

Date
09/07/21

Neeraj Appan Game Programming Practical - 2 & 3

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* Practical - 02

→ Aim: Draw a triangle using DirectX3D

* Description -

- 1) Using system. It means using the system library in project
- 2) Using System.Collections.Generic. Contains interfaces and class that define generic collections, which allows user to create strongly typed collections that provides better type safety & performance than non-generic
- 3) Using System.ComponentModel. Provides classes that are used to implement the run-time and design-time behaviour of components and controls
- 4) Using System.Data. Contains the classes that represent A-CSI & Unicode the provider-specific ADO.NET objects used to connect database
- 5) Using System.Text. Contains classes that represent ASCII and Unicode
- 6) Using Microsoft.DirectX. A window desktop app developed using native C++ and DirectX APIs
- 7) Using Microsoft.DirectX.Direct3D. For low-level graphics applications programming interfaces (API)
- 8) Custom Vertex Position Colored (1). Describes a custom vertex format structure that contains position, color and normal data
- 9) Present Parameters Class - Describes presentation parameters

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- 10) Swap effect - Discard - An application used Discard swap effect to avoid overheads & to enable display driver to choose most efficient presentation technique for swap characters
- 11) Create Flags - Defines the flags to use when creating a device
- 12) Paint Event Args Class - Provides data for the paint even
- 13) Primitive Type - Defines primitive supported by Microsoft Direct 3D

Visual Studio interface showing the code editor, Solution Explorer, and Error List.

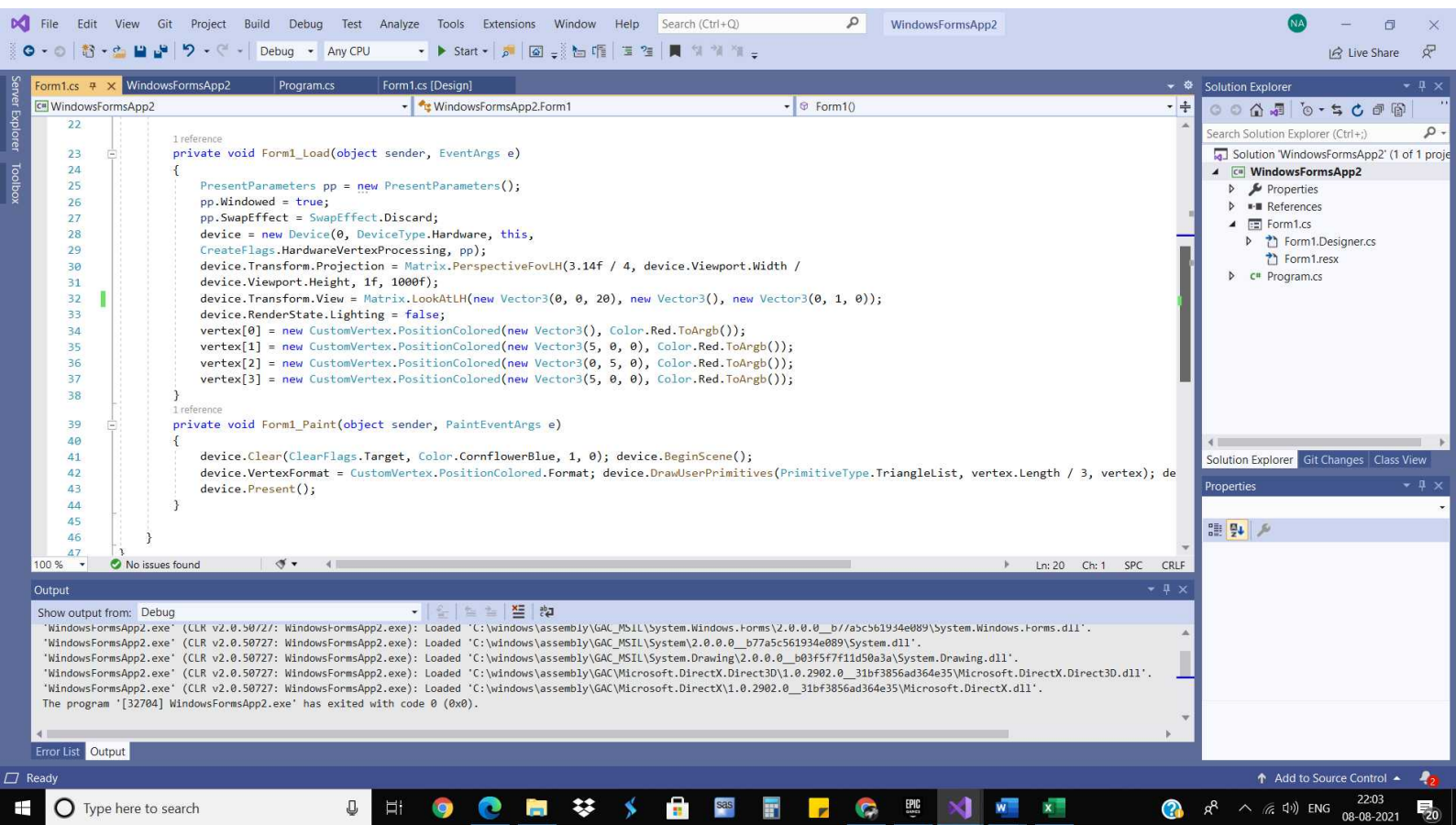
Code Editor: Displays the source code for `Form1.cs` in the `WindowsFormsApp2` project. The code includes using statements for `System`, `System.Collections.Generic`, `System.ComponentModel`, `System.Data`, `System.Drawing`, `System.Text`, `System.Windows.Forms`, `Microsoft.DirectX`, and `Microsoft.DirectX.Direct3D`. It defines a namespace `WindowsFormsApp2` and a partial class `Form1` that inherits from `Form`. The class contains a `device` property of type `Microsoft.DirectX.Direct3D.Device` and a `vertex` property of type `CustomVertex.PositionColored[]`.

Solution Explorer: Shows the project structure for `WindowsFormsApp2`, including `Properties`, `References`, `Form1.cs`, `Form1.Designer.cs`, `Form1.resx`, and `Program.cs`.

Error List: Displays two IDE messages:

- IDE0044:** Make field readonly (Line 16, Active)
- IDE0017:** Initialization can be simplified (Line 25, Active)

The bottom status bar shows the system clock as 22:05 on 08-08-2021.



Visual Studio interface showing a C# project named **WindowsFormsApp2** in Debug mode. The main window displays the **Form1_Load** method in **Form1.cs**, which initializes a Direct3D device and renders a red triangle on a blue background.

```
22 1 reference
23 private void Form1_Load(object sender, EventArgs e)
24 {
25     PresentParameters pp = new PresentParameters();
26     pp.Windowed = true;
27     pp.SwapEffect = SwapEffect.Discard;
28     device = new Device(0, DeviceType.Hardware, this,
29     CreateFlags.HardwareVertexProcessing, pp);
30     device.Transform.Projection = Matrix.PerspectiveFovLH(3.14f / 4, device.Viewport.Width /
31     device.Viewport.Height, 1f, 1000f);
32     device.Transform.View = Matrix.LookAtLH(new Vector3(0, 0, 20), new Vector3(), new Vector3(0,
33     device.RenderState.Lighting = false;
34     vertex[0] = new CustomVertex.PositionColored(new Vector3(), Color.Red.ToArgb());
35     vertex[1] = new CustomVertex.PositionColored(new Vector3(5, 0, 0), Color.Red.ToArgb());
36     vertex[2] = new CustomVertex.PositionColored(new Vector3(0, 5, 0), Color.Red.ToArgb());
37     vertex[3] = new CustomVertex.PositionColored(new Vector3(5, 0, 0), Color.Red.ToArgb());
38 }
```

The **Solution Explorer** shows the project structure:

- Solution 'WindowsFormsApp2' (1 of 1 project)
 - WindowsFormsApp2
 - Properties
 - References
 - Form1.cs
 - Form1.Designer.cs
 - Form1.resx
 - Program.cs

The **Error List** shows two IDE messages:

Code	Description	Project	File	Line	Suppressed
IDE0044	Make field readonly	WindowsFormsApp2	Form1.cs	16	Active
IDE0017	Object initialization can be simplified	WindowsFormsApp2	Form1.cs	25	Active

The Windows taskbar at the bottom shows the system clock as 22:03 on 08-08-2021.

