CONSTRUCTOR UNIVERSITY

Robotics

Solution Demos with Python

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Overview

For illustration purposes and to allow you to experiment, Python programs related to the problem-sheets are provided.

Overview

Like all the other material provided for the course, the code is only for students taking the robotics course at Constructor University!!!

It is strictly forbidden to upload the material anywhere – you are only allowed to download it to your own computer for your own studies for this course. Any violation of this policy is a violation of the Constructor Academic Code of Conduct and of copyright laws, and they will be treated accordingly.

Overview

purpose of the code

- better understanding of the concepts
- i.e., option to “play” with the code related to the homeworks
- to (help to) prepare for the exam

it is **not part of the exam**, i.e.,

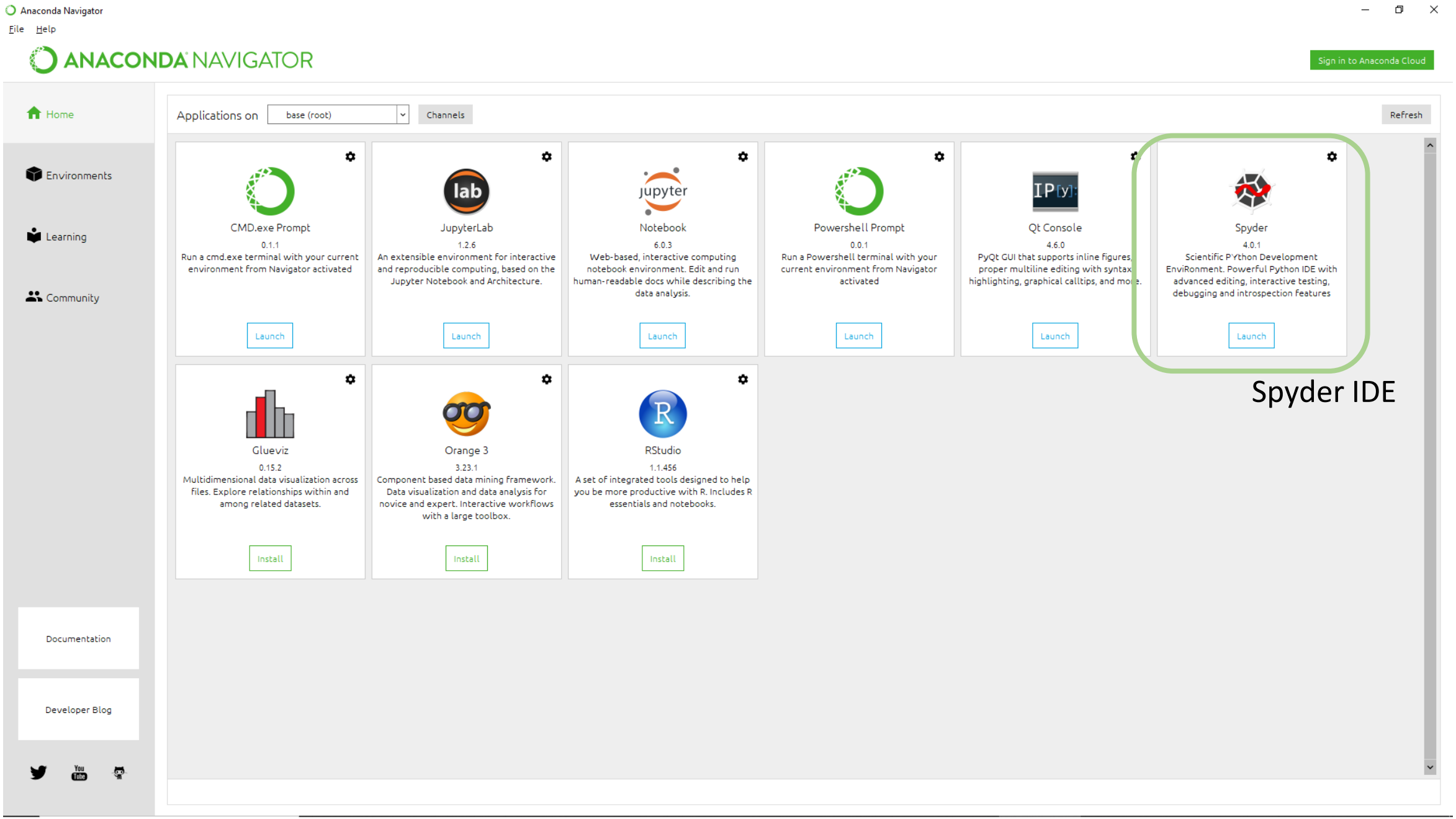
- **NO Python programming in the exam**
- **NO python / code related questions in the exam**

Anaconda Installation

The **Anaconda** environment can be used for running the code. Please download and install it on your laptop or PC if you want to use the code. Information on installation can be found at https://docs.anaconda.com/anaconda/install/

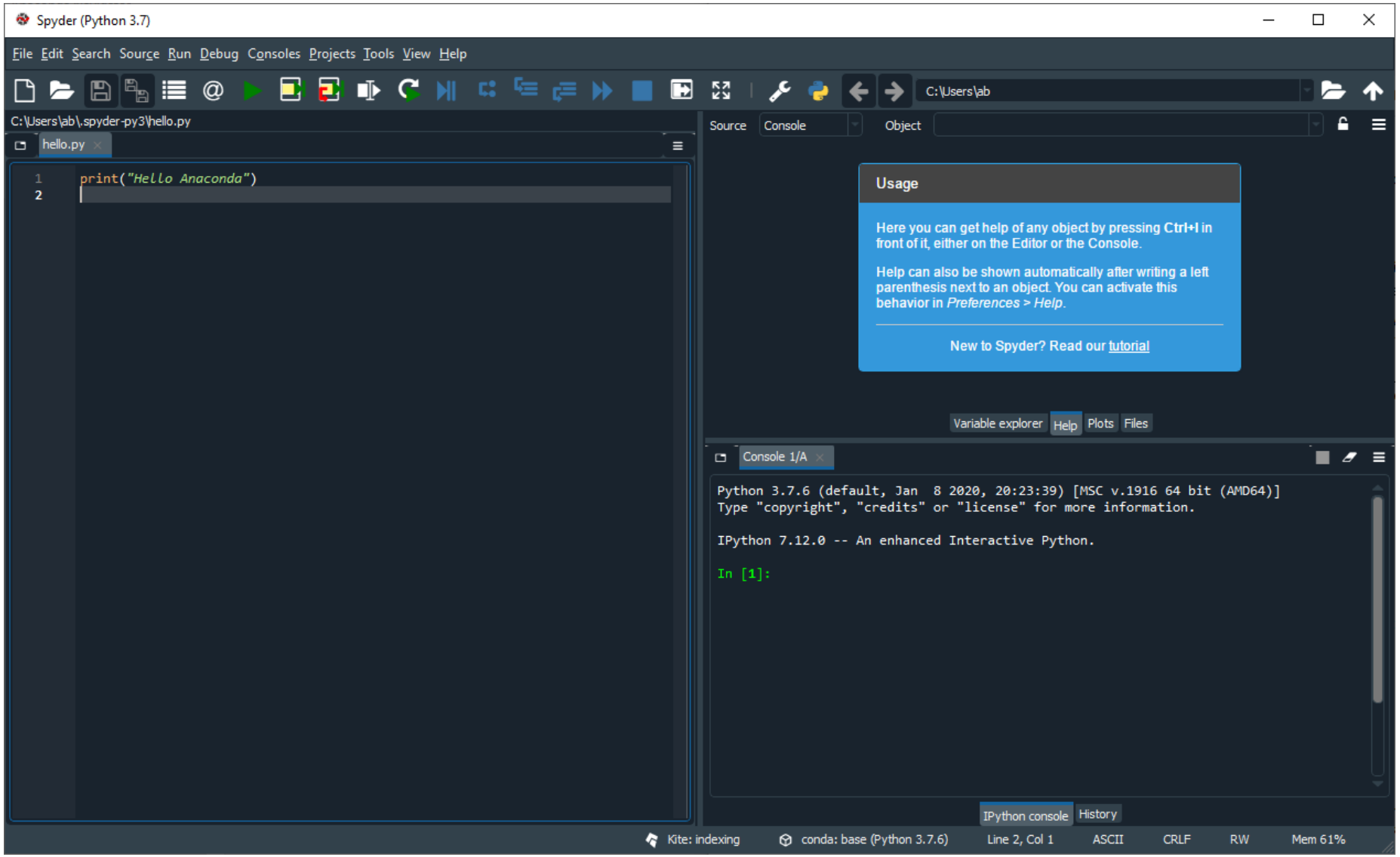
respectively you can directly go to the link for your operating system:

- Windows: https://docs.anaconda.com/anaconda/install/windows/
- Linux: https://docs.anaconda.com/anaconda/install/linux/
- MAC: https://docs.anaconda.com/anaconda/install/mac-os/

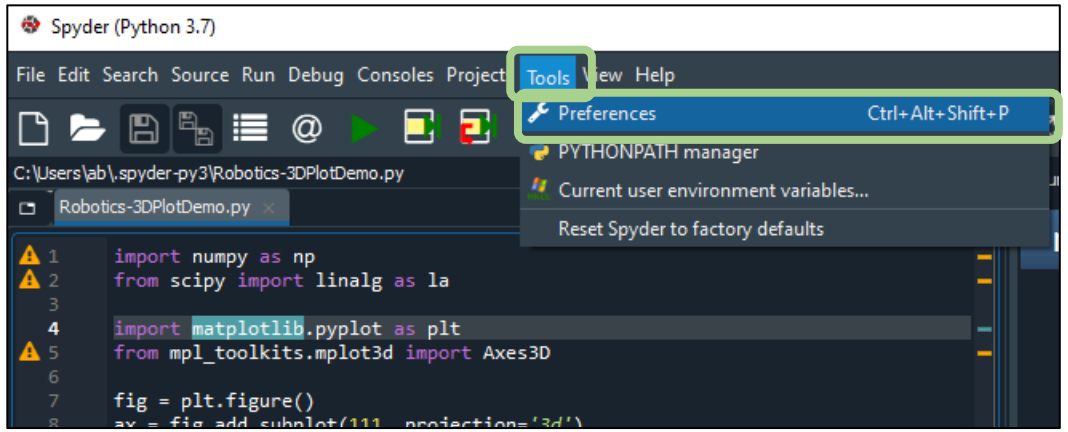

Anaconda Navigator
File Help
ANACONDA NAVIGATOR
Sign in to Anaconda Cloud
Home
Environments
Learning
Community
Documentation
Developer Blog
Applications on
base (root)
Channels
Refresh
CMD.exe Prompt
0.1.1
Run a cmd.exe terminal with your current environment from Navigator activated
Launch
JupyterLab
1.2.6
An extensible environment for interactive and reproducible computing, based on the Jupyter Notebook and Architecture.
Launch
Notebook
6.0.3
Web-based, interactive computing notebook environment. Edit and run human-readable docs while describing the data analysis.
Launch
Powershell Prompt
0.0.1
Run a Powershell terminal with your current environment from Navigator activated
Launch
Qt Console
4.6.0
PyQt GUI that supports inline figures, proper multiline editing with syntax highlighting, graphical calltips, and mo
Launch
Spyder
4.0.1
Scientific PYthon Development EnviRonment. Powerful Python IDE with advanced editing, interactive testing, debugging and introspection features
Launch
Glueviz
0.15.2
Multidimensional data visualization across files. Explore relationships within and among related datasets.
Install
Orange 3
3.23.1
Component based data mining framework. Data visualization and data analysis for novice and expert. Interactive workflows with a large toolbox.
Install
RStudio
1.1.456
A set of integrated tools designed to help you be more productive with R. Includes R essentials and notebooks.
Install

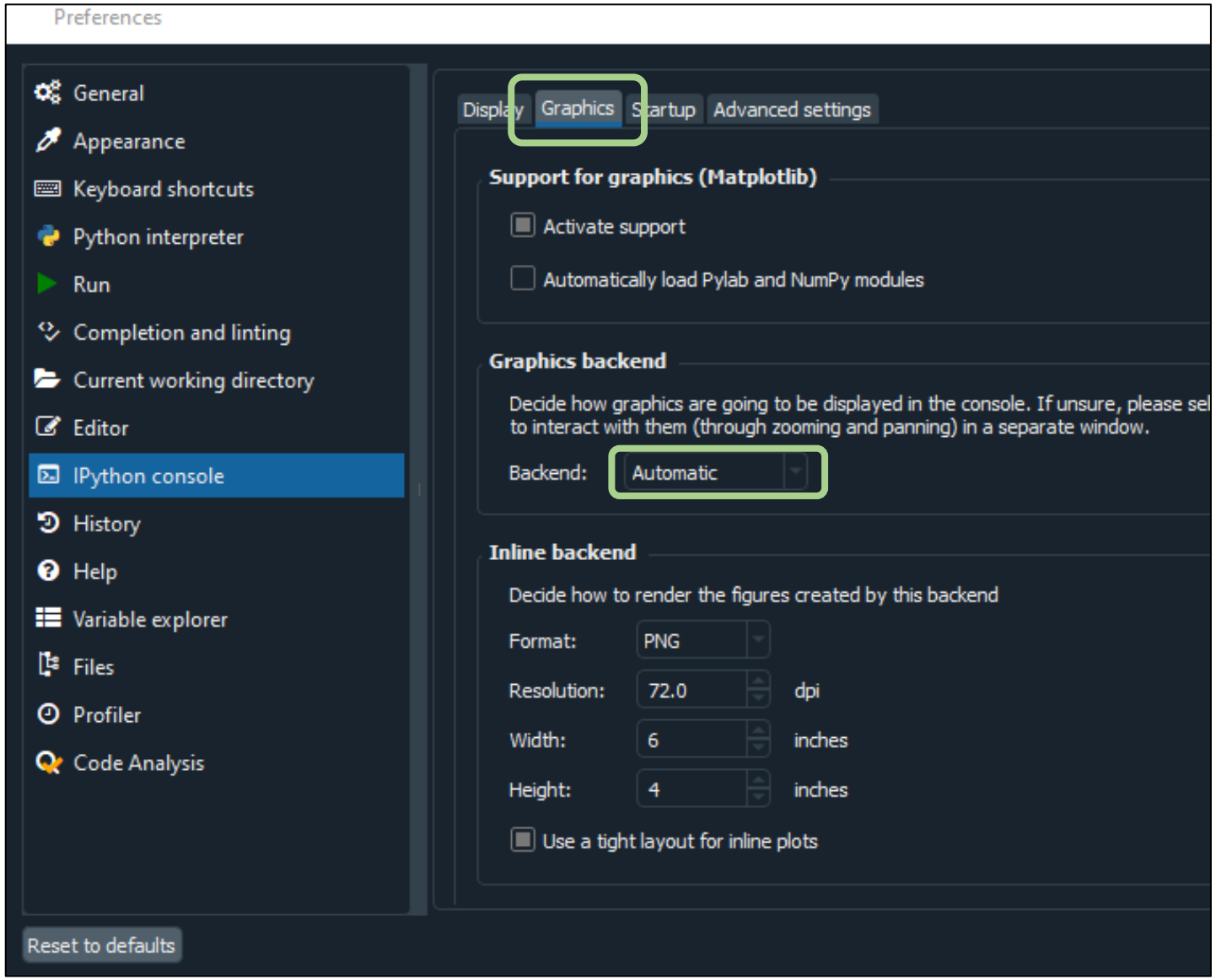
Spyder IDE

Spyder IDE


Spyder (Python 3.7)
File Edit Search Source Run Debug Consoles Projects Tools View Help
C:\Users\ab
C:\Users\ab\.spyder-py3\hello.py
hello.py
1 print("Hello Anaconda")
2
Source Console Object
Usage
Here you can get help of any object by pressing Ctrl+I in front of it, either on the Editor or the Console.
Help can also be shown automatically after writing a left parenthesis next to an object. You can activate this behavior in Preferences > Help.
New to Spyder? Read our tutorial
Variable explorer Help Plots Files
Console 1/A
Python 3.7.6 (default, Jan 8 2020, 20:23:39) [MSC v.1916 64 bit (AMD64)]
Type "copyright", "credits" or "license" for more information.
IPython 7.12.0 -- An enhanced Interactive Python.
In [1]:
IPython console History
Kite: indexing
conda: base (Python 3.7.6)
Line 2, Col 1
ASCII
CRLF
RW
Mem 61%

Activate Interactive 3D Graphics





- Tools
- Preferences
- IPython console
- Graphics
- Graphics backend
  - ***Automatic***

Programs & RoboticsLib

- the code related to each HW problem-sheet is provided on Teams
- just download it and open it in Spyder, where you can also run it
- the programs make use of the **Robotics Library "RoboticsLib.py"**
  - store this library simply in the same folder as the HW programs
  - the library is in the same folder on Teams as the HW programs

have fun… ☺