

SDSU Computer Science

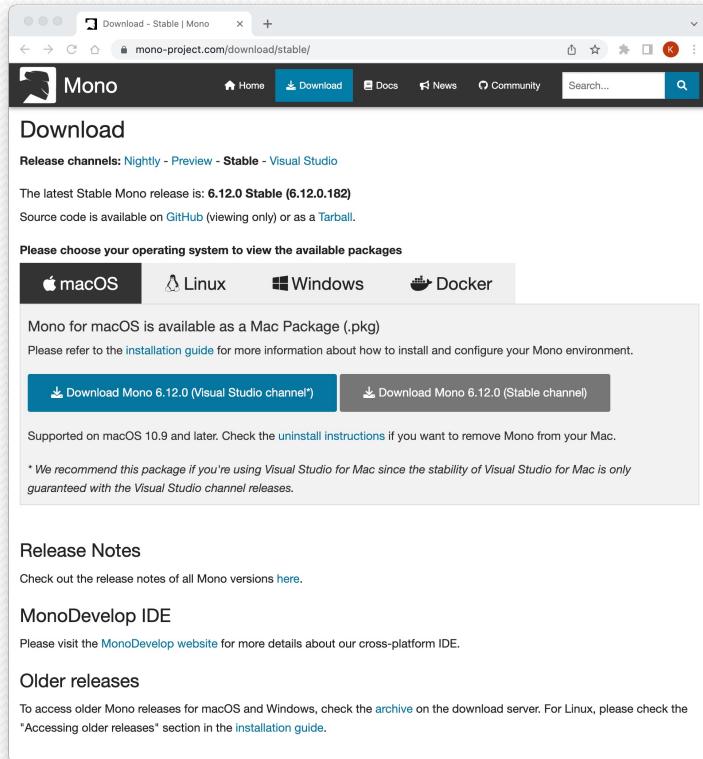
Mr. Ken Gamradt

VS Code Install & C# & .NET

12-07-23

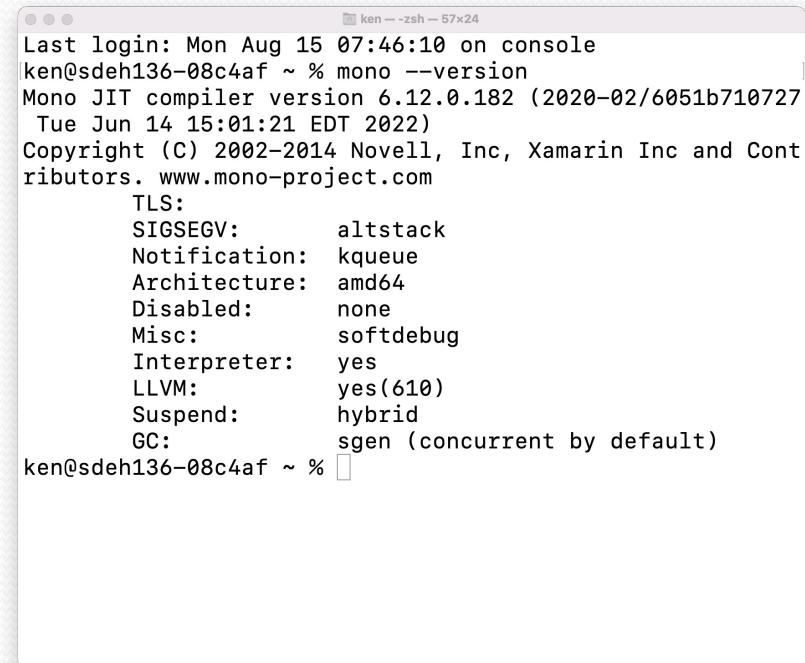
Install Software

MonoFramework – Mac Only



The screenshot shows the 'Download - Stable | Mono' page on mono-project.com. The main heading is 'Download'. It indicates the latest stable release is '6.12.0 Stable (6.12.0.182)'. Below this, there are links for 'Nightly', 'Preview', 'Stable', and 'Visual Studio'. A note says 'Source code is available on GitHub (viewing only) or as a Tarball.' A section titled 'Please choose your operating system to view the available packages' lists 'macOS', 'Linux', 'Windows', and 'Docker'. Under 'macOS', it says 'Mono for macOS is available as a Mac Package (.pkg)' and provides links to 'Download Mono 6.12.0 (Visual Studio channel)' and 'Download Mono 6.12.0 (Stable channel)'. A note states 'Supported on macOS 10.9 and later. Check the [uninstall instructions](#) if you want to remove Mono from your Mac.' A small note at the bottom says '* We recommend this package if you're using Visual Studio for Mac since the stability of Visual Studio for Mac is only guaranteed with the Visual Studio channel releases.' Below this, sections for 'Release Notes' and 'MonoDevelop IDE' are partially visible.

Check MonoFramework – Mac Only



```
Last login: Mon Aug 15 07:46:10 on console
ken@sdeh136-08c4af ~ % mono --version
Mono JIT compiler version 6.12.0.182 (2020-02/6051b710727
Tue Jun 14 15:01:21 EDT 2022)
Copyright (C) 2002-2014 Novell, Inc, Xamarin Inc and Cont
ributors. www.mono-project.com
TLS:
SIGSEGV: altstack
Notification: kqueue
Architecture: amd64
Disabled: none
Misc: softdebug
Interpreter: yes
LLVM: yes(610)
Suspend: hybrid
GC: sgen (concurrent by default)
ken@sdeh136-08c4af ~ %
```

Install Software

.NET SDK – 8.0.1

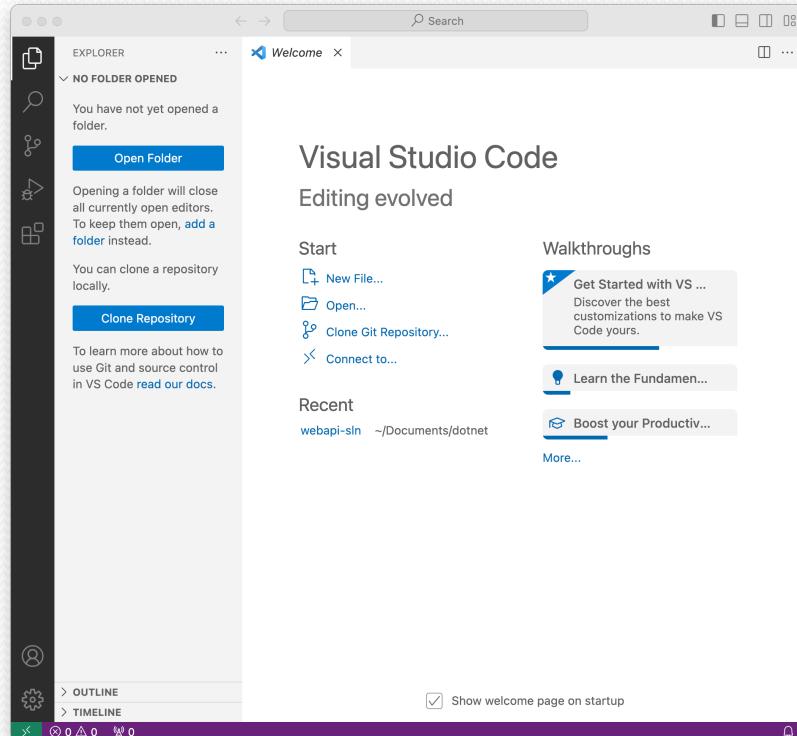
The screenshot shows the Microsoft .NET download page. At the top, there's a navigation bar with links like Microsoft, .NET, Why .NET, Features, Learn, Docs, Downloads, and Community. Below that is a search bar and a "LIVE TV" button. The main content area features a heading "Free. Cross-platform. Open source." and a large blue button labeled "Download .NET". Underneath it, there's a section for "For macOS" with a "NET 8.0" card. The card includes a "Long Term Support" badge, two download buttons for ".NET SDK x64 (Intel)" and ".NET SDK Arm64 (Apple Silicon)", and a note that version 8.0.0 was released on November 14, 2023. At the bottom of the card, there are links for "All .NET 8.0 downloads" and "All .NET versions". On the right side of the page, there's a "Feedback" button.

Visual Studio Code – 1.84

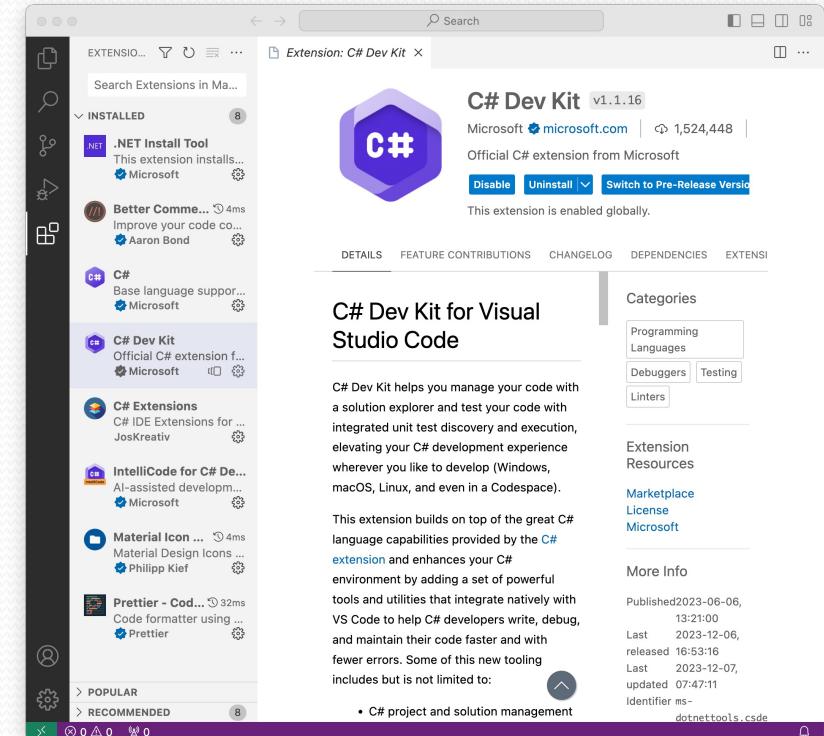
The screenshot shows the Visual Studio Code download page. At the top, there's a navigation bar with links like Visual Studio Code, Docs, Updates, Blog, API, Extensions, FAQ, Learn, and a "Download" button. Below that is a search bar. The main content area features a heading "Download Visual Studio Code" and a sub-heading "Free and built on open source. Integrated Git, debugging and extensions." There are three large download buttons for "Windows", ".deb", and ".Mac". Each button has a corresponding icon: the Windows button has the Windows logo, the ".deb" button has the Linux Tux logo, and the ".Mac" button has the Apple logo. Below each button, there are smaller download links for "User Installer", "System Installer", ".zip", ".tar.gz", "CLI", ".deb", ".rpm", ".tar.gz", "Snap", and "CLI" for each platform. At the bottom of the page, there's a note: "By downloading and using Visual Studio Code, you agree to the [license terms](#) and [privacy statement](#)".

Configure Visual Studio Code

Start Visual Studio Code



Add Extensions



Configure Visual Studio Code

```
ken@sdeh136-08c4af ~ % dotnet --info
.NET SDK:
  Version:     8.0.100
  Commit:      57efcf1350
  Workload version: 8.0.100-manifests.71b9f198

Runtime Environment:
  OS Name:     Mac OS X
  OS Version:   14.1
  OS Platform: Darwin
  RID:          osx-x64
  Base Path:    /usr/local/share/dotnet/sdk/8.0.100/

.NET workloads installed:
  Workload version: 8.0.100-manifests.71b9f198
There are no installed workloads to display.

Host:
  Version:     8.0.0
  Architecture: x64
  Commit:      5535e31a71

.NET SDKs installed:
  6.0.417 [/usr/local/share/dotnet/sdk]
  7.0.404 [/usr/local/share/dotnet/sdk]
  8.0.100 [/usr/local/share/dotnet/sdk]

.NET runtimes installed:
  Microsoft.AspNetCore.App 6.0.25 [/usr/local/share/dotnet/shared/Microsoft.AspNetCore.App]
  Microsoft.AspNetCore.App 7.0.14 [/usr/local/share/dotnet/shared/Microsoft.AspNetCore.App]
  Microsoft.AspNetCore.App 8.0.0 [/usr/local/share/dotnet/shared/Microsoft.AspNetCore.App]
  Microsoft.NETCore.App 6.0.25 [/usr/local/share/dotnet/shared/Microsoft.NETCore.App]
  Microsoft.NETCore.App 7.0.14 [/usr/local/share/dotnet/shared/Microsoft.NETCore.App]
  Microsoft.NETCore.App 8.0.0 [/usr/local/share/dotnet/shared/Microsoft.NETCore.App]
```

Configure Visual Studio Code

```
ken -- zsh -- 93x34

Host:
  Version:      8.0.0
  Architecture: x64
  Commit:       5535e31a71

.NET SDKs installed:
  6.0.417 [/usr/local/share/dotnet/sdk]
  7.0.404 [/usr/local/share/dotnet/sdk]
  8.0.100 [/usr/local/share/dotnet/sdk]

.NET runtimes installed:
  Microsoft.AspNetCore.App 6.0.25 [/usr/local/share/dotnet/shared/Microsoft.AspNetCore.App]
  Microsoft.AspNetCore.App 7.0.14 [/usr/local/share/dotnet/shared/Microsoft.AspNetCore.App]
  Microsoft.AspNetCore.App 8.0.0 [/usr/local/share/dotnet/shared/Microsoft.AspNetCore.App]
  Microsoft.NETCore.App 6.0.25 [/usr/local/share/dotnet/shared/Microsoft.NETCore.App]
  Microsoft.NETCore.App 7.0.14 [/usr/local/share/dotnet/shared/Microsoft.NETCore.App]
  Microsoft.NETCore.App 8.0.0 [/usr/local/share/dotnet/shared/Microsoft.NETCore.App]

Other architectures found:
  None

Environment variables:
  Not set

global.json file:
  Not found

Learn more:
  https://aka.ms/dotnet/info

Download .NET:
  https://aka.ms/dotnet/download
ken@sdeh136-08c4af ~ %
```

Creating a Solution with a Project using .NET CLI

Create Solution directory – Gamradtı
Change into the Gamradtı directory

Command Line Interface

```
ken@sdeh136-08c4af ~ % pwd
/Users/ken
ken@sdeh136-08c4af ~ % mkdir Documents/Projects
ken@sdeh136-08c4af ~ % cd Documents/Projects
ken@sdeh136-08c4af Projects % pwd
/Users/ken/Documents/Projects
ken@sdeh136-08c4af Projects % mkdir Gamradt1
ken@sdeh136-08c4af Projects % cd Gamradt1
ken@sdeh136-08c4af Gamradt1 % pwd
/Users/ken/Documents/Projects/Gamradt1
ken@sdeh136-08c4af Gamradt1 % pwd
/Users/ken/Documents/Projects/Gamradt1
ken@sdeh136-08c4af Gamradt1 % ls
ken@sdeh136-08c4af Gamradt1 %
```

Creating a Solution with a Project using .NET CLI

```
ken@sdeh136-08c4af Gamradt1 % dotnet new list
These templates matched your input:

Template Name      Short Name    Language    Tags
-----              -----        -----        -----
API Controller      apicontroller [C#]        Web/ASP.NET
ASP.NET Core Empty web          [C#, F#]     Web/Empty
ASP.NET Core gR...  grpc         [C#]        Web/gRPC/API/Service
ASP.NET Core We...  webapi       [C#, F#]     Web/WebAPI/Web API/API/Service
ASP.NET Core We...  webapiaot   [C#]        Web/Web API/API/Service
ASP.NET Core We...  mvc          [C#, F#]     Web/MVC
ASP.NET Core We...  webapp,razor [C#]        Web/MVC/Razor Pages
ASP.NET Core wi...  angular     [C#]        Web/MVC/SPA
ASP.NET Core wi...  react       [C#]        Web/MVC/SPA
ASP.NET Core wi...  reactredux  [C#]        Web/MVC/SPA
Blazor Server App blazorserver [C#]        Web/Blazor
Blazor Server A...  blazorserver-empty [C#]     Web/Blazor/Empty
Blazor Web App     blazor      [C#]        Web/Blazor/WebAssembly
Blazor WebAssem... blazorwasm-empty [C#]     Web/Blazor/WebAssembly/PWA/Empty
Blazor WebAssem... blazorwasm   [C#]        Web/Blazor/WebAssembly/PWA
Class Library      classlib    [C#, F#, VB]  Common/Library
Console App        console    [C#, F#, VB]  Common/Console
Config             gitignore,.gitignore [C#]     Config
Dotnet local to... tool-manifest [C#]     Config
EditorConfig file editorconfig,.editorconfig [C#]   Config
global.json file   globaljson,global.json [C#]   Config
MSBuild Directo... buildprops   [C#]        MSBuild/props
MSBuild Directo... buildtargets  [C#]        MSBuild/props
MSTest Playwrig... mstest-playwright [C#]     Test/MSTest/Playwright
MSTest Test Pro... mstest       [C#, F#, VB]  Test/MSTest
MVC Controller     mvccontroller [C#]     Web/ASP.NET
MVC ViewImports    viewimports  [C#]     Web/ASP.NET
MVC ViewStart     viewstart    [C#]     Web/ASP.NET
NuGet Config      nugetconfig,nuget.config [C#]   Config
```

Creating a Solution with a Project using .NET CLI

```
... Gamradt1 -- zsh -- 99x34
ASP.NET Core wi... reactredux [C#] Web/MVC/SPA
Blazor Server App blazorserver [C#] Web/Blazor
Blazor Server A... blazorserver-empty [C#] Web/Blazor/Empty
Blazor Web App blazor [C#] Web/Blazor/WebAssembly
Blazor WebAssem... blazorwasm-empty [C#] Web/Blazor/WebAssembly/PWA/Empty
Blazor WebAssem... blazorwasm [C#] Web/Blazor/WebAssembly/PWA
Class Library classlib [C#], F#, VB Common/Library
Console App console [C#], F#, VB Common/Console
dotnet gitignor... gitignore,.gitignore Config
Dotnet local to... tool-manifest Config
EditorConfig file editorconfig,.editorconfig Config
global.json file globaljson,global.json Config
MSBuild Directo... buildprops MSBuild/props
MSBuild Directo... buildtargets MSBuild/props
MSTest Playwrig... mstest-playwright [C#] Test/MSTest/Playwright
MSTest Test Pro... mstest [C#], F#, VB Test/MSTest
MVC Controller mvccontroller [C#] Web/ASP.NET
MVC ViewImports viewimports [C#] Web/ASP.NET
MVC ViewStart viewstart [C#] Web/ASP.NET
NuGet Config nugetconfig,nuget.config Config
NUnit 3 Test Item nunit-test [C#], F#, VB Test/NUnit
NUnit 3 Test Pr... nunit [C#], F#, VB Test/NUnit
NUnit Playwrig... nunit-playwright [C#] Test/NUnit/Playwright
Protocol Buffer... proto Web/gRPC
Razor Class Lib... razorclasslib [C#] Web/Razor/Library/Razor Class Library
Razor Component razorcomponent [C#] Web/ASP.NET
Razor Page page [C#] Web/ASP.NET
Razor View view [C#] Web/ASP.NET
Solution File sln,solution Solution
Web Config webconfig Config
Worker Service worker [C#], F# Common/Worker/Web
xUnit Test Project xunit [C#], F#, VB Test/xUnit

ken@sdeh136-08c4af Gamradt1 %
```

Creating a Solution with a Project using .NET CLI

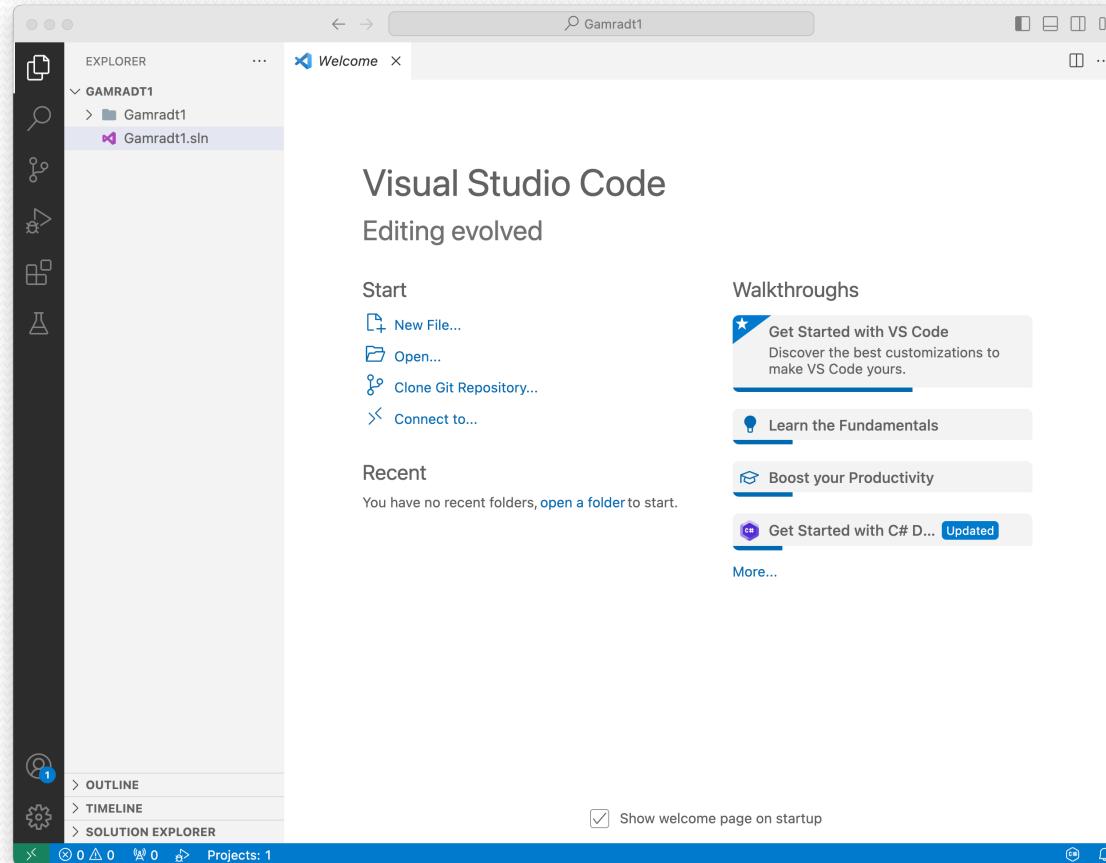
```
ken@sdeh136-08c4af Gamradt1 % pwd
/Users/ken/Documents/Projects/Gamradt1
ken@sdeh136-08c4af Gamradt1 % dotnet new sln
The template "Solution File" was created successfully.

ken@sdeh136-08c4af Gamradt1 % ls
Gamradt1.sln
ken@sdeh136-08c4af Gamradt1 % dotnet new console -o Gamradt1 -f net8.0
The template "Console App" was created successfully.

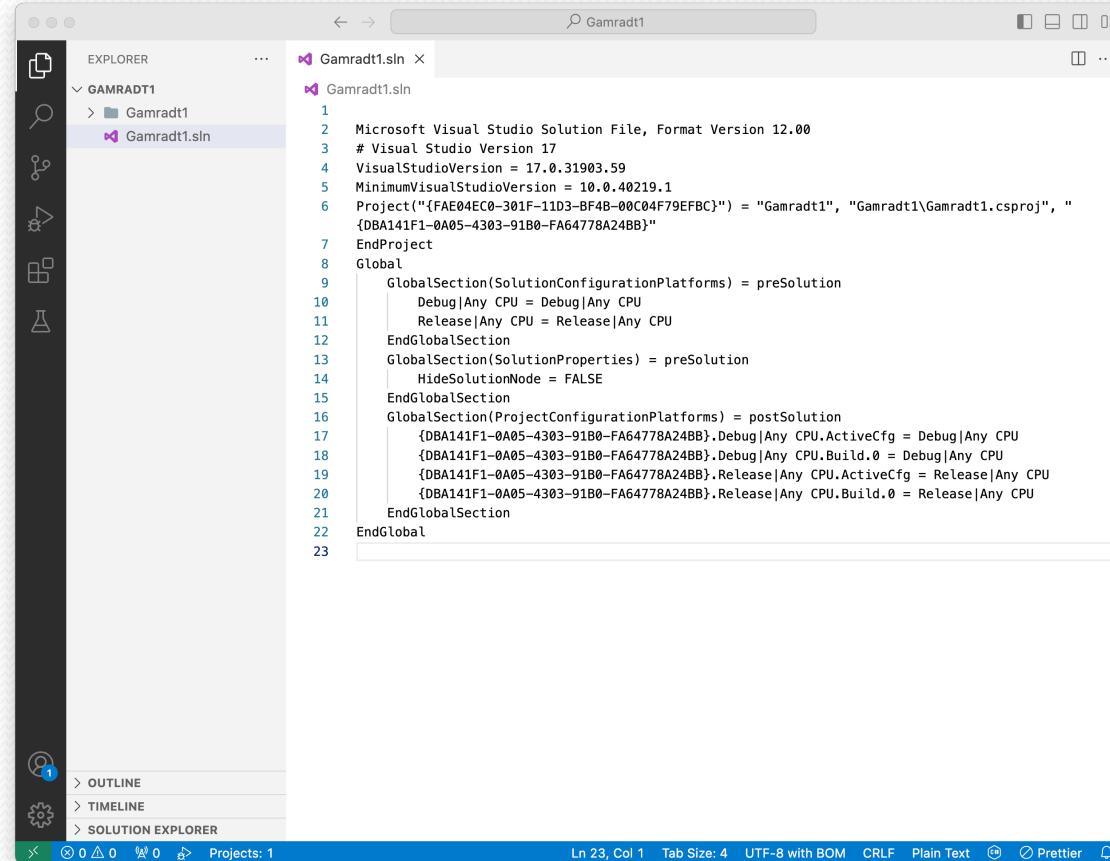
Processing post-creation actions...
Restoring /Users/ken/Documents/Projects/Gamradt1/Gamradt1/Gamradt1.csproj:
  Determining projects to restore...
  Restored /Users/ken/Documents/Projects/Gamradt1/Gamradt1/Gamradt1.csproj (in 404 ms).
Restore succeeded.

ken@sdeh136-08c4af Gamradt1 % dotnet sln add Gamradt1
Project `Gamradt1/Gamradt1.csproj` added to the solution.
ken@sdeh136-08c4af Gamradt1 % ls
Gamradt1      Gamradt1.sln
ken@sdeh136-08c4af Gamradt1 % ls Gamradt1
Gamradt1.csproj Program.cs      obj
ken@sdeh136-08c4af Gamradt1 % █
```

Examining Project using VS Code



Examining Project using VS Code – solution file (.sln)

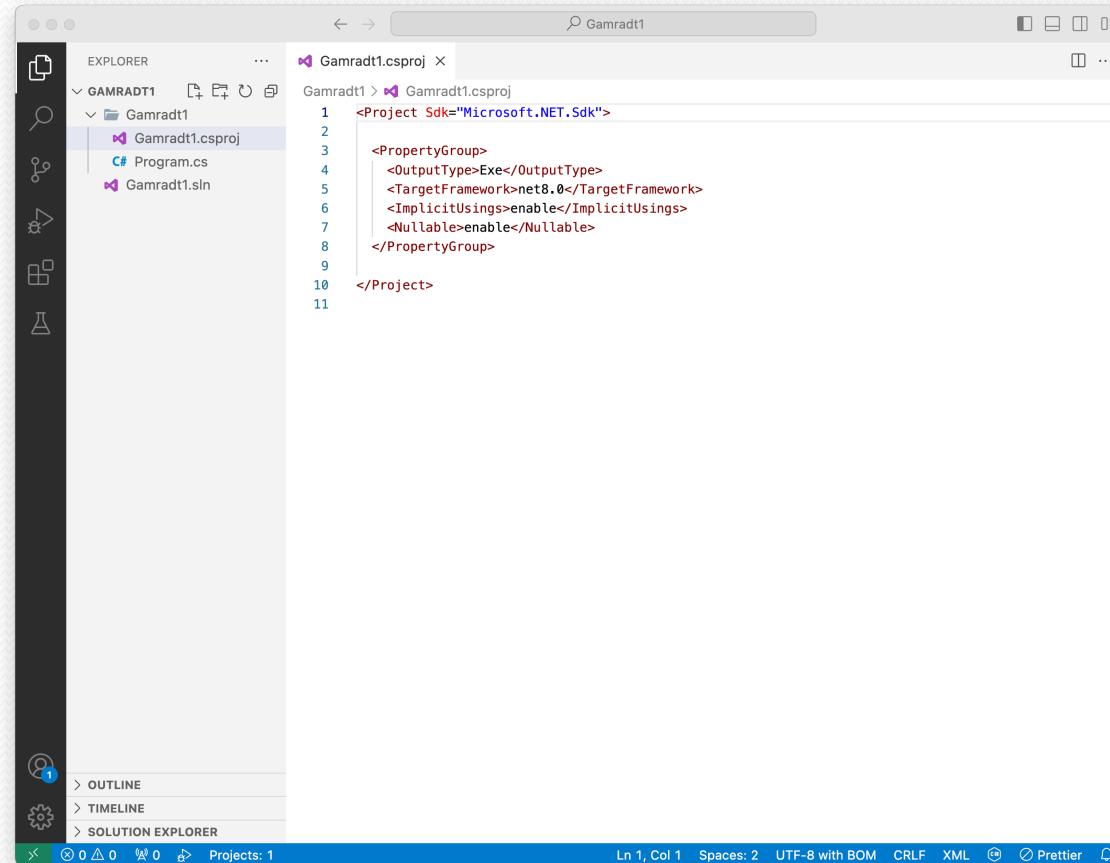


The screenshot shows the VS Code interface with the Explorer tab selected. The left sidebar displays a tree view with a folder named "GAMRADT1" containing a file "Gamradt1.sln". The main editor area shows the content of the "Gamradt1.sln" file:

```
1 Microsoft Visual Studio Solution File, Format Version 12.00
2 # Visual Studio Version 17
3 VisualStudioVersion = 17.0.31903.59
4 MinimumVisualStudioVersion = 10.0.40219.1
5 Project("{FAE04EC0-301F-1103-BF4B-00C04F79EFBC}") = "Gamradt1", "Gamradt1\Gamradt1.csproj", "{DBA141F1-0A05-4303-91B0-FA64778A24BB}"
6 EndProject
7 Global
8 GlobalSection(SolutionConfigurationPlatforms) = preSolution
9     Debug|Any CPU = Debug|Any CPU
10    Release|Any CPU = Release|Any CPU
11 EndGlobalSection
12 GlobalSection(SolutionProperties) = preSolution
13     HideSolutionNode = FALSE
14 EndGlobalSection
15 GlobalSection(ProjectConfigurationPlatforms) = postSolution
16     {DBA141F1-0A05-4303-91B0-FA64778A24BB}.Debug|Any CPU.ActiveCfg = Debug|Any CPU
17     {DBA141F1-0A05-4303-91B0-FA64778A24BB}.Debug|Any CPU.Build.0 = Debug|Any CPU
18     {DBA141F1-0A05-4303-91B0-FA64778A24BB}.Release|Any CPU.ActiveCfg = Release|Any CPU
19     {DBA141F1-0A05-4303-91B0-FA64778A24BB}.Release|Any CPU.Build.0 = Release|Any CPU
20 EndGlobalSection
21 EndGlobalSection
22 EndGlobal
```

The bottom status bar indicates "Ln 23, Col 1" and "Projects: 1".

Examining Project using VS Code – project file (.csproj)



The screenshot shows the Visual Studio Code interface with the following details:

- Explorer View:** Shows the project structure under the folder "GAMRADT1". It includes the files "Gamradt1.csproj", "Program.cs", and "Gamradt1.sln".
- Editor View:** Displays the content of the "Gamradt1.csproj" file. The code is as follows:

```
<Project Sdk="Microsoft.NET.Sdk">
<PropertyGroup>
<OutputType>Exe</OutputType>
<TargetFramework>net8.0</TargetFramework>
<ImplicitUsings>enable</ImplicitUsings>
<Nullable>enable</Nullable>
</PropertyGroup>
</Project>
```

At the bottom of the editor view, there are status indicators: Line 1, Col 1, Spaces: 2, UTF-8 with BOM, CRLF, XML, and Prettier.

- Sidebar:** Includes icons for File, Find, Replace, and other development tools.
- Bottom Bar:** Shows icons for file operations (New, Open, Save, etc.) and a status bar indicating "Projects: 1".

Build & Run Project with VS Code and CLI – .NET 8

The screenshot shows a Microsoft Visual Studio Code (VS Code) interface with the following details:

- Explorer View:** Shows a project named "GAMRADT1" containing files: "Gamradt1.csproj", "Program.cs", and "Gamradt1.sln".
- Code Editor:** Displays the "Program.cs" file with the following code:

```
1 // See https://aka.ms/new-console-template for more information
2 Console.WriteLine("Hello, World!");
3
```
- Terminal:** Shows the command-line output of the build process:

```
● ken@sdeh136-08c4af Gamradt1 % pwd
/Users/ken/Documents/Projects/Gamradt1
● ken@sdeh136-08c4af Gamradt1 % dotnet build
MSBuild version 17.8.3+195e7f5a3 for .NET
Determining projects to restore...
All projects are up-to-date for restore.
Gamradt1 -> /Users/ken/Documents/Projects/Gamradt1/Gamradt1/bin/Debug/net8.0/Gamradt1.dll

Build succeeded.
0 Warning(s)
0 Error(s)

Time Elapsed 00:00:00.73
● ken@sdeh136-08c4af Gamradt1 % dotnet run
Couldn't find a project to run. Ensure a project exists in /Users/ken/Documents/Projects/Gamradt1, or pass
the path to the project using --project.
● ken@sdeh136-08c4af Gamradt1 % dotnet run --project Gamradt1
Hello, World!
○ ken@sdeh136-08c4af Gamradt1 %
```
- Status Bar:** Shows "Ln 3, Col 1" and other standard status bar information.

Build & Run Project with VS Code and CLI – .NET 5 style

The screenshot shows the Visual Studio Code interface with the following details:

- Explorer View:** Shows the project structure under 'GAMRADT1': 'Gamradt1.csproj', 'Program.cs', and 'Gamradt1.sln'. 'Program.cs' is currently selected.
- Code Editor:** Displays the 'Program.cs' file content:

```
1  using System;
2
3  namespace MyApp // Note: actual namespace depends on the project name.
4  {
5      0 references
6      internal class Program
7      {
8          0 references
9          static void Main(string[] args)
10         {
11             Console.WriteLine("Hello World!");
12         }
13     }
}
```
- Terminal:** Shows the command-line output of the build process:

```
● ken@sdeh136-08c4af Gamradt1 % pwd
/Users/ken/Documents/Projects/Gamradt1
● ken@sdeh136-08c4af Gamradt1 % dotnet build
MSBuild version 17.8.3+195e7f5a3 for .NET
Determining projects to restore...
All projects are up-to-date for restore.
Gamradt1 -> /Users/ken/Documents/Projects/Gamradt1/Gamradt1/bin/Debug/net8.0/Gamradt1.dll

Build succeeded.
0 Warning(s)
0 Error(s)

Time Elapsed 00:00:02.35
● ken@sdeh136-08c4af Gamradt1 % dotnet run --project Gamradt1
Hello World!
○ ken@sdeh136-08c4af Gamradt1 %
```
- Status Bar:** Shows 'Ln 13, Col 1', 'Spaces: 4', 'UTF-8 with BOM', 'CRLF', 'C#', 'Prettier', and other status indicators.

Build and Run Project with .NET CLI

```
ken@sdeh136-08c4af Gamradt1 % pwd
/Users/ken/Documents/Projects/Gamradt1
ken@sdeh136-08c4af Gamradt1 % dotnet build
MSBuild version 17.8.3+195e7f5a3 for .NET
  Determining projects to restore...
  All projects are up-to-date for restore.
  Gamradt1 -> /Users/ken/Documents/Projects/Gamradt1/Gamradt1/bin/Debug/net8.0/Gamradt1.
dll

Build succeeded.
  0 Warning(s)
  0 Error(s)

Time Elapsed 00:00:01.07
ken@sdeh136-08c4af Gamradt1 % dotnet run --project Gamradt1
Hello, World!
ken@sdeh136-08c4af Gamradt1 % 
```