

DT021/4 Network Centric and Distributed Computing

Formal Report Assignment 2018-2019

You are required to write a program and a report based on interfacing to Google's version of RPC called gRPC, which is a language-neutral, platform-neutral remote procedure call (RPC) framework and toolset. It has been specifically designed for building scalable distributed client/server-model-based applications and cloud-based applications in particular.

1. Study the background information on gRPC by following the link below:
<https://grpc.io/docs/guides/>
2. Build and execute the Google Codelab C# tutorial *Greeter* sample using the link below

<https://codelabs.developers.google.com/codelabs/cloud-grpc-csharp/index.html>

3. Based on what you have learned from step 2 above, add a button to your C# calculator that, when pressed, calls a gRPC remote function and displays the return value on the calculator screen. It is up to you to decide what the remote function will do.

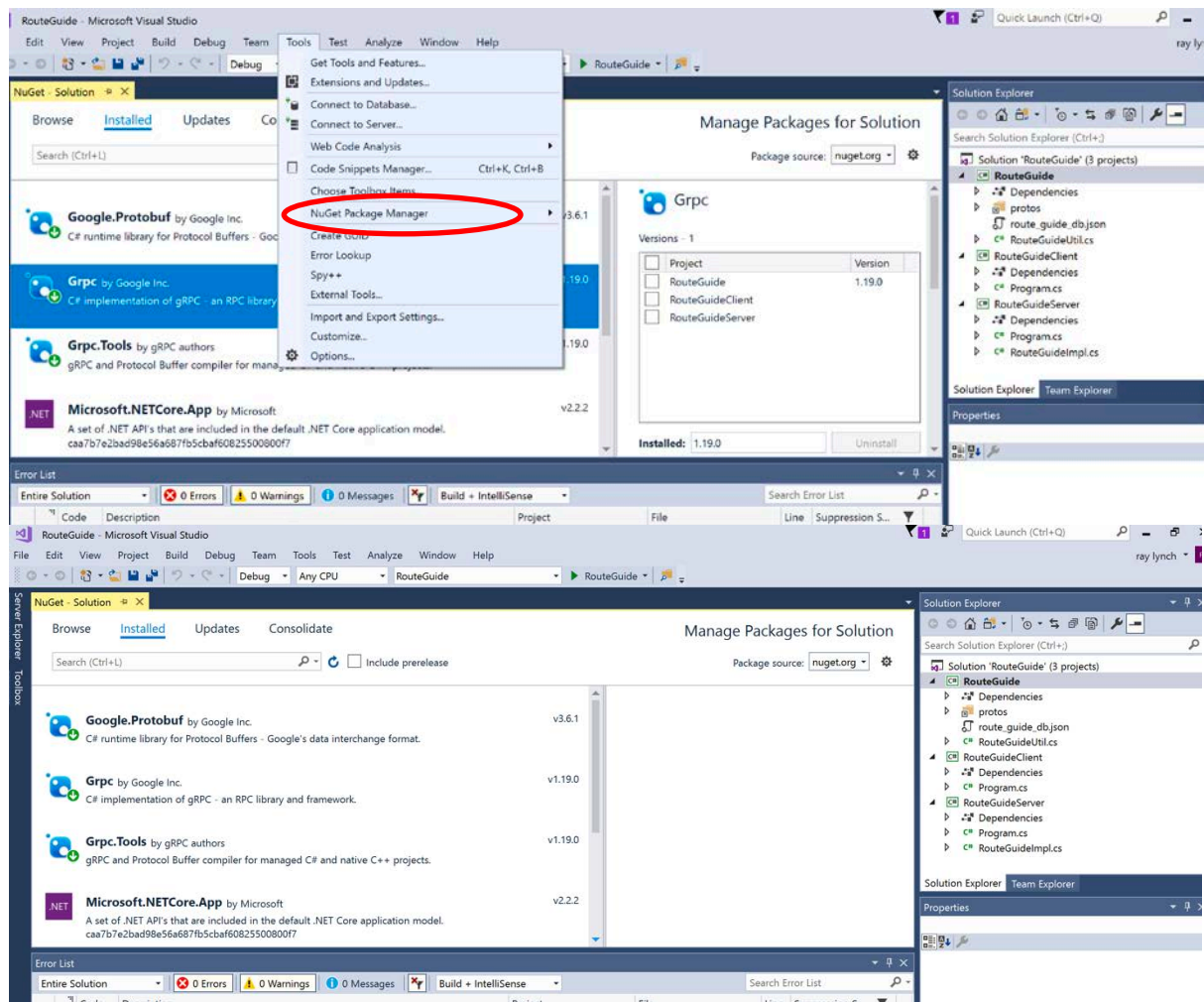
Submit a formal report on your work which should consist of:

1. A background discussion on gRPC. Include a comparison with traditional RPC.
2. A detailed description of your particular implementation of the code above. You should include an explanation of the particular code snippets related to Grpc. Also include flowcharts etc. that will demonstrate your understanding of the technology.
3. A copy of your code which should be heavily commented.

Dr. R. Lynch

Using NuGet with Visual Studio

- Open Visual Studio and start a new project/solution
- Add the [Grpc](#) NuGet package as a dependency (Project options -> Manage NuGet Packages).
- To be able to generate code from Protocol Buffer (.proto) file definitions, add the [Grpc.Tools](#) NuGet package that contains Protocol Buffers compiler (*protoc*) and the gRPC *protoc* plugin.



You may get an error when first running GreeterServer.exe

In my case I ran Greeterserver.exe from

V:\Documents\Visual Studio 2017\gRPC\dotnet\dotnet_desktop\GreeterServer\bin\Debug>

And got the following error

Unhandled Exception: System.IO.FileNotFoundException: Error loading native library. Not found in any of the possible locations:

V:\Documents\Visual Studio

2017\gRPC\dotnet\dotnet_desktop\GreeterServer\bin\Debug\grpc_csharp_ext.x86.dll

Solved by copying missing file from

Documents\Visual Studio

2017\gRPC\dotnet\dotnet_desktop\packages\Grpc.Core.1.0.1\runtimes\win\native

to

Documents\Visual Studio 2017\gRPC\dotnet\dotnet_desktop\GreeterServer\bin\Debug

Do same for GreeterClient.exe