**Cloud Computing 2k20**

(We made the title so big to fill up more pages)

This might be without a doubt the easiest tutorial you will ever follow in the entirety of your life. If you are unable to run the example project after the following steps you can send us a Revolut donation and we’ll do it for you.

1. **What tools do I need?**

* Vcpckg
* gRPC
* Protobuf
* Visual Studio

1. **How do I install them?**

Here’s where Vcpckg comes in handy. Vcpkg is a cross-platform open source package manager by Microsoft (copied from Wikipedia). So, it’s going to help us install gRPC and Protobuf.

First, go to the following URL: <https://github.com/microsoft/vcpkg>

It is advised that you do have a GitHub account, but for this project we don’t have to clone/fork it. It’s enough to download it. Where? Doesn’t matter, location is irrelevant. Just make sure you can find it afterwards.

When you’re finished with the download and placement of the folder in a location you will delete 10 weeks later, navigate under the root folder where you should find a batch file called **bootstrap-vcpkg.bat**.

Run said batch file, the console should inform you in a very short amount of time that everything went just fine.

Then open up a command-line console (preferably as administrator) at the same location, and insert the following command: **vcpkg integrate install**

Yet again the console should inform you very quickly that everything went according to plan.

Only now we’re done with vcpkg. Let’s use it for our purpose, that is to install gRPC and protobuf. To install both of them, we only need to type in a single command line: **vcpkg install grpc curl**

That will install both gRPC and protobuf, however this time some patience is required. It will take quite some time, and at one point you will be wondering if the installation is stuck. It isn’t. Just wait a few minutes, and eventually the console will inform you that the installation was successful. To check this, you may try to install the Protobuf package as well: **vcpkg install protobuf curl**

If you followed the numerous steps above correctly, the console should inform you that the package is already installed (because it comes with gRPC).

Visual Studio? We’d like you to have the latest version but it’s not mandatory.

1. **Tying up loose ends**

Great, now we are ready to run the example project. Right? Well, not really. We won’t really tell you how to run it, but how to build it. If it builds successfully, you are almost guaranteed to encounter no issues when we’ll eventually run it together.

Go to the following URL: <https://github.com/WiseMarius/MicroservicesBasedCalculator>

If you wish you may clone the project since if you do break something and try to commit and push, you need a pull request so you can’t really mess up the repository. But you’re better of forking it… or download this one as well. We don’t really care, for now.

When you’re finished, navigate to the solution folder. There you should find a batch file called **generate\_protos\_C#.bat**. Open it up with your editor of choice, and edit the following paths: **GRPC\_PATH** and **PROTOC\_PATH**. They should point to your fresh installation of the packages we did earlier. Save the file.

Open up Visual Studio and rebuild the solution. It should be successful.