COMP0037 2022 / 2023 Robotic Systems
Lab Instructions

COMP0037 Teaching Team

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Introduction

- Install Python 3. The exercises require a local installation of Python 3, along with a number of additional packages for numerical programming, plotting and machine learning. We suggest using the latest stable release of Python 3.9 (currently 3.9.7) as Python 3.10 has recently been released but many students have had issues with PyPI dependencies not yet being up to date, so install this version with caution. Although we recommend a more recent Python, the code has also been tested on Python 3.6.8, which is the version currently installed on some of the CS lab machines. It is possible, albeit suboptimal, to set up and run the exercises on one of those machines via SSH.

- Install Visual Studio Code, an easy-to-use editor.

- Install Git.

- Download the material from the Moodle page of the module: COMP0037_22-23 and put the lab material in a folder named `comp0037-labs`

- Open the folder `comp0037-labs` in Visual Studio Code: File > Open Folder > select the cloned repository folder

- Create and activate a virtual environment. A straightforward way to configure your virtual environment is to store it in a hidden subdirectory of your working directory (i.e., the directory containing the folder comp0037-labs).

```
1        $ mkdir comp0037−labs
2        $ cd comp0037−labs
3        $ python3 −m venv comp0037
4        # On Unix/MacOS:
5        $ source comp0037/bin/activate
6        # On Windows:
7        $ .\comp0037\Scripts\activate
8        # Upgrade pip:
9        $ python −m pip install −−upgrade pip
10       # If you get the error "python3 : The term 'python3' is not
    recognized as the name of a cmdlet, function, script file, or
    operable program. Check the spelling of the name, or if a path was
    included, verify that the path is correct and try again", try using
    :
11       $ python −m venv comp0037
```

- Install Python package requirements:

```
1        $ pip install −r requirements.txt
```

- On the bottom left of you VS Code window you sould see a "Select Interpreter" button:

    – Click on the button

    – Select "Enter interpreter path..."

    – Select "Find..."

        ∗ Go to your virtual environment folder in "comp0037-labs" > Scripts > python.exe > Select Interpreter (Windows)

        ∗ Go to your virtual environment folder in "comp0037-labs" > bin > python.exe (or just python if you don't see the .exe extension)> Select Interpreter (Unix/-MacOS)

    – Insted of "Select Interpreter" you should now see "3.x.x('venvcomp0037':venv) or similar

- Read the week's lab exercises document `Lab_N.pdf`

- Add your code to the scripts mentioned in the document

- Run the script either from the command line to see your code

About

This documents contains instructions for lab exercises for the COMP0037 Robotic Systems module for taught MSc students at UCL, delivered in Spring 2023. Exercises are designed to be attempted in the on-campus lab sessions on Friday afternoon, though you are free to do additional work in your own time if you wish.

Lab attendance will be monitored, but the exercises are **not graded**. You are welcome to discuss and help each other with these tasks and to ask for assistance and clarification from the TAs, but there is nothing to be gained by simply copying each others' work.

Content

In addition to the spec and script for each week, there are a few other files are available on Moodle:

- `Instructions.pdf`: this file.

- `requirements.txt`: a list of additional Python packages to install.

Feedback

Please post questions, comments, issues or bug reports to the COMP0037 Moodle forum or raise them with the TAs during your lab sessions.