INF1511 Unit 3 Visual Programming I

Repetition
FOR and WHILE structures

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Define tomorrow.

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NEWS

- TUTORS – INF1511 none yet.
- Q&A session on Mondays – please bring questions. Wait until 13:13.

- TEXTBOOK – Please use the additional resources from the safari / o’riley sources.

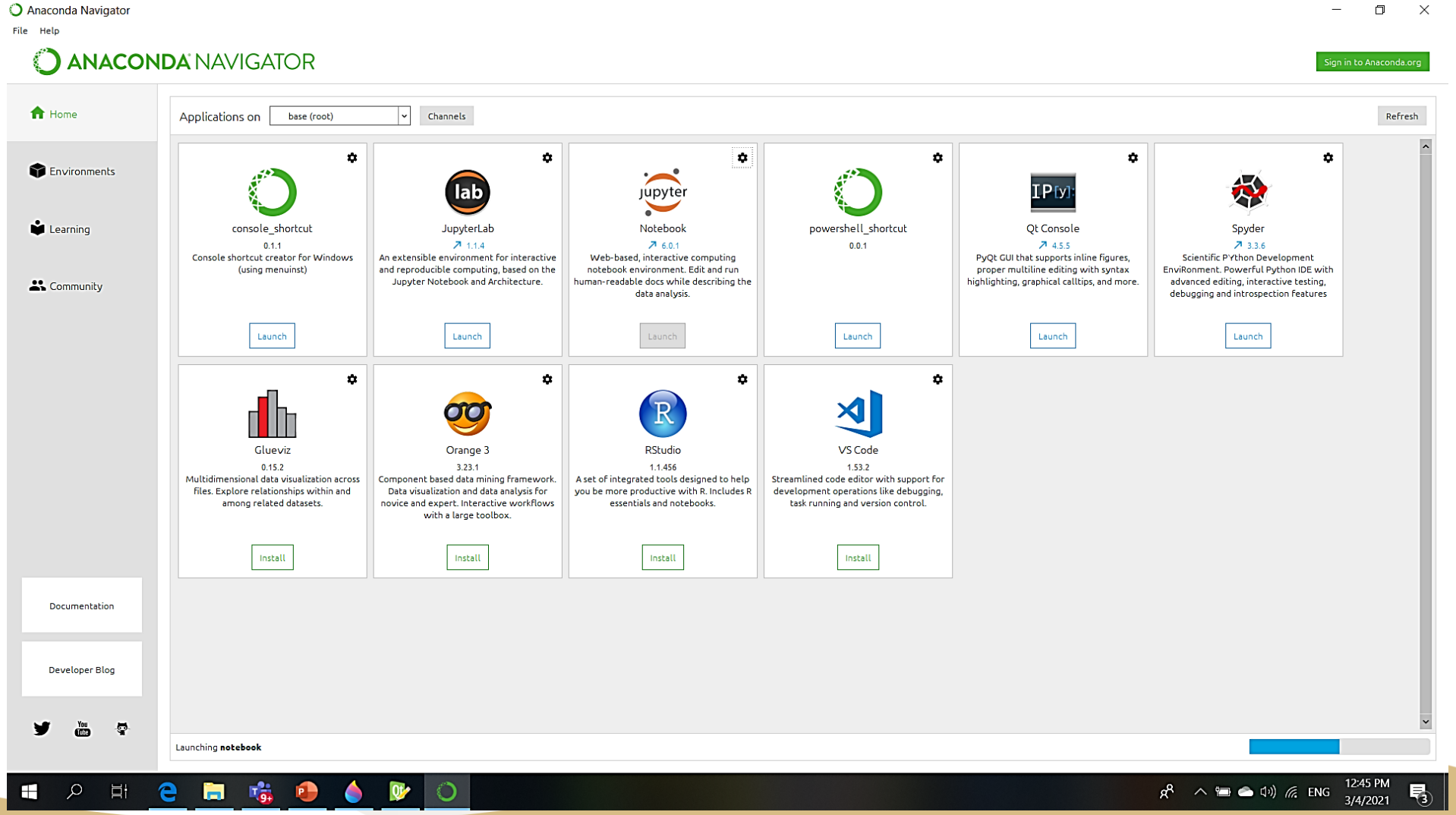
Overview

- Set Up of the programming environment.
- The additional resources available for this unit.
- The theory of repetition in programming and the FOR and the WHILE structure.
- The practical application (and demonstration) of repetition in programming.
- The assessment of learning in this unit.

Environment Set-Up and Resources

- Please read the read-me-first document.
- On the internet, find ANACONDA installation.
- Install ANACONDA,
- Use all the online books that you need ☺

ANACONDA


Anaconda Navigator
File Help
ANACONDA NAVIGATOR
Sign in to Anaconda.org
Home
Environments
Learning
Community
Documentation
Developer Blog
Applications on base (root)
Channels
Refresh
console_shortcut
0.1.1
Console shortcut creator for Windows (using menuinst)
Launch
JupyterLab
1.1.4
An extensible environment for interactive and reproducible computing, based on the Jupyter Notebook and Architecture.
Launch
Notebook
6.0.1
Web-based, interactive computing notebook environment. Edit and run human-readable docs while describing the data analysis.
Launch
powershell_shortcut
0.0.1
Launch
Qt Console
4.5.5
PyQt GUI that supports inline figures, proper multiline editing with syntax highlighting, graphical calltips, and more.
Launch
Spyder
3.3.6
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
VS Code
1.53.2
Streamlined code editor with support for development operations like debugging, task running and version control.
Install
Launching notebook
ENG
12:45 PM
3/4/2021

Theory – What is repetition in programming?

- Input required control the repeated execution of code (processing).
- Input from …..
- A system. Input, processing and output.
- Use the control to control/stop the repeated execution of code.

Flow Control in Programming

- Linear ….
- Decisions … select a flow control for execution.
- Repetition … use flow control to execute code multiple times.

Programming elements

- Literals - _____
- Variables - _____
- Keywords (30 in Python … and else elif exec …)
- Comments #

- A keyword is IF and ELIF
- A keyword is FOR
- A keyword is WHILE

Repetition in Programming

- The number of repetitions
- must be controlled
- by the value of the control variable.

Practical application

- Demonstrate the syntax and use of repetition.
- Using ANACONDA programming environment.

Assessment for Unit 3

- **Theory MCQ quiz** will become available today. Three attempts. Available until 9 October 2023.
- **Programming activities** on Jupyter Notebook page. Available. Practise! Use activities to complete Assignment 3.
- **Practical MCQ quiz** (Assignment 3) is available. **One attempt**. Available until 9 October 2023.

Summary Looping in Programming

Unit 3 - Iteration/Looping. The implementation of iteration using the FOR and the WHILE programming structures.

The control of the iterations are discussed. The avoidance of an infinite loop is considered.

The loop requires initialization, testing and incrementation.

The assessment criteria for Unit 3:

3.1 The FOR and WHILE statements are used for iteration.
3.2 A problem is solved by the application of loops.
3.3 Logical and Membership operators are being used.