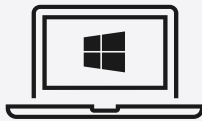


# What's New in .NET MAUI

**.NET MAUI**

# .NET Multi-platform App UI (MAUI)

Single project system, single codebase



WinUI



Mac Catalyst

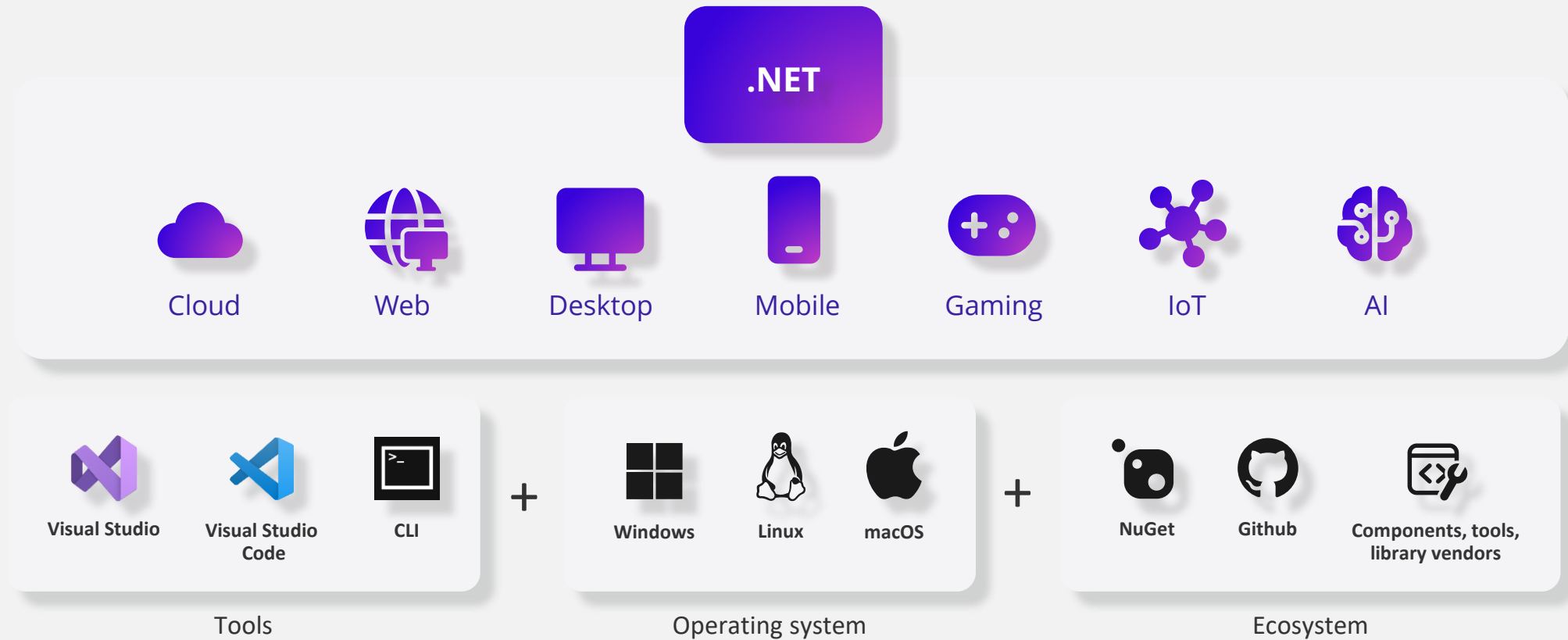


iOS



Android

# Build anything with a unified platform



# Hello, .NET 8 MAUI!

## Top 2

Active GitHub users in  
dotnet

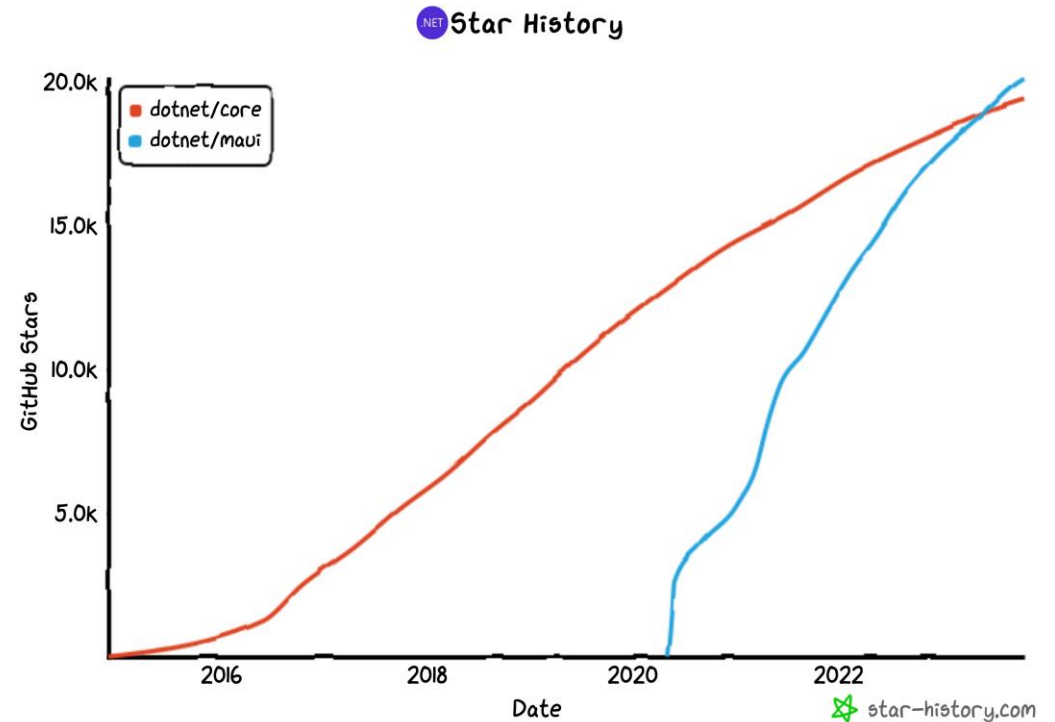
## Top 2

Most active in  
.NET Foundation

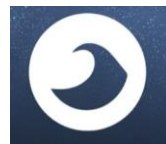
## Top 5

Most active C# repo on  
GitHub October 2023

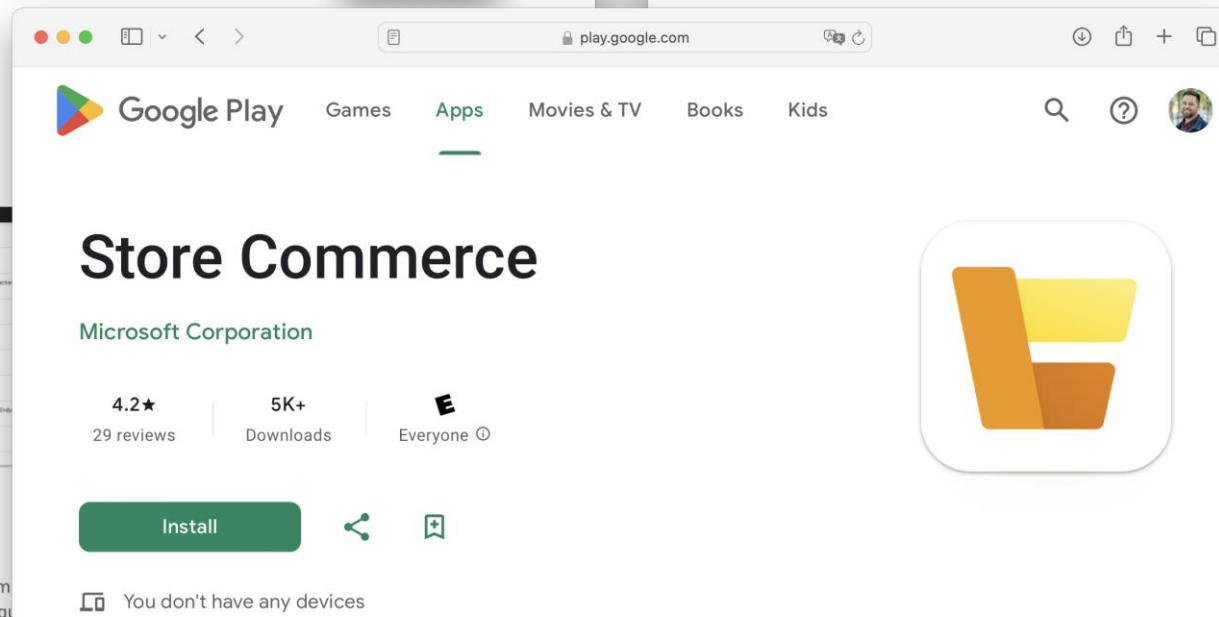
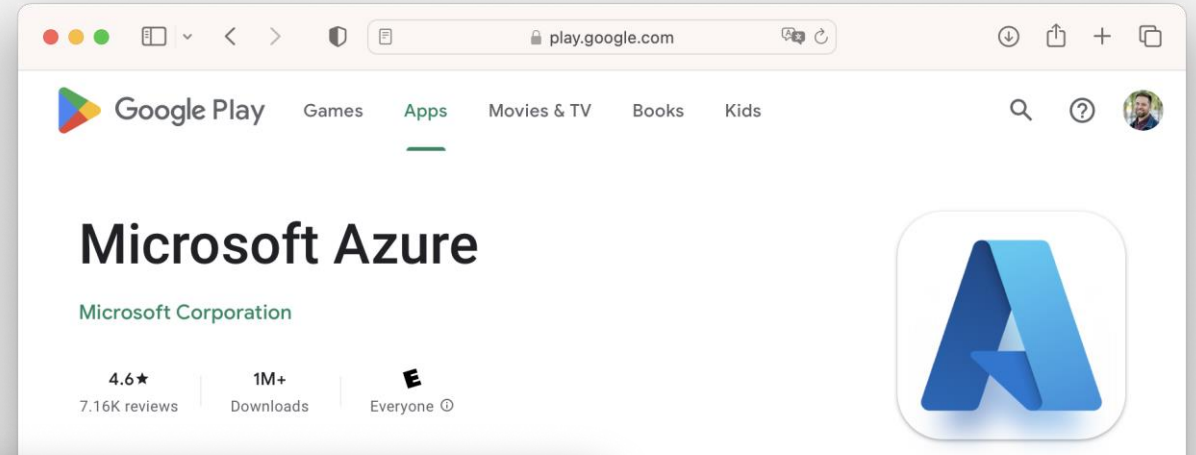
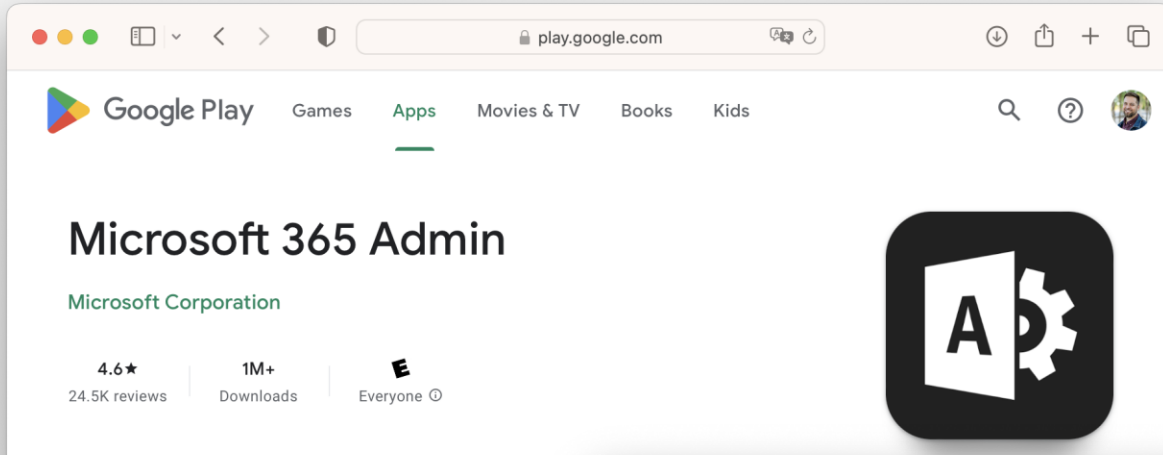
**1600+ PRs** and **600+ Issues Closed**  
in .NET 8



[github.com/dotnet/maui](https://github.com/dotnet/maui)



# .NET MAUI at Microsoft



**.NET MAUI in .NET 8**



RELEASED

# .NET MAUI in .NET 8

- Improved performance and memory management
- New hybrid and desktop app features
- Flexible tooling for development
- Tons of bug fixes and stability work

[dot.net/maui](https://dot.net/maui)

# .NET 8 Performance Improvements in .NET MAUI

## Memory Leaks

- [Memory Leaks and Quality](#)
- [Diagnosing leaks in .NET MAUI](#)
- [Patterns that cause leaks: C# events](#)
- [Circular references on Apple platforms](#)
- [Roslyn analyzer for Apple platforms](#)

## Tooling and Documentation

- [Simplified `dotnet-trace` and `dotnet-dsrou`](#)
- [dotnet-gcdump](#) [Support for Mobile](#)

## New features

- [AndroidStripILAfterAOT](#)
- [AndroidEnableMarshalMethods](#)
- [NativeAOT on iOS](#)

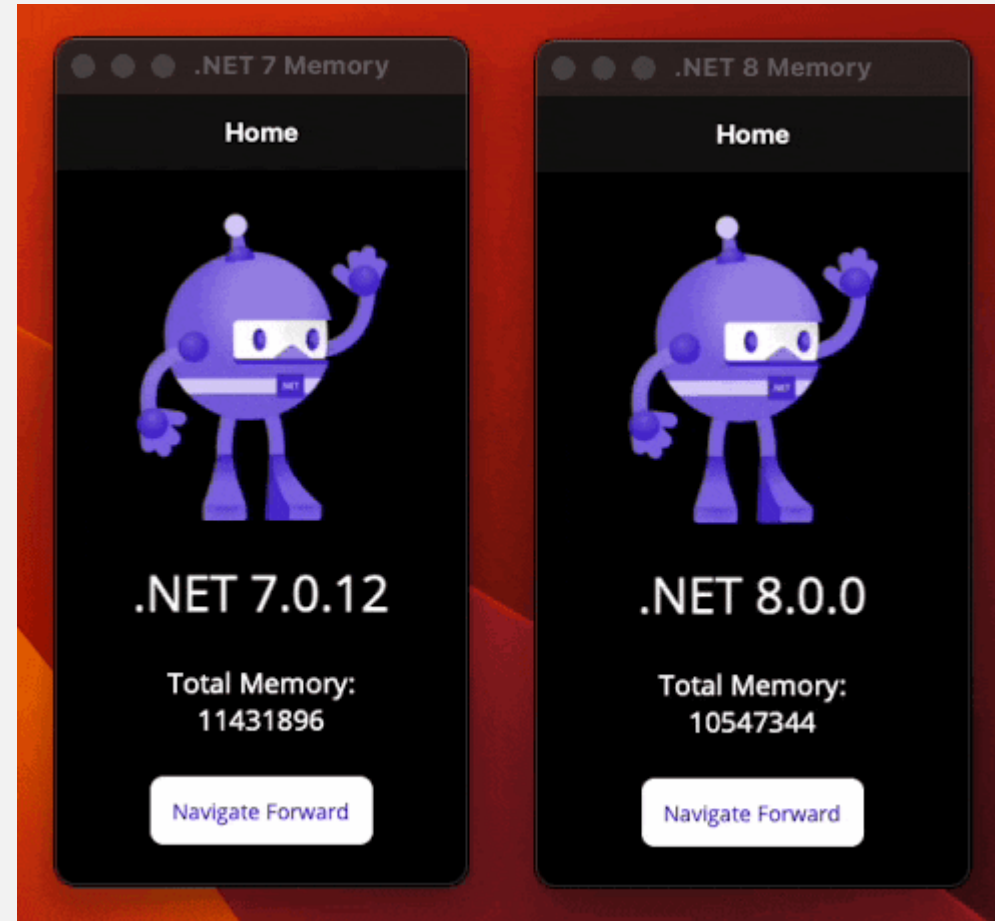
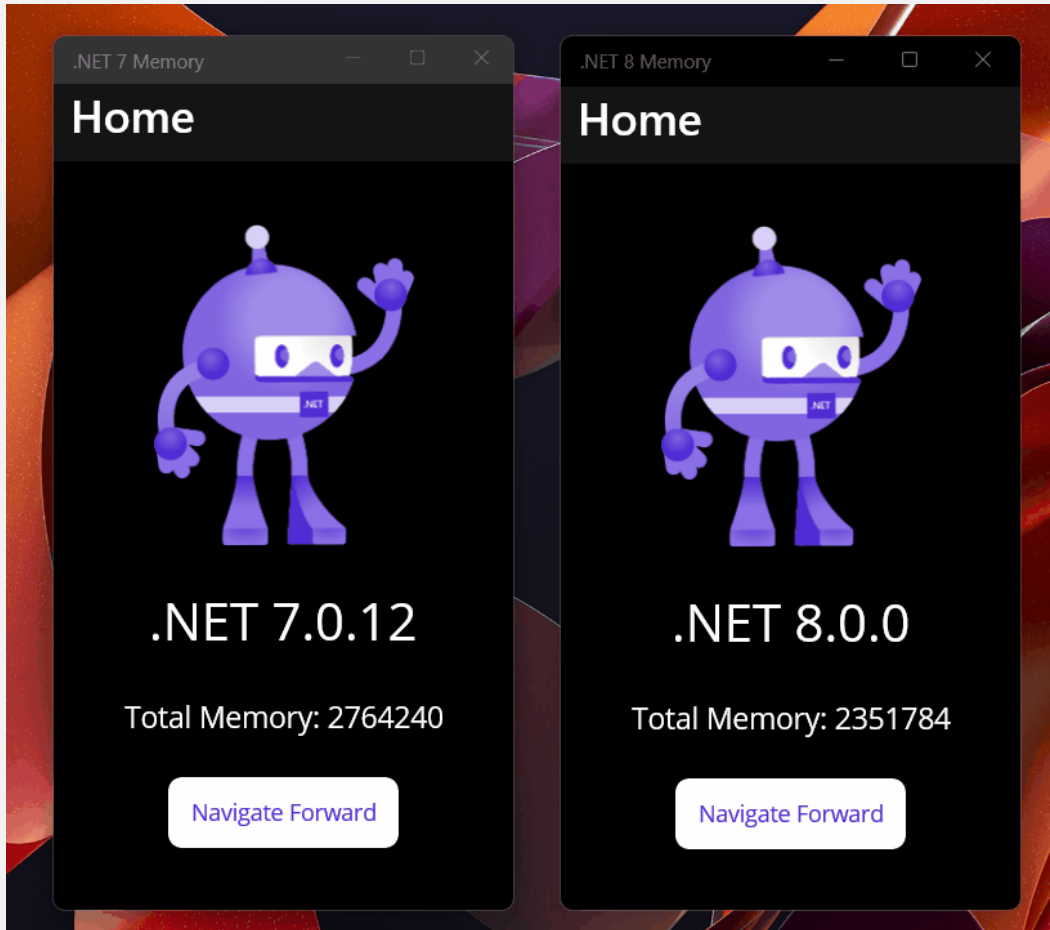
## Build & Inner Loop Performance

- [Filter Android `ps -A` output with `grep`](#)
- [Port WindowsAppSDK usage of `vcmeta.dll` to C#](#)
- [Improvements to remote iOS builds on Windows](#)
- [Improvements to Android inner-loop](#)
- [XAML Compilation no longer uses `LoadInSeparateAppDomain`](#)

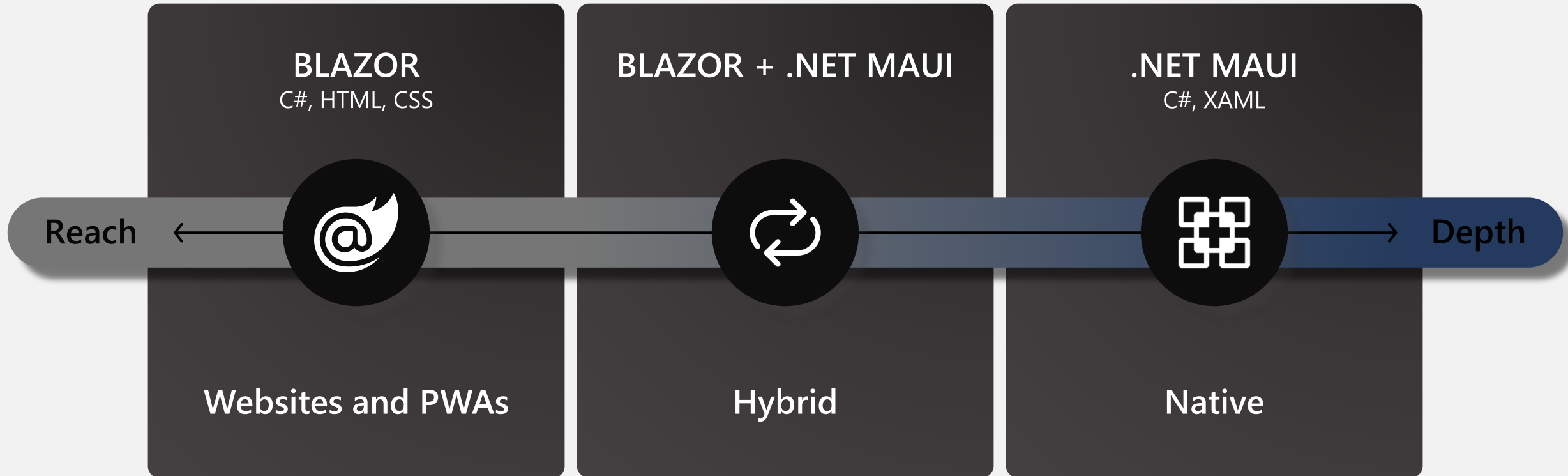
## Performance or App Size Improvements

- [Structs and `IEquatable` in .NET MAUI](#)
- [Fix performance issue in `{AppThemeBinding}`](#)
- [Address `CA1307` and `CA1309` for performance](#)
- [Address `CA1311` for performance](#)
- [Remove unused `ViewAttachedToWindow` event on Android](#)
- [Remove unneeded `System.Reflection` for `{Binding}`](#)
- [Use `StringComparer.Ordinal` for `Dictionary` and `HashSet`](#)
- [Reduce Java interop in `MauiDrawable` on Android](#)
- [Improve layout performance of `Label` on Android](#)
- [Reduce Java interop calls for controls in .NET MAUI](#)
- [Improve performance of `Entry.MaxLength` on Android](#)
- [Improve memory usage of `CollectionView` on Windows](#)
- [Use `UnmanagedCallersOnlyAttribute` on Apple platforms](#)
- [Faster Java interop for strings on Android](#)
- [Faster Java interop for C# events on Android](#)
- [Use Function Pointers for JNI](#)
- [Removed `Xamarin.AndroidX.Legacy.Support.V4`](#)
- [Deduplication of generics on iOS and macOS](#)
- [Fix `System.Linq.Expressions` implementation on iOS-like platforms](#)
- [Set `DynamicCodeSupport=false` for iOS and Catalyst](#)

# GC.GetTotalMemory(): .NET 7 vs .NET 8



# .NET offers choice for developers



# Blazor hybrid apps

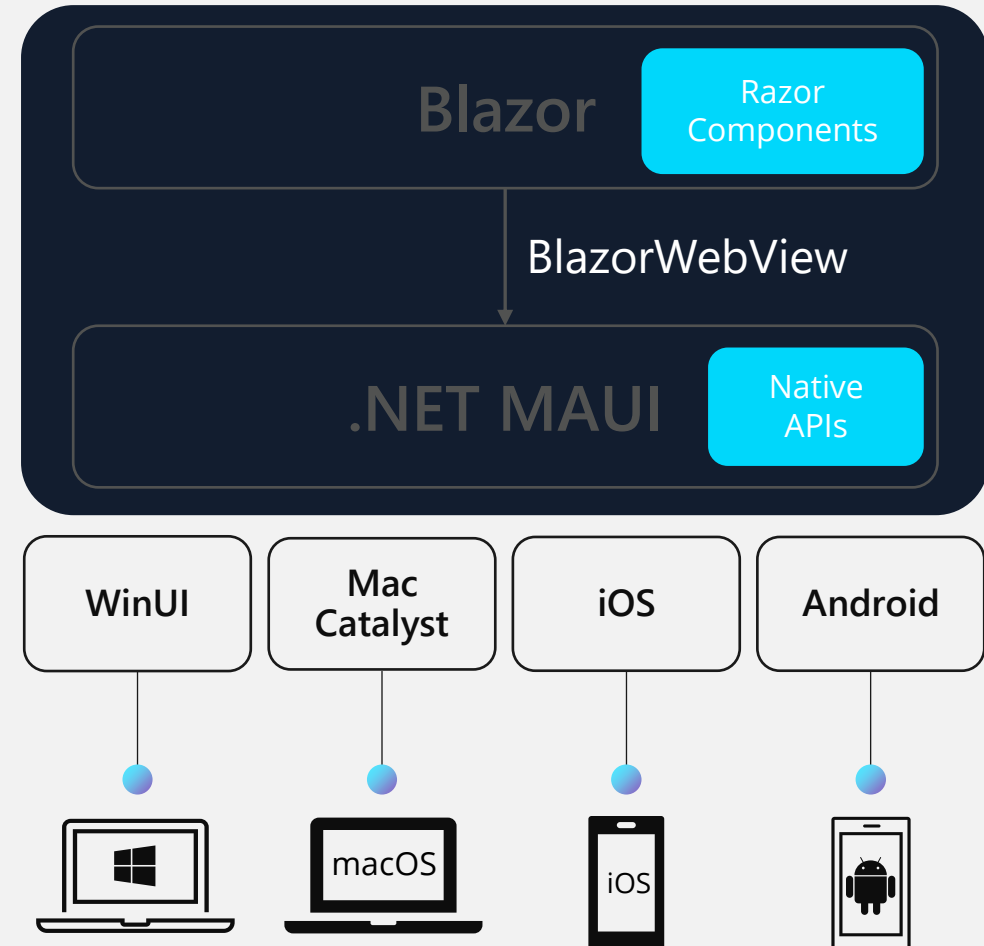
Native app container & embedded controls

Fully native web UI through platform WebView

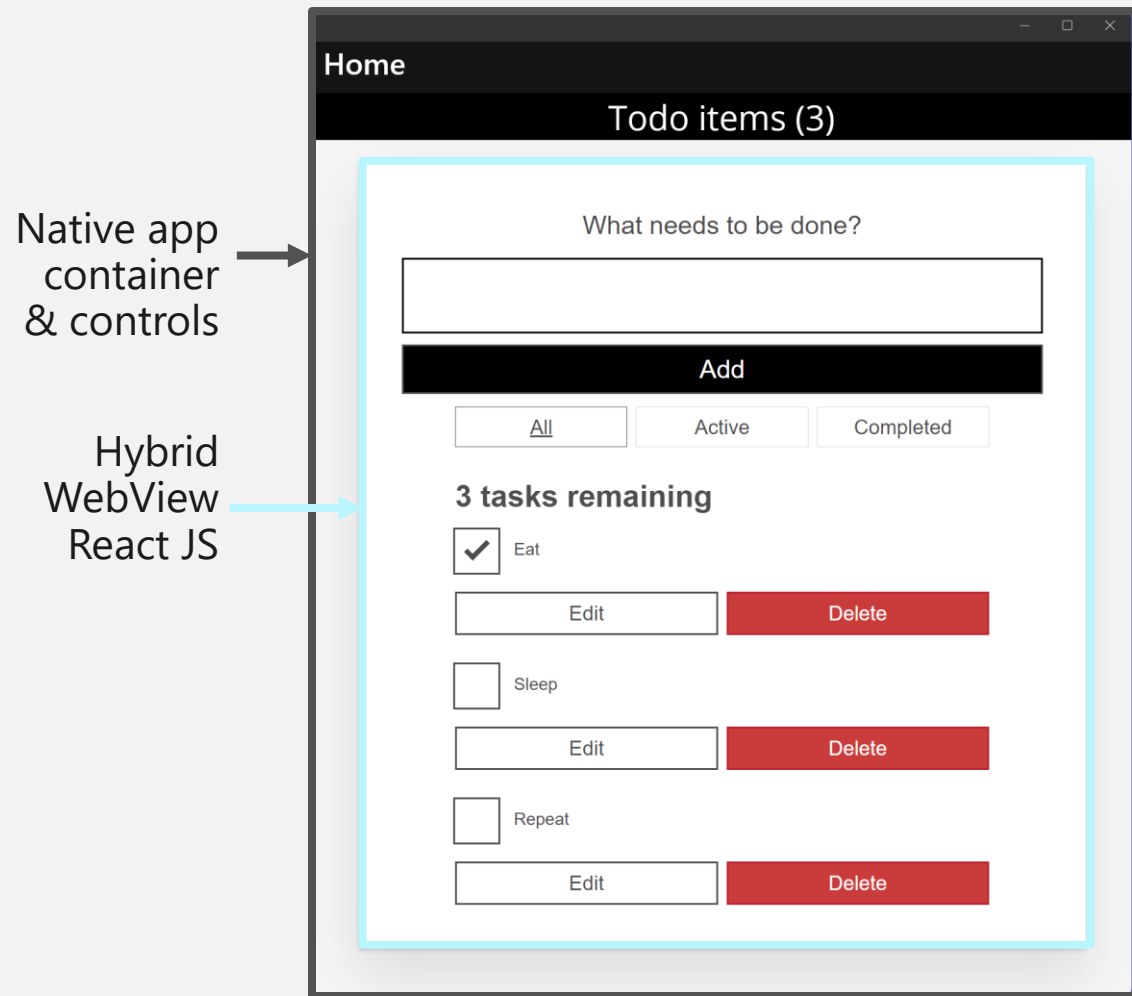
Multi-platform with MAUI abstractions

No internet required

Store distribution and reach



# .NET MAUI HybridWebView Experiment



Multi-platform control based on .NET MAUI WebView  
Host static web assets (HTML, JS, CSS, etc.)  
Communicate between JavaScript & .NET  
Reuse your Angular, React, etc. investments in MAUI native desktop and mobile apps  
Use any web-based UI and it can interact with C# code

# Desktop Development

## **.NET 7**

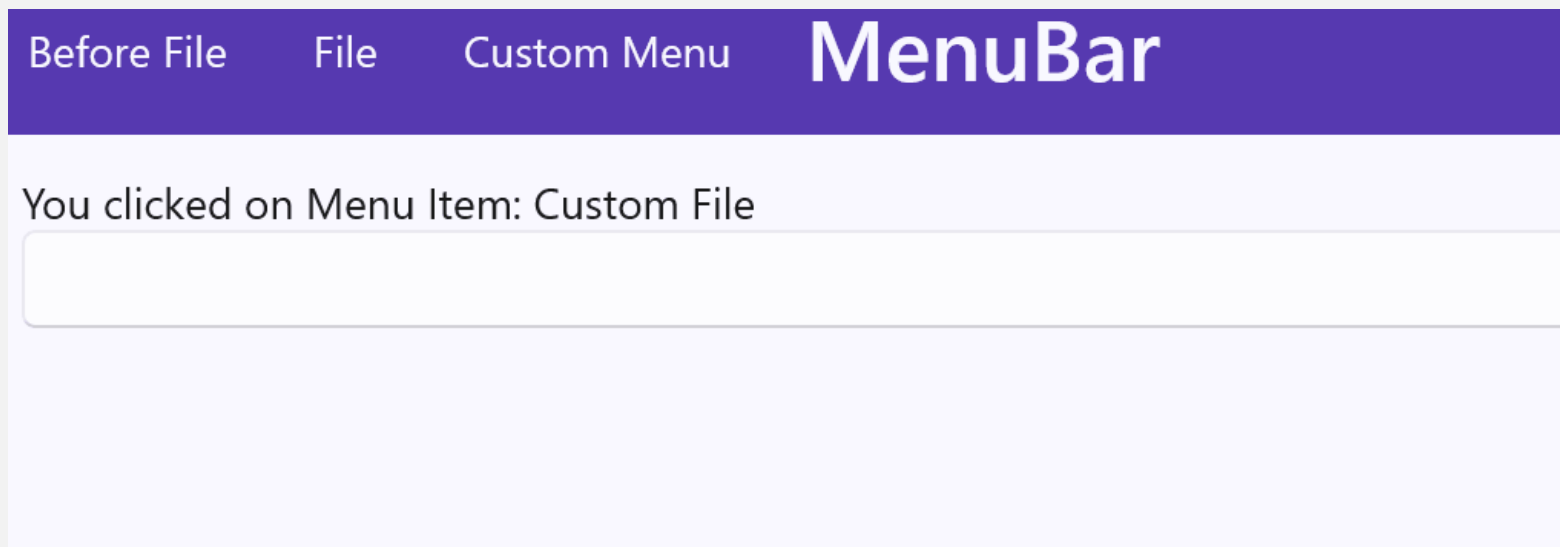
- Tooltips
- Pointer hover
- Right-click & context menus

## **.NET 8**

- Custom keyboard accelerators
- Drag and drop gestures
- Pointer gestures for pressed & released

# Keyboard Accelerators

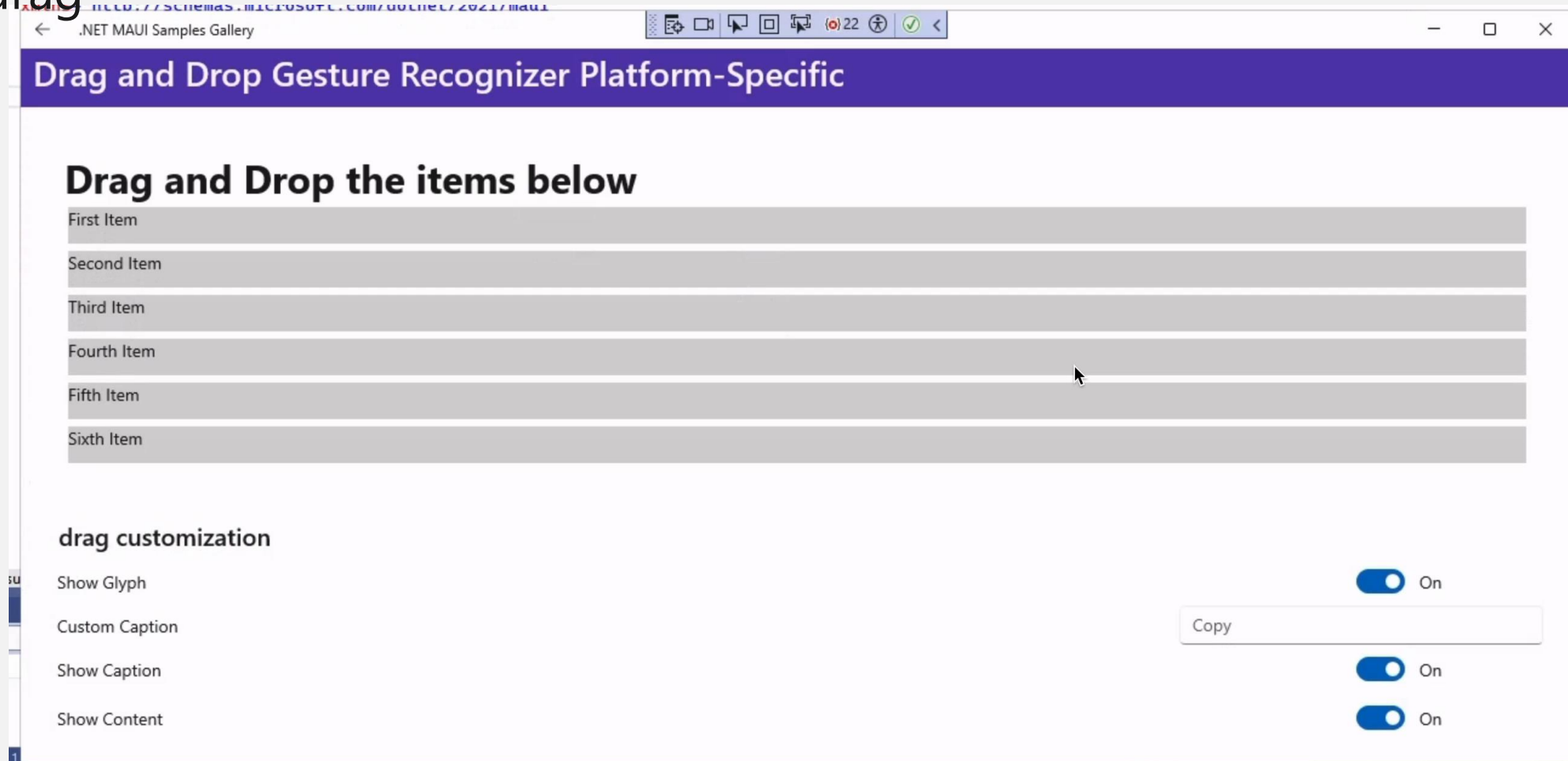
```
<MenuFlyoutItem Text="Custom File">  
  <MenuFlyoutItem.KeyboardAccelerators>  
    <KeyboardAccelerator Key="F" Modifiers="Ctrl">  
  </MenuFlyoutItem.KeyboardAccelerators>  
</MenuFlyoutItem>
```





# Drag & Drop

Exposed WinUI Drag & Drop APIs such as custom glyphs (images) and captions on drag



# Pointer Gestures

**PointerPressed** and **PointerReleased**

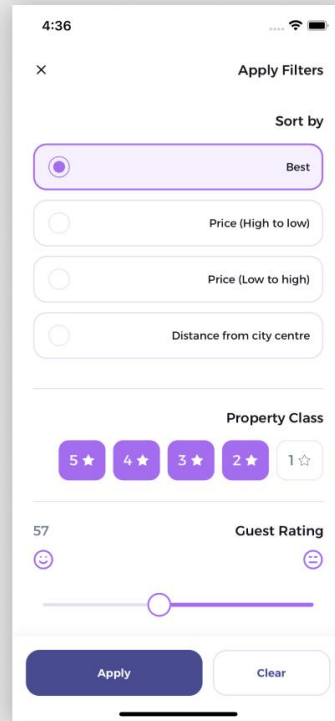
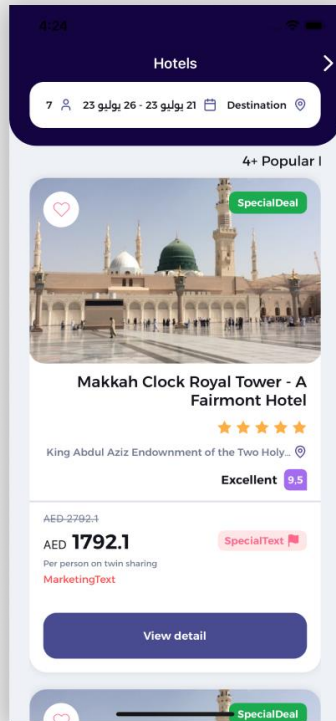
## Pointer Gesture

Hover, press, and release me!

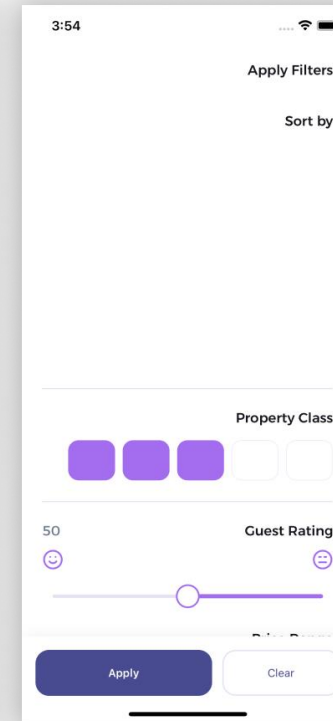
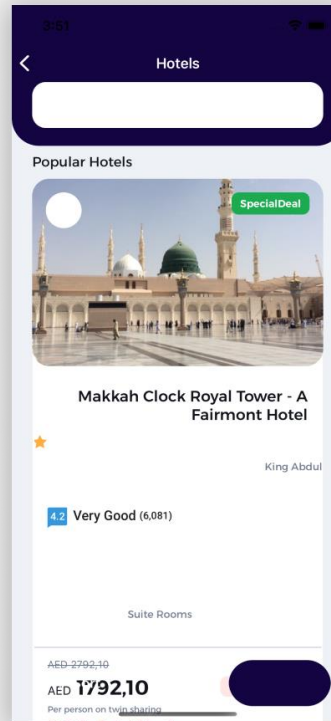
Hover above label to reveal pointer position

# Right-to-left (RTL) Improvements

## .NET 8



## .NET 7



“Creating Right to Left layouts in .NET MAUI is now a reality thanks to .NET 8. Visual elements are perfectly arranged and Carousels work great now.”  
– Leo, UX Divers

# Last but not least

## Fixes related to...

- CollectionView
- TabBar visibility
- RoundedRectangle Borders
- Android text alignment
- Drag-and-drop functionality
- Tab bar appearance
- CheckBox
- RefreshView
- SwipeItem
- Label
- Button
- Border clipping
- Window glitches
- Image loading problems
- Cursor preservation in text boxes
- Menu key accelerators
- InputTransparent behavior permutations
- Fonts
- Navigation
- Tabs
- File picker
- Entry visibility under keyboard
- iOS SafeArea
- Downscaled iOS images
- Removal of Rosetta
- Unpackaged WinUI apps
- Width & Height requests
- Platform consistency
- NREs & crashes

...and much more!!!

# Tooling



[aka.ms/csdevkit](https://aka.ms/csdevkit)  
[aka.ms/mauidevkit](https://aka.ms/mauidevkit)

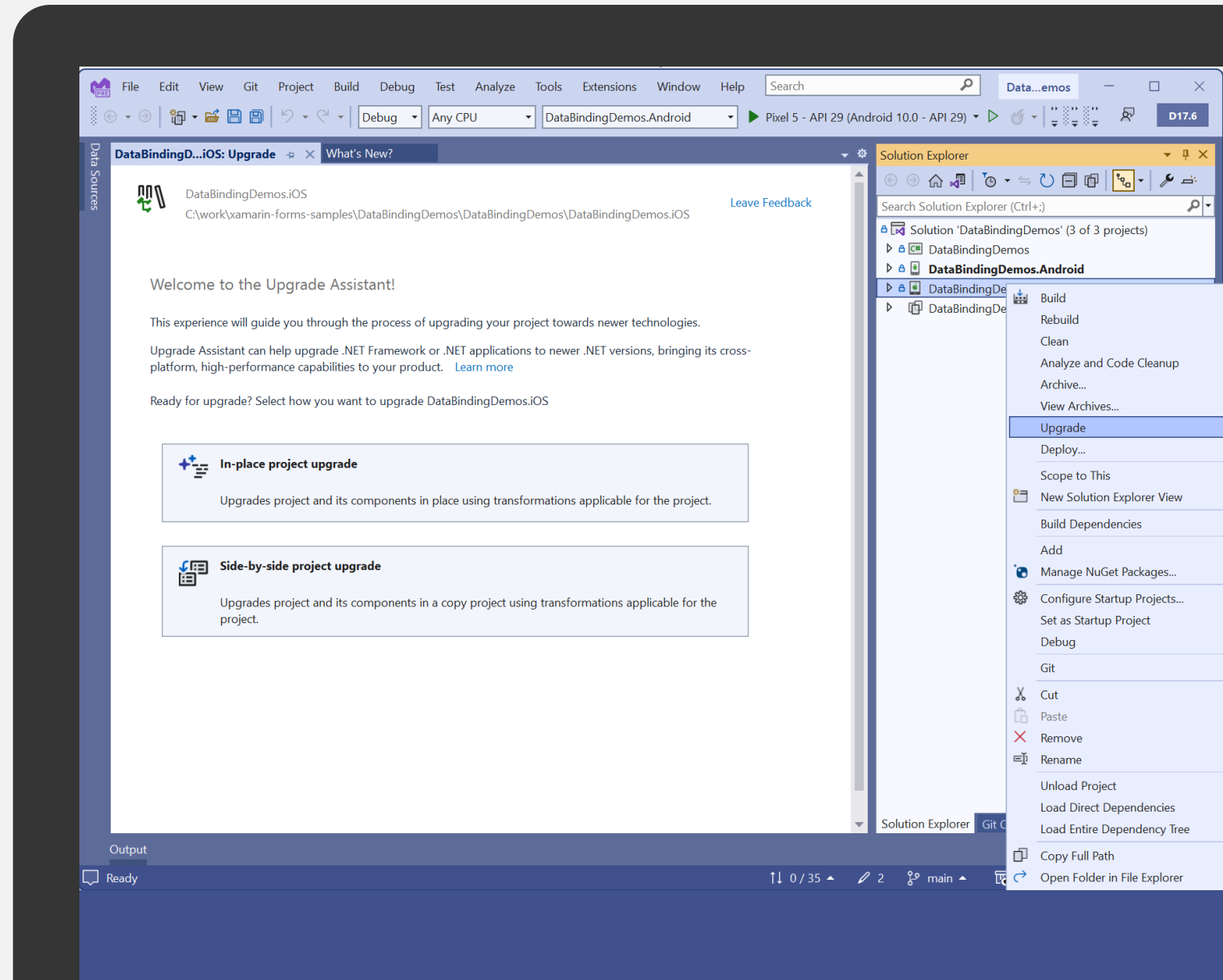
# .NET Upgrade Assistant for Xamarin Projects

## Highlights:

- Converts projects
- Replaces known NuGets
- Fixes namespaces
- Fixes base types
- Applies various code updates

**Also can help you upgrade from .NET 6/7 to .NET 8!**

[maui-upgrades@microsoft.com](mailto:maui-upgrades@microsoft.com)



.NET 9



# Lots of Goals

- Increase delivery velocity of bug fixes
- Reduce build times
- Improve runtime performance
- Support more native desktop experiences
- Improve hot reload
- Swift Interop
- Add more documentation and samples

<https://github.com/dotnet/maui/discussions>