class HKObserverQuery

A long-running query that monitors the HealthKit store and updates your app when the HealthKit store saves or deletes a matching sample.

Sources and devices

struct HKSourceQueryDescriptor

A query interface that uses Swift concurrency to read the apps and devices that produced the matching samples.

class HKSourceRevision

An object indicating the source of a HealthKit sample.

class HKSource

An object indicating the app or device that created a HealthKit sample

class HKDevice

A device that generates data for HealthKit.

class HKSourceQuery

A query that returns a list of sources, such as apps and devices, that have saved matching queries to the HealthKit store.

Statistics

📄 Executing Statistical Queries

Create and run statistical queries.

📄 Executing Statistics Collection Queries

Calculate statistical data for graphs and charts.

struct HKStatisticsQueryDescriptor

A query descriptor that calculates the minimum, maximum, average, or sum over a set of samples from the HealthKit store.

class HKStatisticsQuery

A query that performs statistical calculations over a set of matching quantity samples, and returns the results.

struct HKStatisticsCollectionQueryDescriptor

A query descriptor that gathers a collection of statistics calculated over a series of fixed-length time intervals.

class HKStatisticsCollectionQuery

A query that performs multiple statistics queries over a series of fixed-length time intervals.

class HKStatistics

An object that represents the result of calculating the minimum, maximum, average, or sum over a set of samples from the HealthKit store.

`class HKStatisticsCollection`

An object that manages a collection of statistics, representing the results calculated over separate time intervals.

`struct HKStatisticsOptions`

Options for specifying the statistic to calculate.

Clinical record queries

`struct HKVerifiableClinicalRecordQueryDescriptor`

A query interface that provides one-time access to a SMART Health Card or EU Digital COVID Certificate using Swift concurrency.

`class HKVerifiableClinicalRecordQuery`

A query for one-time access to a SMART Health Card or EU Digital COVID Certificate.

`struct HKVerifiableClinicalRecordSourceType`

The source type for the verifiable clinical record.

`struct HKVerifiableClinicalRecordCredentialType`

The type of record returned by a verifiable clinical record query.

`class HKDocumentQuery`

A query that returns a snapshot of all matching documents currently saved in the HealthKit store.

Medication queries

`class HKClinicalCoding`

A clinical coding that represents a medical concept using a standardized coding system.

`class HKHealthConceptIdentifier`

A unique identifier for a specific health concept within a domain.

`class HKMedicationConcept`

An object that describes a specific medication concept.

`class HKMedicationDoseEvent`

```
class HKMedicationDoseEventType
```

```
class HKUserAnnotatedMedication
```
A reference to the tracked medication and the details a person can customize.

```
class HKUserAnnotatedMedicationQuery
```

```
class HKUserAnnotatedMedicationType
```

```
struct HKHealthConceptDomain
```
A domain that represents a health concept.

```
struct HKMedicationGeneralForm
```
The manufactured form of a medication.

```
struct HKUserAnnotatedMedicationQueryDescriptor
```

See Also

Health data

📄 Saving data to HealthKit

Create and share HealthKit samples.

📄 Reading data from HealthKit

Use queries to request sample data from HealthKit.

```
class HKHealthStore
```
The access point for all data managed by HealthKit.

{} Creating a Mobility Health App

Create a health app that allows a clinical care team to send and receive mobility data.

☰ Data types

Specify the kind of data used in HealthKit.

☰ Samples

Create and save health and fitness samples.

{} Visualizing HealthKit State of Mind in visionOS

Incorporate HealthKit State of Mind into your app and visualize the data in visionOS.

{} Logging symptoms associated with a medication

Fetch medications and dose events from the HealthKit store, and create symptom samples to associate with them.