

Planning and Optimization

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Exercise Sheet Z

Due: September 26, 2021

Important I: The purpose of this exercise sheet is to introduce you to the tools we use in the lecture and to the rules we use for the exercise sheets. You will need the tools not only this week but the whole semester, and the rules do not only apply for this sheet but for all exercise sheets.

Important II: Please read the whole exercise sheet once before you start to prepare any solutions, since some exercises contain information that is relevant for the entire submission!

Exercise Z.1 (1 bonus mark)(Lecture A1)

Exercise sheets in the Planning & Optimization course *must* be solved in exercise groups that form at the beginning of the semester, and the exercise groups are also relevant for the exercise meetings which either take place in presence or virtually. With this, there are two requirements on what these exercise groups must look like:

- (a) each group must consist of *exactly three* students; and
- (b) all members of the exercise group must agree on participating in the virtual exercise meeting and/or all members must agree on participating in the exercise meeting in presence.

You have two tasks in this exercise: the first is to form an exercise group that meets these requirements and share the result with us. If you cannot find fellow students to form an exercise group with, you can use the **exercise-groups** channel on the Discord server for the lecture to announce that you are looking for an exercise group. Note that we are not moderating this, so please consider to *answer* someone who already announced that they are looking for a group instead of just writing that you are looking for one.

The second task in this exercise is to indicate if you wish to attend the virtual exercise meetings and/or the ones in presence. Note that physical attendance is limited, so a preference for meetings in presence does not guarantee that you can attend in presence.

If you successfully formed an exercise group, submit the solution to this exercise sheet **as a group**: write the names of all group members at least on top of the first page. Furthermore, **only make one submission**, i.e., only one group member should upload the solution to ADAM. **Read exercise Z.5 for additional information on the submission process of your solution.**

Otherwise, we randomly generate exercise groups from the pool of students who submitted this exercise sheet alone and the students who do not submit a solution to this exercise at all. Please keep an eye on your email account on the morning of *Monday, September 27* where we will let you know if you can attend the meeting in presence on the same day or not.

Exercise Z.2 (1 bonus mark)(Lecture A1)

Use your university account or your SWITCH edu-ID that is connected to your university account to login at ADAM (<https://adam.unibas.ch>) and navigate to this semester's ADAM workspace of the Planning & Optimization course. In the folder with the name "Learning Modules", you can find a learning module with the name *Exercise Sheet Z*. Watch the embedded video and solve the exercise we describe there.

Read exercise Z.5 for information on the submission process of your solution.

Exercise Z.3 (1 bonus mark)(Lecture A1)

In the *Exercise Sheet Z* learning module in ADAM, you can also find a multiple-choice online exercise below the embedded video you watched for Exercise Z.2.

Solve the online exercise and write a small Python program that outputs all options that you checked (you do not have to submit your solution on ADAM).

Please note that the purpose of this exercise is not to improve your coding skills but to make the submission process of your solution as general as possible (which requires this “dummy” programming exercise).

Read exercise Z.5 for information on the submission process of your solution.

Exercise Z.4 (1 bonus mark)(Lecture A1)

On the website of the course you can find the file `virtual-machine-setup.pdf` in the *Exercises* section with instructions on how to setup the Fast Downward planner in a virtual machine. Follow the instructions.

Take a screenshot of the resulting console output of the demo run. There is no need to take multiple pictures if your screen doesn’t fit the whole output; it is sufficient to provide an image that shows the “Actual search time” and all output following that line.

Read exercise Z.5 for information on the submission process of your solution.

Exercise Z.5 (1 bonus mark)(Lecture A1)

We have the following general rules for preparing your solution and submitting it on ADAM.

- Exercise sheets must be submitted in groups of three students. Please submit a single copy of the exercises per group (only one member of the group does the submission).
- Create a single PDF file (ending `.pdf`) for all non-programming exercises. Use a file name that does not contain any spaces or special characters other than the underscore “`_`”. If you want to submit handwritten solutions, include their scans in the single PDF. Make sure it is in a reasonable resolution so that it is readable, but ensure at the same time that the PDF size is not astronomically large. Put the names of all group members on top of the first page. Either use page numbers on all pages or put your names on each page. Make sure your PDF has size A4 (fits the page size if printed on A4).
- For programming exercises, only create those code textfiles required by the exercise. Put your names in a comment on top of each file. Make sure your code compiles and test it. Code that does not compile or which we cannot successfully execute will not be graded.
- For the submission: if the exercise sheet does not include programming exercises, simply upload the single PDF. If the exercise sheet includes programming exercises, upload a ZIP file (ending `.zip`, `.tar.gz` or `.tgz`; *not* `.rar` or anything else) containing the single PDF and the code textfile(s) and nothing else. Do not use directories within the ZIP, i.e., zip the files directly.
- Do not upload several versions to ADAM, i.e., if you need to resubmit, use the same file name again so that the previous submission is overwritten.

For this exercise sheet, this means preparing a PDF file containing the solutions for exercises Z.1, Z.2 and Z.4 and including this PDF file together with the solution for Z.3 (a Python textfile) in a ZIP file.