1CW: Mars Lander

Getting Started in Microsoft Windows

To work on the Mars Lander exercise, you need to install a C++ compiler on your PC.

- First, install Microsoft's **Visual Studio Community 2022** from here. The installer will ask you precisely what it is you wish to install. In the **Workloads** tab, select **Desktop development with C++**, add the most recent version of the optional **Windows 10 SDK** in the **Installation details** pane on the right (this may be ticked to install by default), then confirm that the **NuGet package manager** is selected from the **Individual components** tab. Press **Install**.
- Installing Visual Studio after signing in to your Microsoft account should result in a permanently licensed installation on your PC. You can check this by launching **Visual Studio**, clicking on the **Help** menu, then **About Microsoft Visual Studio**, then **License Status.** If the license is for a 30 day trial period only, sign in to your Microsoft account using the link on the **License Status** page: this should automatically upgrade your license.

Here is a quick guide to getting started with the Mars Lander exercise:

- Unzip the supplied Python and C++ source code into your **Documents** folder. This puts the source files in a new folder called **lander**.
- Start **Visual Studio.** The first time you do this, you may be offered the opportunity to **Start with a familiar environment** by choosing between various **Development Settings**: select the default **General** option.
- From the **Get started** dialog, select **Create a new project (**alternatively, and when running Visual Studio not for the first time, from the **File** menu select **New** and then **Project**). A pop-up dialog will appear. Select **Empty Project (C++)**, type **lander** into the **Project name** box and press **Create**. From the **Project** menu, select **Add Existing Item**, navigate to the **lander** folder under **Documents**, select the three C++ source files **lander.cpp**, **lander.h** and **lander_graphics.cpp** (but *not* **spring.cpp**), and press **Add**.
- From the **Project** menu, select **Manage NuGet Packages**. In the **Browse** tab search for **nupengl**, select the **nupengl.core** package and press **Install**. Click **OK** when the **Preview Changes** dialog pops up. This downloads and installs the various OpenGL graphics libraries required by the Mars Lander source code.
- You can now edit the source code by double clicking on **lander.cpp** under **Source Files** in the **Solution Explorer** tab (if you cannot see this tab, you can enable it under the **View** menu).
- Unlike Python, all C++ programs must first be *compiled* (i.e. translated into machine code) before they can be run.
- The **Build** menu contains options for compiling the program, while the **Debug** menu is for running and debugging. Spend some time reading the **Help** pages for more information.
- To compile and run the **spring.cpp** program for Assignment 3, repeat these instructions except: choose some other name for the project (not **lander**); add the **spring.cpp** source code file instead of the three lander source files; and skip the **NuGet** step for adding the OpenGL libraries.
- If you experience any issues when trying to run your code (e.g. only the console pops up, but not the graphics window), try disabling your antivirus software or add a suitable exception to your antivirus settings.

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◄ Python and C++ source code v1.11

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Access to courses as a Student Observer (Department of Engineering Tripos only)

Any other access issues contact moodle-support@eng.cam.ac.uk