



Xcode Overview

Development and Debugging

What We'll Cover

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1. Introduction

2. Key Features

3. Workspace Overview

4. Debugging Tools

Foundational Concepts

Introduction

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1. Apple's integrated development environment (IDE)
2. Used for developing software for macOS, iOS, iPadOS, watchOS, and tvOS
3. Comprehensive testing and debugging capabilities
4. Latest version: Xcode 16


Key Features

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1. Interface Builder
2. Source Code Editor
3. Asset Management
4. Testing Tools
5. Simulators
6. Version Control

Workspace Overview

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2
3



1. Navigator Area (left)
2. Editor Area (centre)
3. Utilities Area (right)
4. Debug Area (bottom)
5. Toolbar (top)

Workspace Overview

The screenshot displays the Xcode workspace for a project named "HelloWorld". The interface is divided into four main sections:

- Navigation:** Located on the left, it shows a project tree with folders like "HelloWorld", "AppDelegate", "SceneDelegate", "ViewController", "Main", "Assets", "LaunchScreen", and "Info". The "ViewController" folder is currently selected.
- Editor:** The central area where the code is written. It shows the "ViewController.swift" file with the following code:

```
1 //  
2 // ViewController.swift  
3 // HelloWorld  
4 //  
5 // Created by Ravi Shankar on 05/04/24.  
6 //  
7  
8 import UIKit  
9  
10 class ViewController: UIViewController {  
11  
12     @IBOutlet weak var nameTextField: UITextField!  
13  
14     override func viewDidLoad() {  
15         super.viewDidLoad()  
16     }  
17  
18     @IBAction func printMessage(_ sender: Any) {  
19         print("Welcome to iOS Bootcamp \(nameTextField.text ?? "")")  
20     }  
21 }  
22  
23
```
- Inspector:** Located on the right, it shows the "Identity and Type" section for the selected file, "ViewController.swift". It displays the file's name, type, location, and full path. Below this, the "On Demand Resource Tags" section is empty, and the "Target Membership" section shows that the file is a member of the "HelloWorld" target. The "Text Settings" section shows the text encoding as "No Explicit Encoding", line endings as "No Explicit Line Endings", and indent using "Spaces" with a width of 4.
- Debug:** Located at the bottom, it shows the "Debug" area with a "Filter" button and a "Line: 23 Col: 1" indicator.

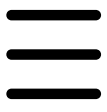
Debugging

1 —
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1. Breakpoints
2. Variables Inspection
3. Console Output
4. LLDB Commands
5. Exception Breakpoints
6. Symbolic Breakpoints
7. View Debugging
8. Memory Debugging

Debugging Tools

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1. Instruments for profiling
2. Network Link Conditioner
3. Energy Log
4. Thread Sanitizer
5. Address Sanitizer