CSM6120 (Year 2022-23)
Department of Computer Science, Aberystwyth University
Practical (take-home): Linear Programming with various case studies (4 Nov 2022)
Instructor: Prof. Tossapon Boongoen

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0 General information

Following the Session 5-2, this practical allows students to link the formation of **a linear programming** (for both maximisation and minimization) with an implementation in Python. This is designed to suit students with a minimal background in computer programming, with examples being provided prior questions (mostly related to samples shown in previous seminars). **Note that a practical work is not an assignment, so that no submission is needed.**

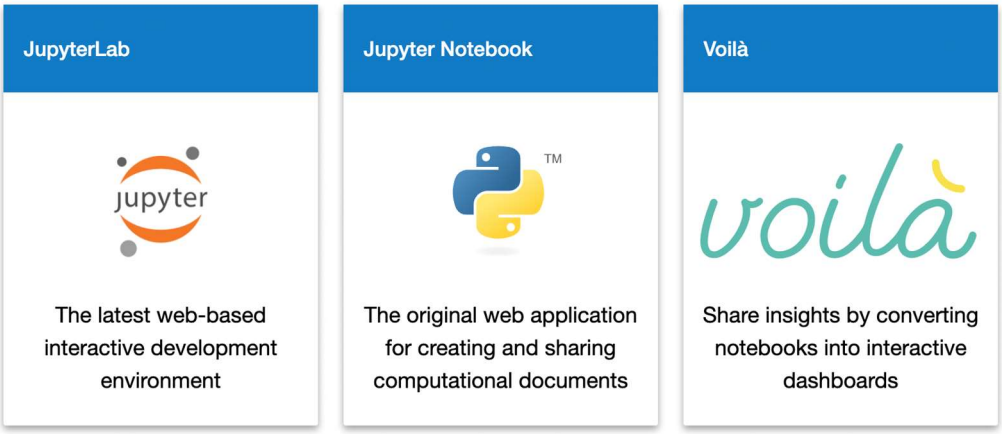
1 About the software implementation: *Python*

An implementation of examples in Python can be accessed through the following link. A separate Jupyter notebook file is also provided, "Student_LinearProgramming.ipynb".

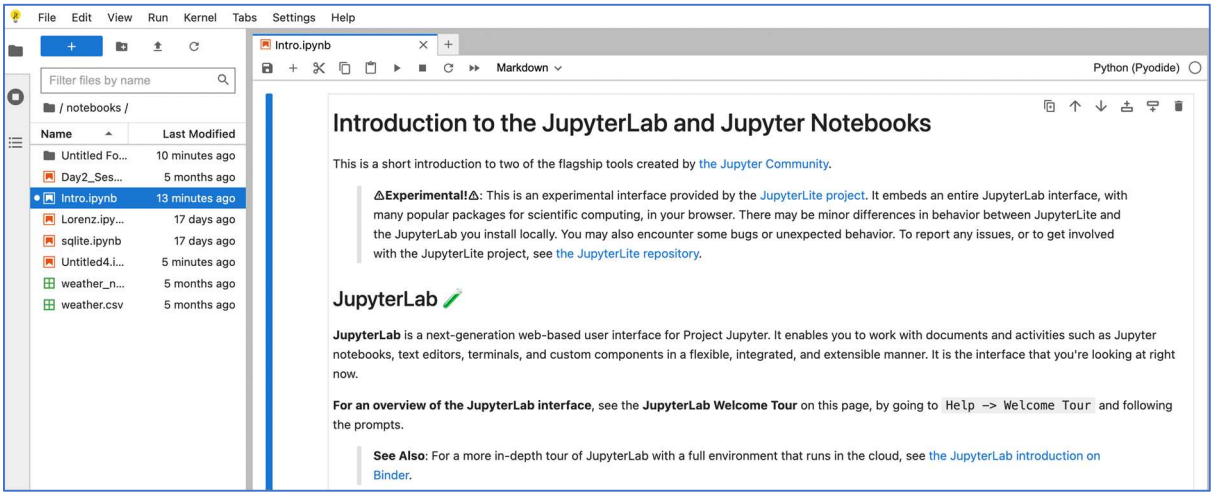
"https://colab.research.google.com/drive/1v-C2-sb7NumcaJZ5QE0u-ftH3vIg62DQ?usp=sharing"

Please make use of comments that are included with codes to understand how the entire notebook works. You are advised to work from the top to the last sections in this notebook. At the top, the first section shown below is to install a package that you need to work with, so it must be executed first. You can do this by simply press on the 'play' icon on the top left of this section.

If you have a gmail account, you can easily open the Google Colab console, in which you can upload the notebook file (see the previous point) and start working with it right away. If you do not have that account, you might prefer to make use of a free cloud-based one, e.g., "https://jupyter.org/try". On its landing page, click on the "**JupyterLab**" dialogue on the left.

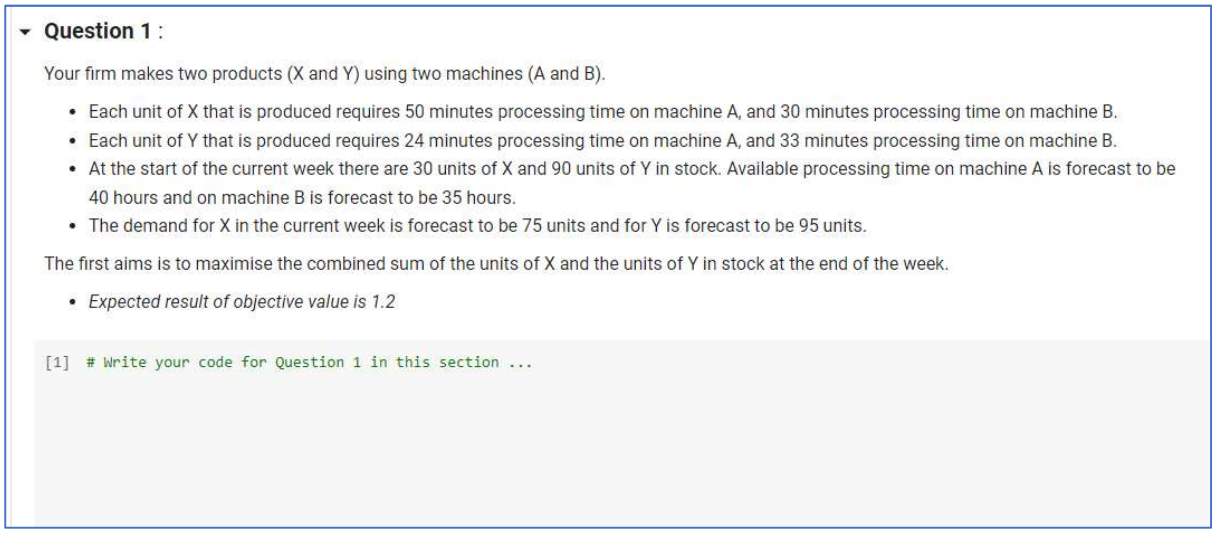


This will bring up the next page, in which you can create a new notebook. Then, you can copy codes from the local file to the online one and run them in sequence (from top to bottom, by code section) to see the result.



2 Exercises

Please try both questions (if possible), with coding sections having been provided for you to write codes. For each question, a direction and expected result are specified, see below for an example.



3 Practical session and contact

This is a take-home practical, please email me (tob45@aber.ac.uk) if you need help.