

# Introductory Words

Feel free to let us know your thoughts on this!

In this week's homework you will build a program that can find the way through a maze from a given start point to a given goal point using backtracking. In the .zip archive, you will find a folder called *mazes*. Inside are several text files each containing one maze. A maze is a grid structure, similar to the tic-tac-toe game, each cell containing one character, which represents a different part of the maze. We chose:

- #: to represent the hedge / wall of a maze, so a field that is unpassable.
- \*: to mark the start field, so the cell from which we start to find a path.
- G: to mark the goal cell, which we want to reach.
- : A space that represents the path that we can walk on.

```
#####  
#                                     #  
#  #  #  #  #  #  
#  #  ###  #  
#  ###*#  
#  #      ##  
#  #  ####  
G #  
#####
```

*Small-ish Bonus Task:*

To dynamically check the folder for all available files, have a look at the `os` module <https://docs.python.org/3/library/os.html>, and especially at the

`listdir(path)` function. Together with the `open` function, this should allow to read all mazes, present them as a choice to the user, and then open the chosen maze. *End of small-ish Bonus Task.*

*Small-ish Bonus Task 2:*

Let the user input a new maze in the terminal, and save it in the folder with the other mazes. *End of small-ish Bonus Task 2.*

## 1.1 Bonus: Bundle it up!

*Note:* This will involve a bit of reading and maybe some web searches from yourself, so it is hard to say how much time this task will need. It also depends of course on how far you want to take this.

When you have programmed your amazing maze solver (you choose whether the maze or the solver is amazing), you have programmed several (maybe around three?) modules. These modules together build a unit to solve a maze. So let's bundle them up and build a package!

The modules should reside alone inside their own folder, the folder name is your package name. A package needs a `__init__.py` and a `__about__.py` (technically it only needs the init file).

The `__init__.py` file tells Python that this directory is a package. The file can even be empty, just its existence is enough. However, the `__init__.py` file can be used to initialise certain code or define certain package relevant variables. You can find an introduction to defining packages here <https://docs.python.org/3/tutorial/modules.html#packages> and as well how to import modules inside the same package.

For the `__about__.py` file you might want to look at this blog <http://toxi.nu/blog/how-to-store-your-python-package-metadata/>, which gives a short rundown on why you would want to use the about file and what to put in it.

If you want to know more on packages and how to prepare a package for release to be used by third parties, you can have a look at <https://packaging.python.org/tutorials/packaging-projects/>.