

Updated 10/31/2023

Sign up

SwiftData training: iOS application data manager

3 days (21 hours)

Presentation

Our SwiftData training course will introduce you to the world of data management using the Swift programming language. You'll be able to query and filter data using standard Swift code.

During our course, you'll explore the basics and advanced features of SwiftData, enabling you to manage data in a Swift environment. You'll discover how to use powerful data structures to store and manage information, as well as advanced data manipulation techniques.

One of SwiftData's greatest assets is its ability to store data using [declarative code](#). With this training course, you'll be able to take full advantage of these benefits to achieve exceptional programmability.

You'll explore the fundamental features of SwiftData. You'll learn how to secure and protect your information, while mastering the procedures for installing and configuring this technology.

As with all our previous training courses, this one will be presented with the latest versions of SwiftData, [version 5.9](#) released in September 2023.

Objectives

- Acquire advanced data management skills
- Define data relationships and manage persistent data with SwiftData
- Understand the fundamentals of object-oriented programming and basic Swift concepts
- Master the installation, configuration and preservation of model data in SwiftData

Target audience

- Developers
- Engineers

Prerequisites

- Basic knowledge of Swift
- Basic programming skills

SwiftData training program

Introduction

- What is SwiftData?
- Installation and configuration
- Preserve your application's model data
- Create a document-based application using SwiftData
- Adopting SwiftData for Core Data applications

Fundamentals and Object-Oriented Programming

- Understanding basic concepts
- Introduction to Object-Oriented Programming
- Variables, constants and data types in Swift
- Error handling and exception handling
- Functions and methods
- Control structures: loops and conditions

Model definition

- Define data relationships with enumerations and model classes
- Add and modify persistent data in your application
- Keep a local copy of server data
- macro Model
- macro Transint
- protocol PersistentModel
- protocol RelationshipCollection

SwiftData and real-life applications

- Creation of data models and data access layers
- SwiftData testing and debugging
- Optimizing data management performance
- Integrating SwiftData into real-world application projects

- Development of a demo application
- User experience: presenting data to users

Model storage

- ModelDocument
- ModelContainer
- ModelContext
- Undoing data changes using the Undo Manager
 - Enable cancellation in SwiftData

Data security

- Security of data read/write operations
- Protecting sensitive data
- Password and identity management
- Authentication and authorization
- Compliance with data protection regulations
- Good data security practices

Functional programming

- Filtering, mapping and reduction functions
- From functional programming to data management
- Data manipulation with functional operators
- Using high-level functions
- Understanding functional programming concepts

Advanced data management

- Handling JSON data
- Loading and saving data from files
- Managing competition in data operations
- Interaction with databases: SQLite and CoreData
- Using Codable for data serialization and deserialization
- Advanced use cases

Companies concerned

This training course is aimed at both individuals and companies, large or small, wishing to train their teams in a new advanced computer technology, or to acquire specific business knowledge or modern methods.

Teaching methods

Practical training: 60% Practical, 40% Theory. Training material distributed in

to all participants.

Organization

The course alternates theoretical input from the trainer, supported by examples, with brainstorming sessions and group work.

Validation

At the end of the session, a multiple-choice questionnaire verifies the correct acquisition of skills.

Sanction

A certificate will be issued to each trainee who completes the course.