# Exercises for Chapter 21 – Deployment and Versioning

## Exercise 1

1. Create a new solution called *Graphics*
2. Add a Class Library (DLL) project called *GraphicsLib* to the solution
3. Add code for the **Point** and **Rectangle** types to the *GraphicsLib* project
4. Add a Console Application (EXE) project called *GraphicsClient* to the solution
5. Add a reference to the *GraphicsLib* project:
   1. Right-click the *GraphicsClient* project and choose Add Reference…
   2. Choose *GraphicsLib* from the Projects tab
6. Compile and build the project
7. Inspect the *bin\Debug* directory under the *GraphicsClient* project root and ensure that both the EXE and the DLL were copied into the directory
8. Write code to manipulate **Rectangle** objects in the *GraphicsClient* project
9. Compile and build the project
10. Explore the *GraphicsClient* manifest using ILDASM
    1. Open a Visual Studio command prompt
    2. Run *ILDASM.EXE*
    3. Choose File 🡪 Open and navigate to *GraphicsClient.exe*
11. Run the application and ensure it works properly

## Exercise 2

1. In the *bin\Debug* folder of the *GraphicsClient* application developed in Exercise 1, create a sub-directory called *Utils*
2. Move (not copy) the *GraphicsLib.dll* file to the newly created directory
3. Run the application and ensure that it fails to execute
4. Navigate to Control Panel 🡪 Administrative Tools 🡪 Microsoft .NET Configuration 🡪 Applications 🡪 Add an application to configure
5. Choose the *GraphicsClient.exe* application and select View Application Properties
6. Add the *Utils* directory to the bottom-most text box
7. Ensure that a *GraphicsClient.exe.config* file was created in the application directory and inspect it
8. Run the application and ensure that it works properly

## Exercise 3

1. Add a statement to the **Rectangle** or **Point** class constructor that prints the assembly version (use **Assembly.GetExecutingAssembly()**)
2. Add a public-private key pair to the *GraphicsLib* project using Visual Studio properties
3. Add the *GraphicsLib* assembly to the GAC by navigating to its DLL file and copying it to the GAC using Windows Explorer (navigate to *%WINDIR%\Assembly*)
4. Remove the reference to the *GraphicsLib* project from the *GraphicsClient* project and add it again (in the reference properties set Copy Local to false)
5. Compile and run the *GraphicsClient* project (make sure it is not copied to the output directory, but rather loaded from the GAC)
6. Change the *GraphicsLib* version number in *AssemblyInfo.cs* to 2.0.0.0
7. Add it to the GAC
8. Run the client application again and ensure it runs version 1.0.0.0
9. Run the .NET Framework Configuration Tool, browse to the *GraphicsClient* application, choose Manage Configured Assemblies 🡪 Configure an assembly 🡪 Choose an assembly from the list 🡪 *GraphicsLib*
10. Select the Binding Policy tab, use 1.0.0.0 for the requested version and 2.0.0.0 for the new version
11. Inspect the *GraphicsClient.exe.config* file in the application directory
12. Run the application again and ensure it uses the new version of the shared assembly