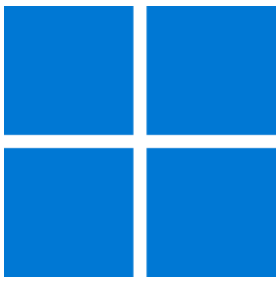
tutorial

Windows App SDK



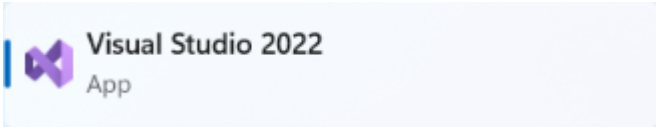
Lucky Roshambo

Lucky Roshambo shows how you can create simple **Rock-Paper-Scissors** game or **Roshambo** as it is known in parts of North America, using emoji and with a toolkit from **NuGet** using the **Windows App SDK**.

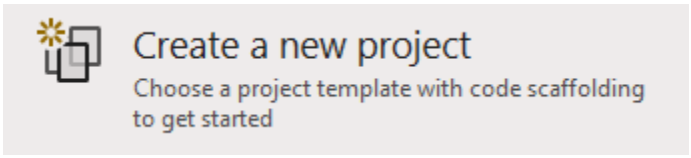
Step 1

Follow **Setup and Start** on how to get **Setup** and **Install** what you need for **Visual Studio 2022** and **Windows App SDK**.

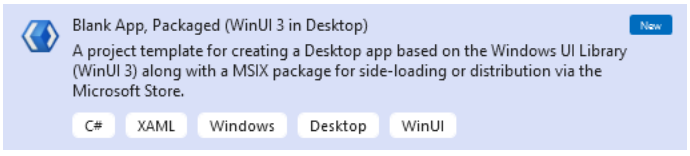
In **Windows 11** choose **Start** and then find or search for **Visual Studio 2022** and then select it.



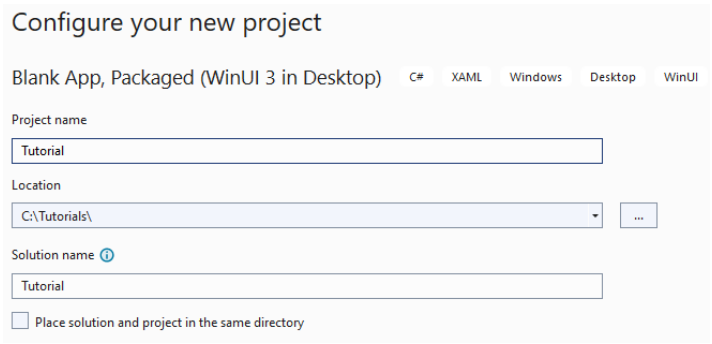
Once **Visual Studio 2022** has started select **Create a new project**.



Then choose the **Blank App, Packages (WinUI in Desktop)** and then select **Next**.

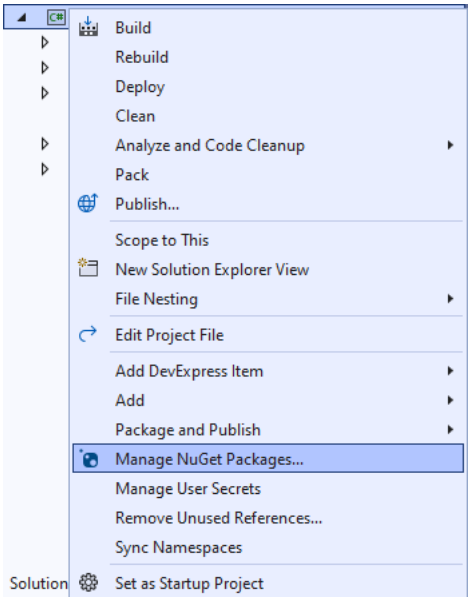


After that in **Configure your new project** type in the **Project name** as *LuckyRoshambo*, then select a Location and then select **Create** to start a new **Solution**.



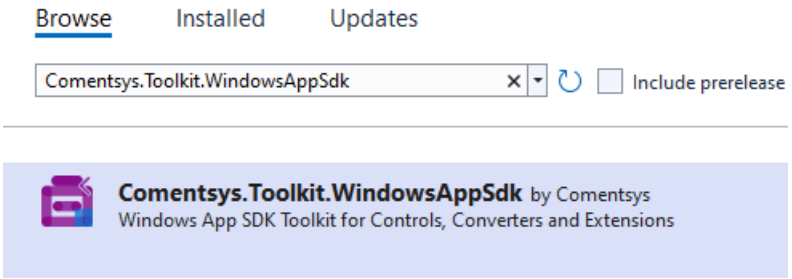
Step 2

Then in **Visual Studio** within **Solution Explorer** for the **Solution**, right click on the **Project** shown below the **Solution** and then select **Manage NuGet Packages...**



Step 3

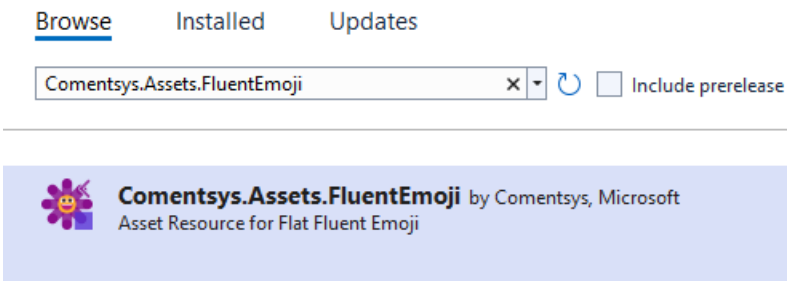
Then in the **NuGet Package Manager** from the **Browse** tab search for **Comentsys.Toolkit.WindowsAppSdk** and then select **Comentsys.Toolkit.WindowsAppSdk by Comentsys** as indicated and select **Install**



This will add the package for **Comentsys.Toolkit.WindowsAppSdk** to your **Project**. If you get the **Preview Changes** screen saying **Visual Studio is about to make changes to this solution. Click OK to proceed with the changes listed below.** You can read the message and then select **OK** to **Install** the package.

Step 4

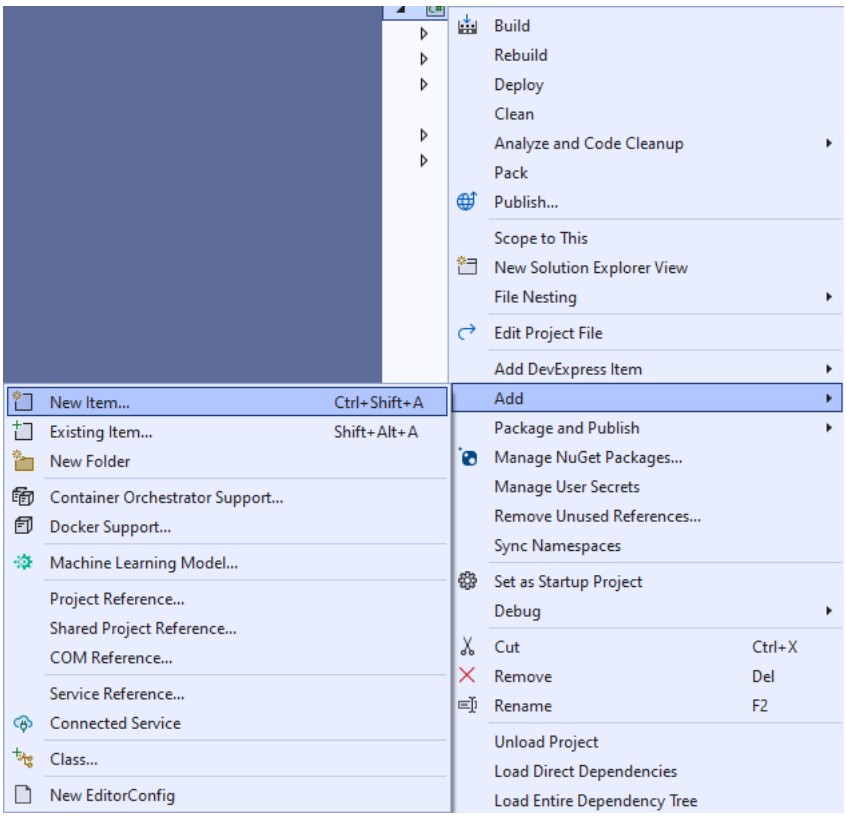
Then while still in the **NuGet Package Manager** from the **Browse** tab search for **Comentsys.Assets.FluentEmoji** and then select **Comentsys.Assets.FluentEmoji by Comentsys** as indicated and select **Install**



This will add the package for **Comentsys.Assets.FluentEmoji** to your **Project**. If you get the **Preview Changes** screen saying **Visual Studio is about to make changes to this solution. Click OK to proceed with the changes listed below.** You can read the message and then select **OK** to **Install** the package, then you can close the **tab** for **Nuget: LuckyRoshambo** by selecting the **x** next to it.

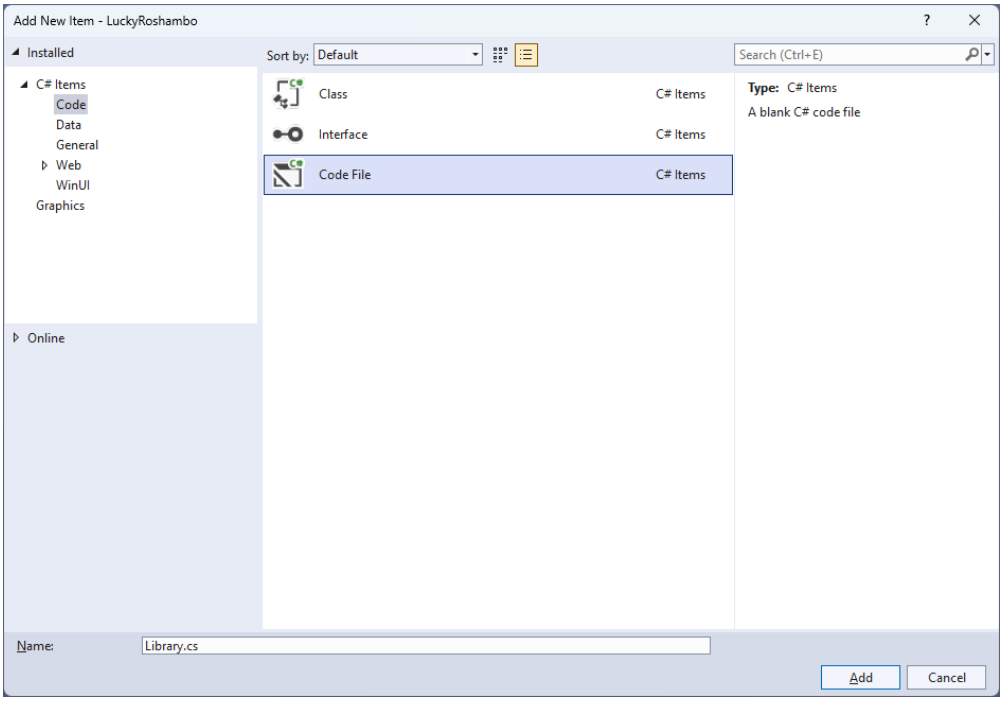
Step 5

Then in **Visual Studio** within **Solution Explorer** for the **Solution**, right click on the **Project** shown below the **Solution** and then select **Add** then **New Item...**



Step 6

Then in **Add New Item** from the **C# Items** list, select **Code** and then select **Code File** from the list next to this, then type in the name of *Library.cs* and then **Click** on **Add**.



Step 7

You will now be in the **View** for the **Code** of *Library.cs*, within this first type the following **Code**:

```
using Comentsys.Assets.FluentEmoji;
using Comentsys.Toolkit.WindowsAppSdk;
using Microsoft.UI.Xaml;
using Microsoft.UI.Xaml.Controls;
using System;

public class Library
{
    private const string title = "Lucky Roshambo";
    private const int size = 3;
    private const int lost = 0;
    private const int win = 1;
    private const int draw = 2;

    private static readonly int[,] _match = new int[size, size]
    {
         { draw, lost, win },
         { win, draw, lost },
         { lost, win, draw }
    };
    private static readonly FluentEmojiType[] _assets = new FluentEmojiType[]
    {
        FluentEmojiType.Rock,
        FluentEmojiType.PageWithCurl,
        FluentEmojiType.Scissors
    };
    private static readonly string[] _values = new string[]
    {
        "You Lost!",
        "You Win!",
        "You Draw!"
    };
    private readonly Random _random = new((int)DateTime.UtcNow.Ticks);
    private Dialog _dialog;

    // Asset & Play

    // Get & New

}
```

The **`Class`** that has been defined in so far *Library.cs* has **`using`** for the packages that were added of **`Comentsys.Assets.FluentEmoji`** and **`Comentsys.Toolkit.WindowsAppSdk`** amongst others needed. There are also some **`const`** and **`readonly`** values for parts of the game such as the **`FluentEmojiType`** for *Rock*, *Page with Curl* for *Paper and Scissors* and to represent the board along with a **`Dialog`** that will be used to display messages in the game.

Step 8

Still in the **`Class`** for *Library.cs* after the **Comment** of **`// Asset & Play`** type the following **Methods**:

```
private Viewbox Asset(int asset) => new()
{
    Width = 100,
    Height = 100,
    Child = new Asset
    {
        AssetResource = FlatFluentEmoji.Get(_assets[asset])
    }
};

private void Play(int option)
{
    int computer = _random.Next(0, size - 1);
    var result = _match[option, computer];
    var content = new StackPanel()
    {
        Orientation = Orientation.Vertical
    };
    content.Children.Add(new TextBlock()
    {
        HorizontalTextAlignment = TextAlignment.Center,
        Text = "Computer Picked"
    });
    content.Children.Add(Asset(computer));
    content.Children.Add(new TextBlock()
    {
        HorizontalTextAlignment = TextAlignment.Center,
        Text = _values[result]
    });
    _dialog.Show(content);
}
```

`Asset` will be used to get the relevant asset to display the *Rock*, *Paper* or *Scissors* and **`Play`** will be used when it is time to see if can beat the selection of *Rock*, *Paper* or *Scissors* with your own selection and will display a message showing what the result is.

Step 9

While still in the **`Class`** for *Library.cs* after the **Comment** of **`// Get & New`** type in the following **Methods**:

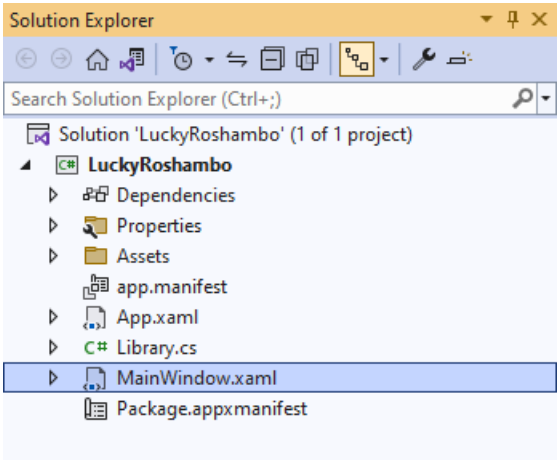
```
private Button Get(int option)
{
    Button button = new()
    {
        Width = 150,
        Height = 150,
        Tag = option,
        Content = Asset(option),
        Margin = new Thickness(5)
    };
    button.Click += (object sender, RoutedEventArgs e) =>
        Play((int)((Button)sender).Tag);
    return button;
}

public void New(StackPanel panel)
{
    _dialog = new Dialog(panel.XamlRoot, title);
    panel.Children.Clear();
    for (int index = 0; index < size; index++)
    {
        panel.Children.Add(Get(index));
    }
}
```

`Get` is used to obtain a **`Button`** and set the **Event** for **`Click`** to use the **Method** for **`Play`** and **`New`** is used to create the look-and-feel for the game and to start the game.

Step 10

Then from **Solution Explorer** for the **Solution** double-click on **MainWindow.xaml** to see the **XAML** for the **Main Window**.



Step 11

In the **XAML** for **MainWindow.xaml** there be some **XAML** for a **`StackPanel`**, this should be **Removed** by removing the following:

```
<StackPanel Orientation="Horizontal"
HorizontalAlignment="Center" VerticalAlignment="Center">
    <Button x:Name="myButton" Click="myButton_Click">Click Me</Button>
</StackPanel>
```

Step 12

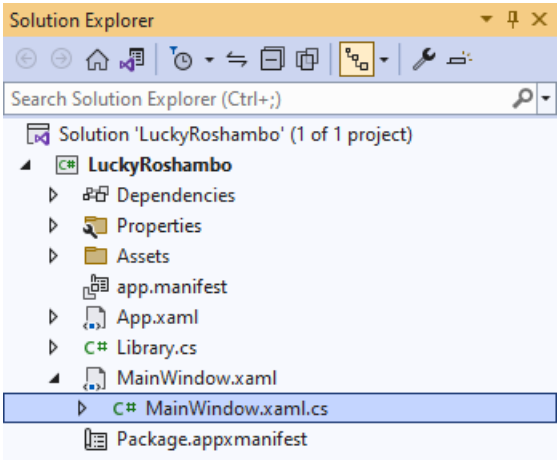
While still in the **XAML** for **MainWindow.xaml** above **`</Window>`**, type in the following **XAML**:

```
<Grid>
    <Viewbox>
        <StackPanel Margin="50" Name="Display" Orientation="Horizontal"
        HorizontalAlignment="Center" VerticalAlignment="Center" Loaded="New"/>
    </Viewbox>
    <CommandBar VerticalAlignment="Bottom">
        <AppBarButton Icon="Page2" Label="New" Click="New"/>
    </CommandBar>
</Grid>
```

This **XAML** contains a **`Grid`** with a **`Viewbox`** which will scale a **`StackPanel`**. It has a **`Loaded`** event handler for **`New`** which is also shared by the **`AppBarButton`**.

Step 13

Then, within **Solution Explorer** for the **Solution** select the arrow next to **MainWindow.xaml** then double-click on **MainWindow.xaml.cs** to see the **Code** for the **Main Window**.



Step 14

In the **Code** for **MainWindow.xaml.cs** there be a **Method** of **`myButton_Click(...)`** this should be **Removed** by removing the following:

```
private void myButton_Click(object sender, RoutedEventArgs e)
{
    myButton.Content = "Clicked";
}
```

Step 15

Once **`myButton_Click(...)`** has been removed, type in the following **Code** below the end of the **Constructor** of **`public MainWindow() { ... }`**:

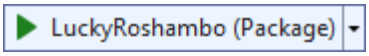
```
private readonly Library _library = new();

private void New(object sender, RoutedEventArgs e) =>
    _library.New(Display);
```

Here an **Instance** of the **Class** of **`Library`** is created then below this is the **Method** of **`New`** that will be used with **Event Handler** from the **XAML**, this **Method** uses Arrow Syntax with the **`=>`** for an Expression Body which is useful when a **Method** only has one line.

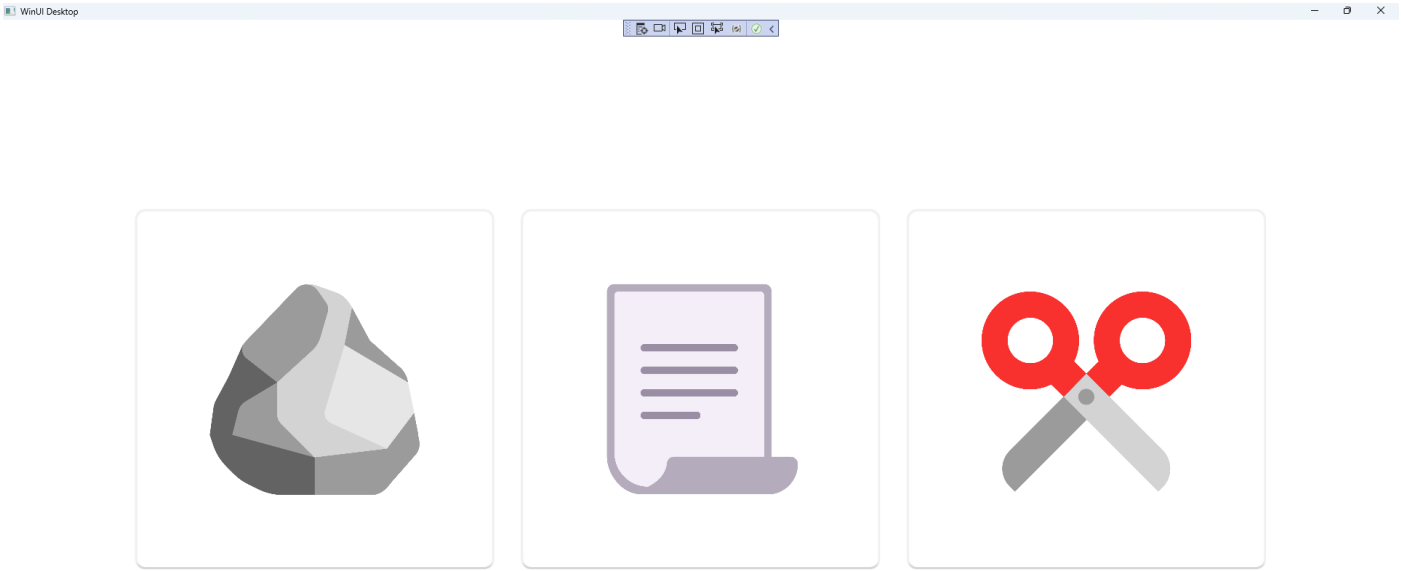
Step 16

That completes the **Windows App SDK** Application. In **Visual Studio 2022** from the **Toolbar** select **LuckyRoshambo (Package)** to **Start** the Application.



Step 17

Once running you can then press on the first button - **Rock**, the second button for **Paper** or the third button for **Scissors** then you can see what the **Computer** selects to see if you **Win**, **Lose** or **Draw** or you can restart the game by selecting **New**.



Step 18

To **Exit** the **Windows App SDK** Application, select the **Close** button from the top right of the Application as that concludes this **Tutorial** for **Windows App SDK** from tutorialr.com!