Project work

Choose a project work. There are three projects to choose from:

1. biological sequence analysis (part07)
2. regression analysis on medical data (part08)
3. fossil data analysis

For the projects, download the exercises and/or notebooks from the TMC server. Then try to solve as many exercises as you can. Then submit your solutions to the TMC server. Note that the TMC server is only used here for helping you to proceed with the project work and is utilized when peer reviewing.

The projects differ a lot in their workflow. See the below sections on individual projects to see in detail how solving, testing and reporting of exercises are done in each project.

Save the report as a Jupyter notebook file (with `ipynb` extension) and submit this file to Moodle. After this you will need to give feedback for three other reports.

Sequence analysis

Download part 7 from tmc after you have completed the required number of part 6 as usual. The `src`-folder contain a jupyter notebook `project_notebook_sequence_analysis.ipynb`. Run the notebook and fill in the cells as instructed. You may run tmc test to see if the functions seem work as required. The tests are not comprehensive, os a passing test may not imply a perfect solution, nor does a failing test necessarily mean the there are critical errors. Submitting may not work especially if you download content from the internet as part of your code.

Next to each exercise in the report there are also two text boxes for you to fill. In the first box, in your own words, describe the idea of the solution to the exercise. In the second box analyse the results, including how the

program worked with the given example input or your own examples. Make sure the notebook includes your solutions and looks readable, and then submit the resulting notebook to Moodle.

NOTE. Exercises in section "Stationary and equilibrium distributions (extra)" (exercises 20, 21, and 22) are not obligatory. Thus, you only need to do 19 exercises, if you are aiming to get full points.

You can also view the notebook here.

Regression analysis

Read the introduction introduction-to-regression-analysis.pdf.

Write solutions to exercises directly into the cells of the given Jupyter notebook. Do not modify lines that say `# exercise x`; without those the tests won't work. Don't use additional cells, and do in each cell exactly as the instructions say. Save the file and run `tmc test`. The tests read and execute directly the cells of the notebook. Make sure the notebook includes you solutions and looks readable, and then submit the resulting notebook to Moodle.

Fossil data analysis

Read fossil-analysis-assignment.pdf.

Running tests when peer-reviewing students notebooks

If you want, you can run tests on the work you are reviewing, to help assess the correctness of the solutions. Note that there can be bugs in the tests too.

> **Warning**
>
> Make sure you don't accidentally delete your own solutions, when testing other student's work. Don't do the tests where your own solutions are.

Regression analysis

Go to a temporary working area (like `/tmp` on Unix) so you don't accidentally overwrite your own solutions. Run `tmc download -a hy-data-analysis-with-python-2020` to get the tests. Store student's notebook to file `part08-e01_regression/src/project_notebook_regression_analysis.ipynb`. Run the tests using `tmc test part08-e01_regression`.

Sequence analysis

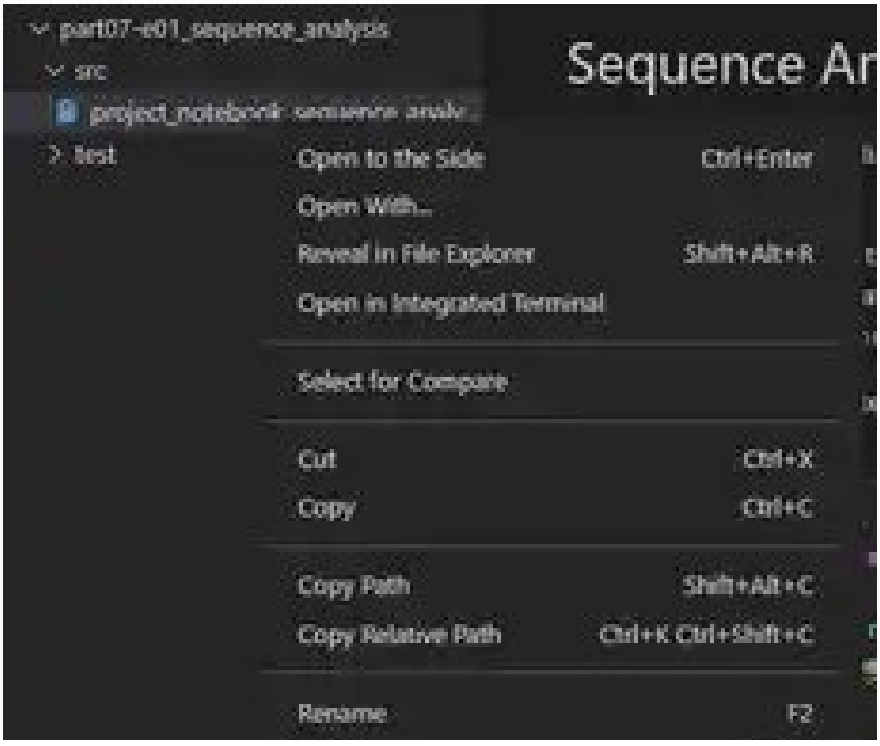
Go to a temporary working area (like `/tmp` on Unix) so you don't accidentally overwrite your own solutions. Run `tmc download -a hy-data-analysis-with-python-2020` to get the tests. Overwrite the student's notebook in `part07-e01_sequence_analysis/src`. Run the tests using `tmc test` in the `part07-e01_sequence_analysis` folder.

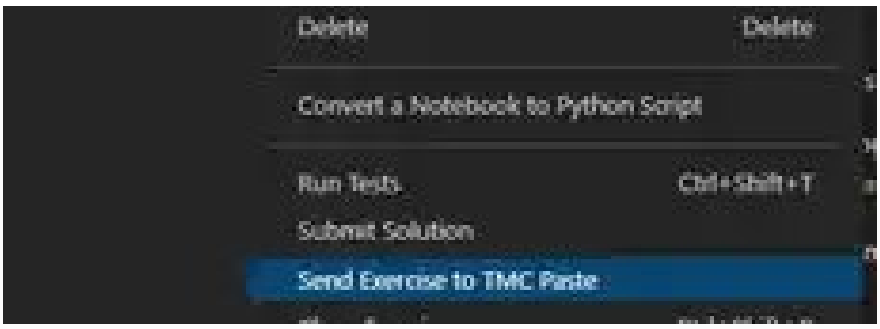
Peer reviewing

Submit your project to TMC Paste with your client of choice. Then copy your paste link to the following form to start the peer review process.

TMC Client

Right-click the project notebook and choose *Send Exercise to TMC Paste*.





Then you should get a link that should start with `https://tmc.mooc.fi/paste/`. Please open the link and then copy it to the following form.

TMC CLI

Use the `tmc paste` command in the exercise folder.

Quiz:
Submission for project work

Points:
/1

Log in to view the exercise

You have reached the end of this section!
Remember to check your points from the ball on the bottom-right corner of the material!

In this part:

1. Project work

This course is created by the Agile Education Research -research group of the University of Helsinki.

Credits and about the material.

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