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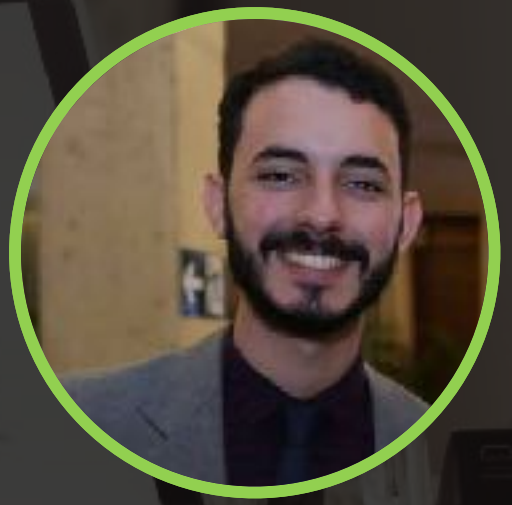
Desenvolvedor (iOS/tvOS/watchOS)



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// Aula 08

/*
Como fazer unwind pelo código?
*/

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// algoritmo

1. Criar action no **VC de destino**
    1. @IBAction func unwindToX(segue:)
2. Criar segue do VC de **origem** para o **Exit**
    2.1. dar um **identificador** para a segue
3. **Chamar** a segue
    1. performSegue(withIdentifier: sender:)

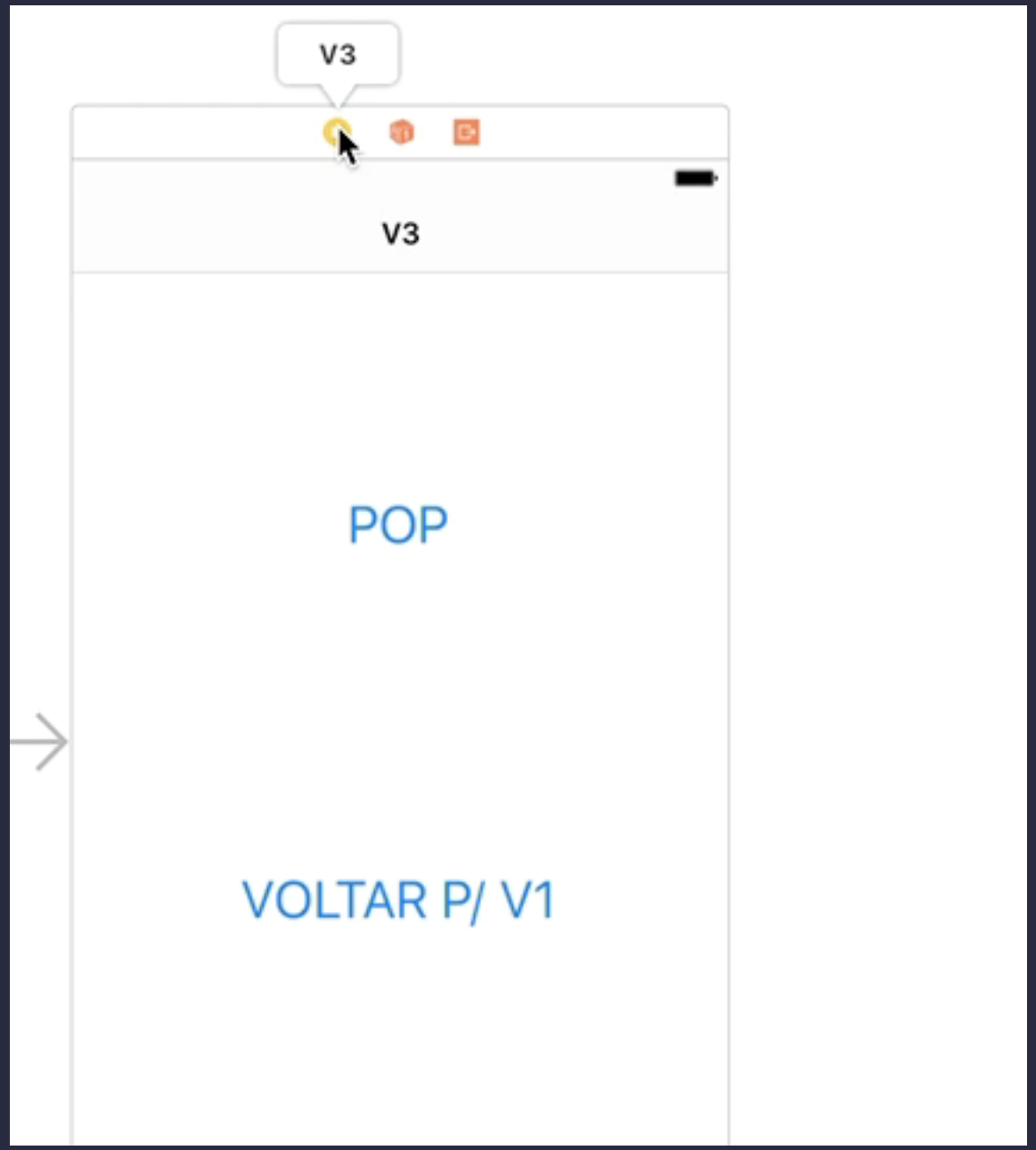
// algoritmo


Navigation Controller
Navigation Controller
V1
V1
IR PARA V2
V2
V2
IR PARA V3
V3
V3
POP
VOLTAR P/ V1

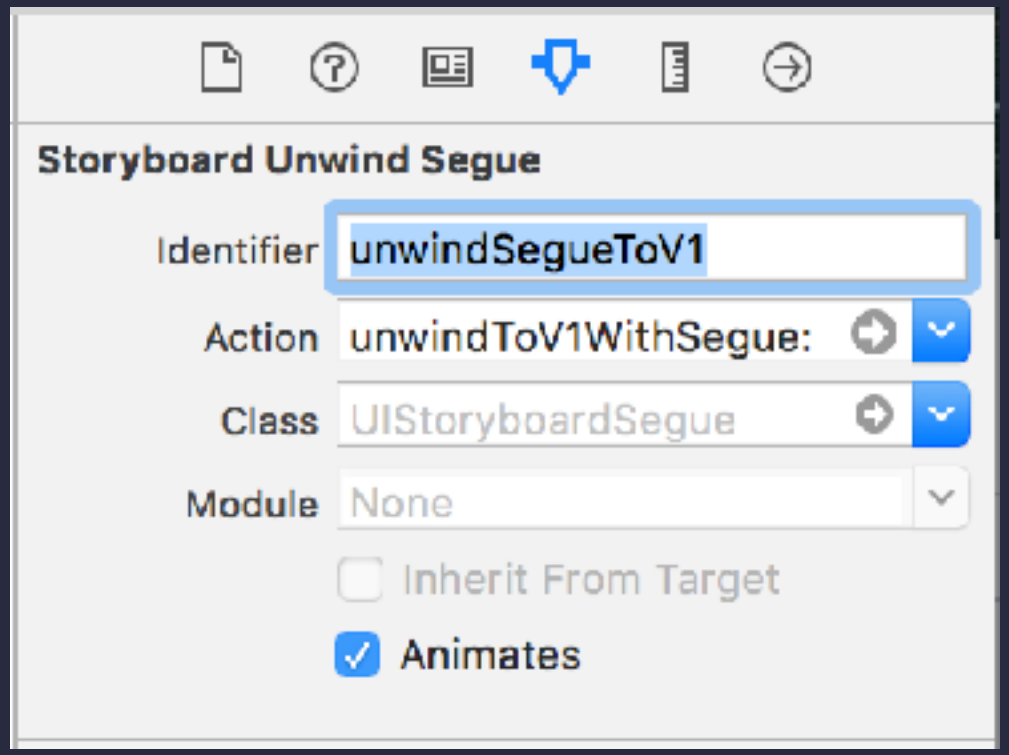
```
// 1. no VC1

@IBAction func unwindToVC1(sender: UIStoryboardSegue)
{ ... }
```

// 2. criando segue



// 2. nomeando segue



// 3. chamar segue

```
@IBAction func voltarV1(_ sender: Any) {
    self.performSegue(withIdentifier: "unwindSegueToV1", sender: self)
}
```

// 3. chamar segue

// extra. pop

```
@IBAction func popBtn(_ sender: Any) {
    /* se fosse modal:
    dismiss(animated: true, completion: nil)*/
    self.navigationController?.popViewController(animated: true)
}
```

// extra. pop

// Persistência

// Core Data

1. Framework de Persistência local
2. Usa a memória do iPhone
3. Usa SQLite
4. Modelar os dados

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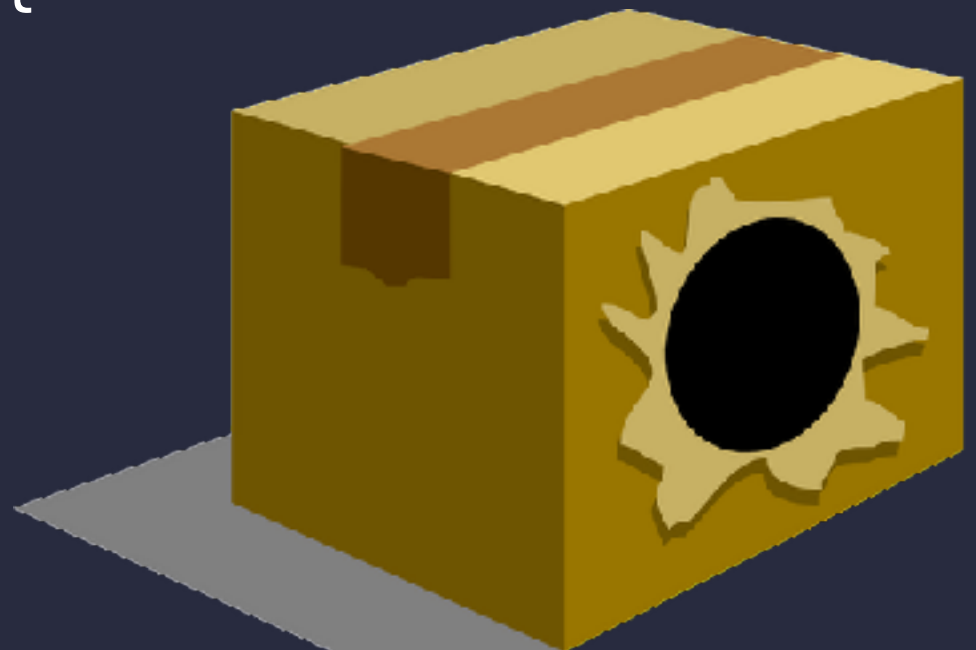
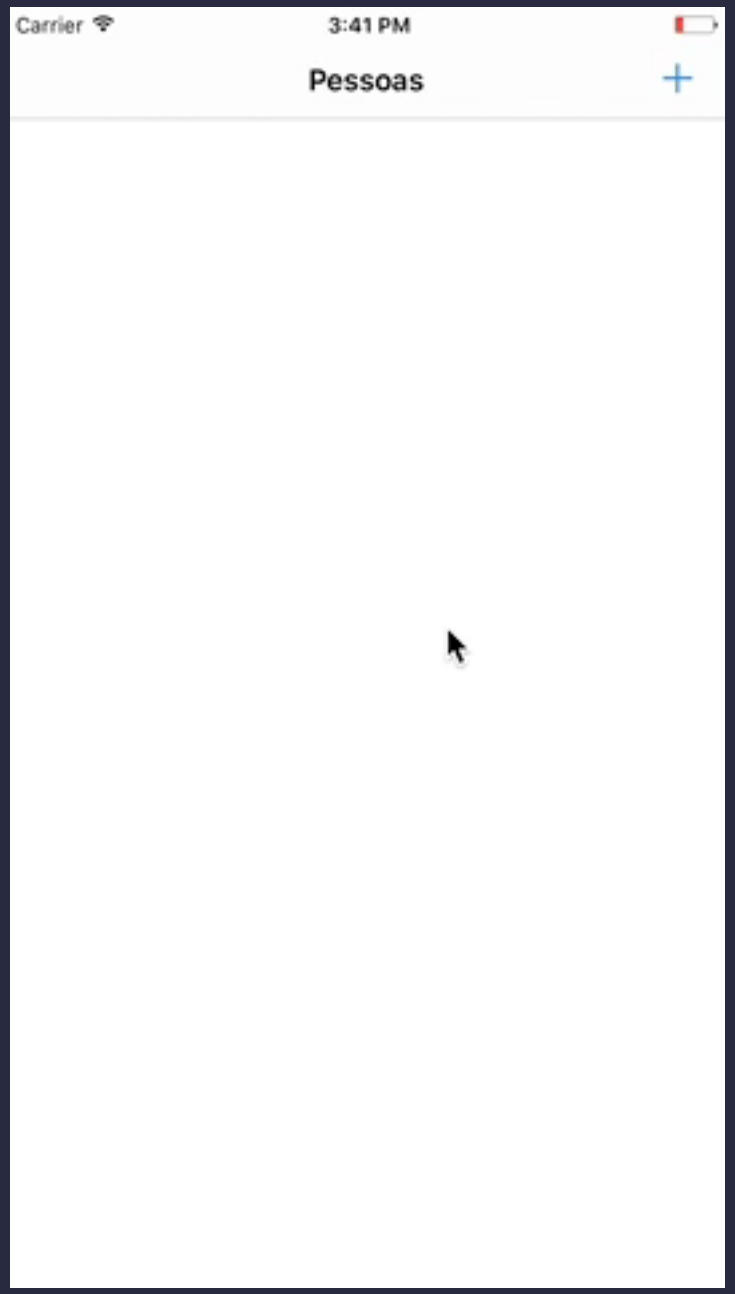
// Core Data

1. NSPersistentContainer
2. NSManagedObjectContext
3. NSManagedObject



// Core Data



// algoritmo geral

1. Criar projeto com **Core Data**
2. Criar **Entity** e dar **Attributes**
3. Acessar **App Delegate** para pegar o NSManagedContext
4. Realizar **fetch** dos dados salvos
5. Quando adicionar novos dados, **save**
6. Quando remover dados, **delete**

/*

1. Criar projeto com **Core Data**

*/

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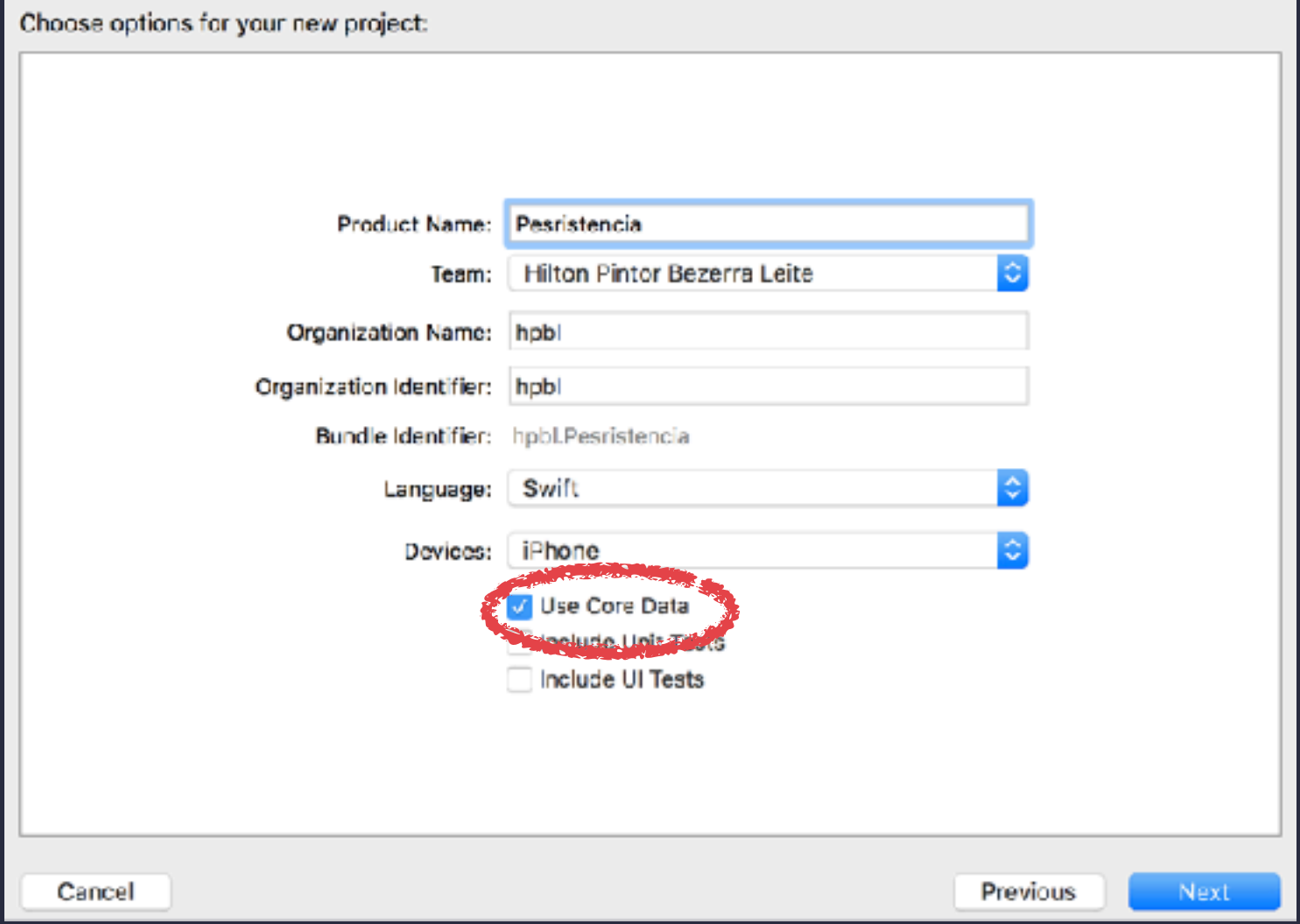
// 1. Criar Projeto



// 1.

testePersist
testePersist
AppDelegate.swift
ViewController.swift
Main.storyboard
Assets.xcassets
LaunchScreen.storyboard
Info.plist
testePersist.xcdatamodeld
Products

testePersist 〉 testePersist 〉 testePersist.xcdatamodeld 〉 testePersist.xcdatamodel 〉 Default

ENTITIES
FETCH REQUESTS
CONFIGURATIONS
Default

Entities

Entity	Abstract	Class

Outline Style
Add Entity
Add Attribute
Editor Style

//

- testePersist
  - testePersist
    - AppDelegate.swift
    - ViewController.swift
    - Main.storyboard
    - Assets.xcassets
    - LaunchScreen.storyboard
    - Info.plist
    - testePersist.xcdatamodeld
  - Products

```swift
// MARK: - Core Data stack

lazy var persistentContainer: NSPersistentContainer = {
    /*
     The persistent container for the application. This implementation
     creates and returns a container, having loaded the store for the
     application to it. This property is optional since there are legitimate
     error conditions that could cause the creation of the store to fail.
    */
    let container = NSPersistentContainer(name: "testePersist")
    container.loadPersistentStores(completionHandler: { (storeDescription,
        error) in
        if let error = error as NSError? {
            // Replace this implementation with code to handle the error
                appropriately.
            // fatalError() causes the application to generate a crash log
                and terminate. You should not use this function in a shipping
                application, although it may be useful during development.

            /*
             Typical reasons for an error here include:
             * The parent directory does not exist, cannot be created, or
                disallows writing.
             * The persistent store is not accessible, due to permissions or
                data protection when the device is locked.
             * The device is out of space.
             * The store could not be migrated to the current model version.
             Check the error message to determine what the actual problem
                was.
             */
            fatalError("Unresolved error \(error), \(error.userInfo)")
        }
    })
    return container
}()

// MARK: - Core Data Saving support

func saveContext () {
    let context = persistentContainer.viewContext
    if context.hasChanges {
        do {
            try context.save()
```

/*

2. Criar **Entity** e dar **Attributes**

*/

// 2. criar

ENTITIES

Pessoa

FETCH REQUESTS

CONFIGURATIONS

Default

Attributes

Attribute	Type

Relationships

Relationship	Destination	Inverse

Fetched Properties

Fetched Property	Predicate

Outline Style | Add Entity | Add Attribute | Editor Style

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// 2. dar a

ENTITIES
Passoa
FETCH REQUESTS
CONFIGURATIONS
Default

Attributes

Attribute | Type
nome | Undefined
Integer 16
Integer 32
Integer 64
Decimal
Double
Float
String
Boolean
Date
Binary Data
Transformable

Relationships

Relationship | Inverse

Fetched Properties

Fetched Property | Predicate

Outline Style | Add Entity | Add Attribute | Editor Style

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/*

3. Acessar **App Delegate** para pegar o NSManagedContext

*/

// 3. Acessar app delegate e context

```
class ViewController: UIViewController {
    var appDelegate: AppDelegate?
    var managedContext: NSManagedObjectContext?
}
```

// 3. Acessar app delegate e context

```
class ViewController: UIViewController {
    var appDelegate: AppDelegate?
    var managedContext: NSManagedObjectContext?

    override func viewDidLoad() {
        super.viewDidLoad()
        // ...

        self.appDelegate = UIApplication.shared.delegate as? AppDelegate

        self.managedContext = self.appDelegate?.persistentContainer.viewContext
    }
}
```

/*

4. Realizar **fetch** dos dados salvos

*/

```
// 4. fetch

class ViewController: UIViewController {
    var appDelegate: AppDelegate?
    var managedContext: NSManagedObjectContext?
    var pessoas: [NSManagedObject] = []

    override func viewWillAppear(_ animated: Bool) {
        super.viewWillAppear(animated)

        let fetchRequest = NSFetchRequest<NSManagedObject>(entityName: "Pessoa")

        do {
            try self.pessoas = (self.managedContext?.fetch(fetchRequest))!
        } catch let error as NSError {
            print("erro na hora de pedir. \(error), \(error.userInfo)")
        }
    }
}
```

/*

5. Quando adicionar novos dados, **save**

*/

```
// 5. save
class ViewController: UIViewController {
    var appDelegate: AppDelegate?
    var managedContext: NSManagedObjectContext?
    var pessoas: [NSManagedObject] = []

    func save(novoNome: String) {
        let entity = NSEntityDescription.entity(forEntityName: "Pessoa", in: managedContext!)

        let pessoa = NSManagedObject(entity: entity!, insertInto: managedContext)

        pessoa.setValue(novoNome, forKey: "nome")

        do {
            try managedContext?.save()
            self.pessoas.append(pessoa)
        } catch let error as NSError {
            print("erro na hora de salvar. \(error), \(error.userInfo)")
        }
    }
}
```

/*

5. Quando remover dados, **delete**

*/

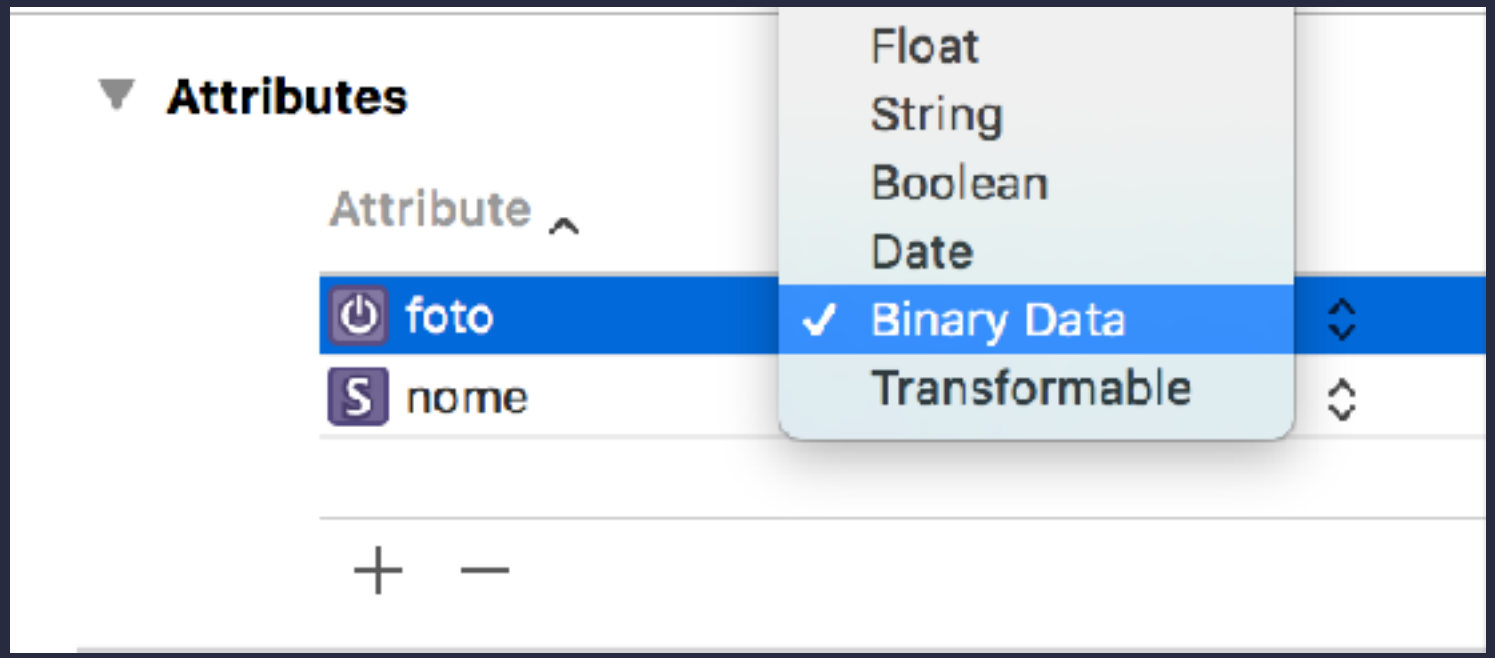
```
extension ViewController: UITableViewDataSource {
// 5. save
    func tableView(_ tableView: UITableView,
                   commit editingStyle: UITableViewCellEditingStyle,
                   forRowAt indexPath: IndexPath) {

        if editingStyle == .delete {
            let pessoa = self.pessoas[indexPath.row]
            self.managedContext?.delete(pessoa)
            self.appDelegate?.saveContext()

            let fetchRequest = NSFetchRequest<NSManagedObject>(entityName: "Pessoa")

            do {
                try self.pessoas = (self.managedContext?.fetch(fetchRequest))!
                tableView.reloadData()
            } catch {
                print("Fetching Failed")
        }
    }
  }
}
```

// persistindo Imagens



// save Imagens

```
func save(novoNome: String) {
    let entity = NSEntityDescription.entity(forEntityName: "Pessoa", in: managedContext!)

    let pessoa = NSManagedObject(entity: entity!, insertInto: managedContext)

    let img = UIImage(named: “diego")!
    let imgData = UIImageJPEGRepresentation(img, 1)

    pessoa.setValue(imgData, forKey: "foto")

    pessoa.setValue(novoNome, forKey: "nome")

    do {
        try managedContext?.save()
        self.pessoas.append(pessoa)
    } catch let error as NSError {
        print("erro na hora de salvar. \(error), \(error.userInfo)")
    }
}
```

// fetch Imagens

```
func tableView(_ tableView: UITableView,
                    cellForRowAt indexPath: IndexPath) -> UITableViewCell {

    let cell = tableView.dequeueReusableCell(withIdentifier: “Cell",
                                             for: indexPath)

    let pessoa = pessoas[indexPath.row]

    cell.textLabel?.text = pessoa.value(forKey: "nome") as? String

    guard let imgData = pessoa.value(forKey: "foto") as? Data,
          let image = UIImage(data: imgData) else {
        return cell
    }

    cell.imageView?.image = image

    return cell
}
```

/*
Como adicionar Core Data a um projeto existente?
*/

// algoritmo

1. Adicionar arquivo **Data Model** (.xcdatamodeld**)**
2. Adicionar código ao **App Delegate**
   2.1. Mudar `let container = NSPersistentContainer(name: “nomeDoArquivo”)`
3. Adaptar o código para usar Core Data

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// 1

Choose a template for your new file:

iOS watchOS tvOS macOS

Filter

Core Data

Data Model

Mapping Model

Apple Watch

Storyboard

WatchKit Settings Bundle

Notification Simulation File

Resource

APNS

GEOJSON

GPX

PLIST

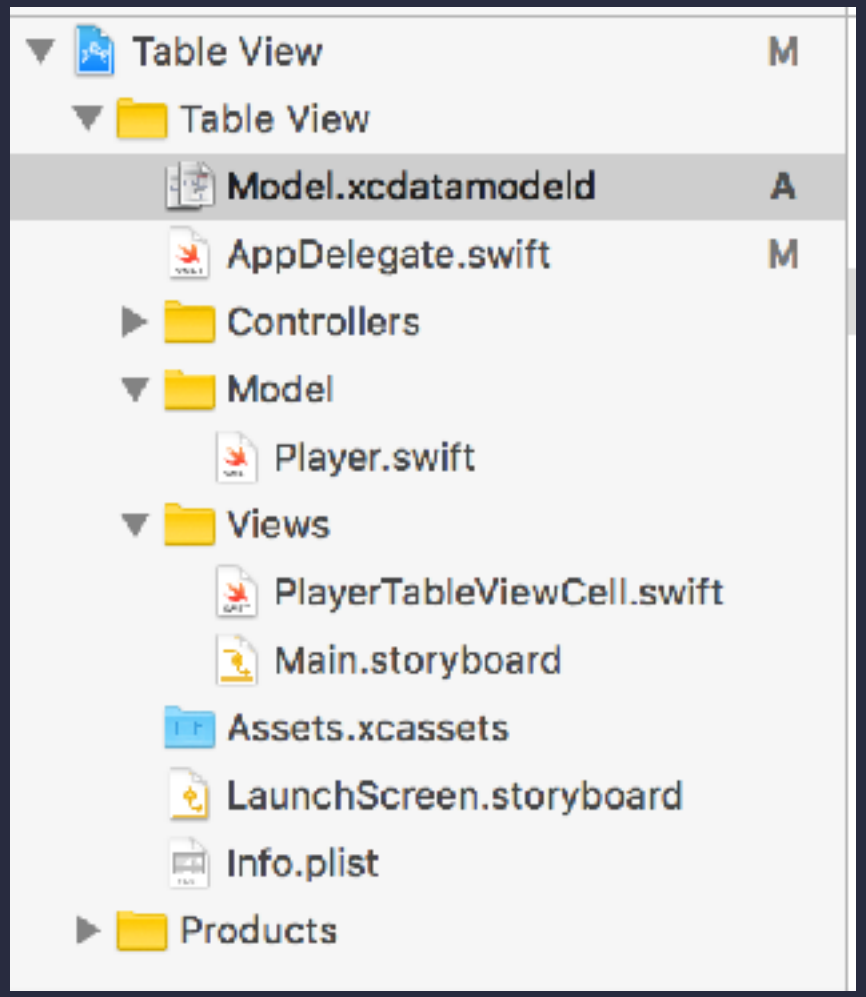
Cancel

Previous

Next

cit

// 1. Adicionar arquivo **.xcdatamodeld**



// 2. Adicionar código ao **App Delegate**

Table View 〉 Table View 〉 AppDelegate.swift 〉 AppDelegate

```
42      }
43
44      // MARK: - Core Data stack
45
46      lazy var persistentContainer: NSPersistentContainer = {
47          /*
48           The persistent container for the application. This implementation
49           creates and returns a container, having loaded the store for the
50           application to it. This property is                              mate
51           error conditions that could cause th                             .
52           */
53          let container = NSPersistentContainer
54          container.loadPersistentStores(comple                            n,
                error) in
55              if let error = error as NSError?
56                  // Replace this implementatio
                        appropriately.
57                  // fatalError() causes the ap                               og and
                        terminate. You should not                               g
                        application, although it                                t.
58
59                  /*
60                   Typical reasons for an error
61                   * The parent directory does                                r
                         disallows writing.
62                   * The persistent store is no                              s or
```

- Cut
- Copy
- Paste
- Find Selected Text in Workspace
- Find Selected Symbol in Workspace
- Find Call Hierarchy
- Show Issue
- Jump to Definition
- Structure ▶
- Show Blame for Line
- Refactor ▶

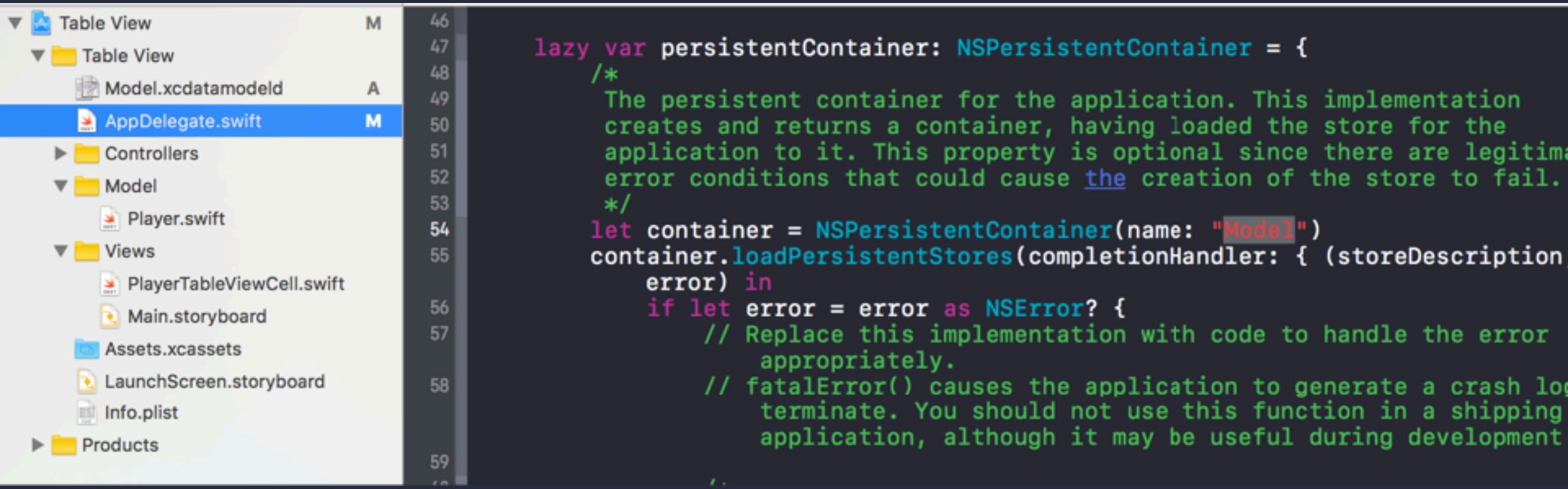
// 2. Importar Core Data

Table View 〉 Table View 〉 AppDelegate.swift 〉 No Selection

```swift
//
//  AppDelegate.swift
//  Table View
//
//  Created by Hilton Pintor Bezerra Leite on 31/07/17.
//  Copyright © 2017 hpbl. All rights reserved.
//

import UIKit
import CoreData
```

// 3. Mudar nome do container



/*
Como usar Classes com Core Data
*/

// Nome de Classe x Entidade

ENTITIES
Pessoa
FETCH REQUESTS
CONFIGURATIONS
Default

Attributes

Attribute	Type
foto	Binary Data
nome	String

Relationships

Relationship	Destination	Inverse

Entity
Name: Pessoa
Abstract Entity
Parent Entity: No Parent Entity
Class
Name: PessoaMO
Module: Global namespace
Codegen: Class Definition
Indexes: No Content
Constraints: No Content

// Geração de Código

ENTITIES
Pessoa
FETCH REQUESTS
CONFIGURATIONS
Default

Attributes

Attribute	Type
foto	Binary Data
nome	String

Relationships

Relationship	Destination	Inverse

Entity
Name: Pessoa
Abstract Entity
Parent Entity: No Parent Entity

Class
Name: PessoaMO
Module:
Codegen: Class Definition

Indexes: No Content

Constraints: No Content

// Tipos de CodeGen

Class Definition:

1. opção "**plug and play**"
2. **não** permite gerar/editar os arquivos .swift
3. override e novas funcionalidades: **Extension**

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// Tipos de CodeGen

Manual / None:

1. similar a primeira opção
2. **permite** gerar/editar os arquivos .swift
3. override e novas funcionalidades: **Extension**

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// Tipos de CodeGen

Category / Extension:

1. propriedades **fora** do Core Data
2. arquivos criados na mão
3. override e novas funcionalidades: **Class** e **Extension**

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/*
Realizar **fetch** dos dados salvos
*/

// 4. fetch **antigo**

```
class ViewController: UIViewController {
    var appDelegate: AppDelegate?
    var managedContext: NSManagedObjectContext?
    var pessoas: [NSManagedObject] = []

    override func viewWillAppear(_ animated: Bool) {
        super.viewWillAppear(animated)

        let fetchRequest = NSFetchRequest<NSManagedObject>(entityName: "Pessoa")

        do {
            try self.pessoas = (self.managedContext?.fetch(fetchRequest))!
        } catch let error as NSError {
            print("erro na hora de pedir. \(error), \(error.userInfo)")
        }
    }
}
```

// 4. fetch **novo**

```
class ViewController: UIViewController {
    var appDelegate: AppDelegate?
    var managedContext: NSManagedObjectContext?
    var pessoas: [PessoaMO] = []

    override func viewWillAppear(_ animated: Bool) {
        super.viewWillAppear(animated)

        let fetchRequest: NSFetchRequest<PessoaMO> = PessoaMO.fetchRequest()

       do {
            try self.pessoas = (self.managedContext?.fetch(fetchRequest))!
            self.tableView.reloadData()
        } catch let error as NSError {
            print("erro na hora de pedir. \(error), \(error.userInfo)")
        }
    }
}
```

/*

5. Quando adicionar novos dados, **save**

*/

// 5. save **antigo**

```
func save(novoNome: String) {
    let entity = NSEntityDescription.entity(forEntityName: "Pessoa", in: managedContext!)

    let pessoa = NSManagedObject(entity: entity!, insertInto: managedContext)

    let img = #imageLiteral(resourceName: "diego")
    let imgData = UIImageJPEGRepresentation(img, 1)

    pessoa.setValue(imgData, forKey: "foto")

    pessoa.setValue(novoNome, forKey: "nome")

    do {
        try managedContext?.save()
        self.pessoas.append(pessoa)
    } catch let error as NSError {
        print("erro na hora de salvar. \(error), \(error.userInfo)")
    }
}
```

// 5. save **novo**

```
func save(novoNome: String) {

    let novaPessoa = PessoaMO(context: self.managedContext)
    novaPessoa.foto = NSData(data: UIImageJPEGRepresentation(UIImage(named: "diego"), 1)!)
    novaPessoa.nome = novoNome

    do {
        try managedContext?.save()
        self.pessoas.append(pessoa)
        self.tableView.reloadData()

    } catch let error as NSError {
        print("erro na hora de salvar. \(error), \(error.userInfo)")
    }
}
```

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/*

5. Quando remover dados, **delete**

*/

```
extension ViewController: UITableViewDataSource {
// 5. delete antigo
    func tableView(_ tableView: UITableView,
                   commit editingStyle: UITableViewCellEditingStyle,
                   forRowAt indexPath: IndexPath) {

        if editingStyle == .delete {
            let pessoa = self.pessoas[indexPath.row]
            self.managedContext?.delete(pessoa)
            self.appDelegate?.saveContext()

            let fetchRequest = NSFetchRequest<NSManagedObject>(entityName: "Pessoa")

            do {
                try self.pessoas = (self.managedContext?.fetch(fetchRequest))!
                tableView.reloadData()
            } catch {
                print("Fetching Failed")
        }
    }
  }
}
```

```
extension ViewController: UITableViewDataSource {
// 5. delete novo
    func tableView(_ tableView: UITableView,
                   commit editingStyle: UITableViewCellEditingStyle,
                   forRowAt indexPath: IndexPath) {

        if editingStyle == .delete {
            let pessoa = self.pessoas[indexPath.row]
            self.managedContext?.delete(pessoa)
            self.appDelegate?.saveContext()

            let fetchRequest: NSFetchRequest<PessoaMO> = PessoaMO.fetchRequest()

            do {
                try self.pessoas = (self.managedContext?.fetch(fetchRequest))!
                tableView.reloadData()
            } catch {
                print("Fetching Failed")
        }
    }
  }
}
```

// Exercício

// Exercício 14

Lista de coisas III

1. Adicione persistência local usando **Core Data** ao seu app
2. Dados **adicionados** devem ser mantidos
3. **Remoções** devem ser mantidas

// Extra

4. **Edições** devem ser mantidas

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DÚVIDAS

?

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