Bonus Challenge Sheet 6 (2 Bonus Points)

Date due: January 16th 2023

Submission Instructions

Solutions to this challenge sheet must be submitted by **January 16th 2023** *before 11:59 am* to the CMS. **Make sure that your solution contains your name and matriculation number at the top of the files!** It is not allowed to submit these solutions in a group, as you do with the regular exercise sheet solutions. In the .py files, you may add as many additional methods as you want, but please do not rename the existing methods or add code outside of methods. How many bonus points you get for the tasks is determined by tests on our system. This sheet is not part of the regular exercises.

1 Resolver

In this challenge you are tasked with implementing **resolve(...)** in **resolver.py**

(2 points) (a) In the DNS part of exercise sheet 9, you have already worked on resolving domains by hand. Now we want to implement something similar, using a library called dnspython. To make things easier for you, we have used the domain and expected results of the above mentioned DNS exercise as an example. Your task is to implement something that can resolve the top level domain and the domain name of a given domain and return all possible nameservers and their IP. You don't have to worry about anything else, e.g. resolving subdomains like aa.websec.saarland or determining the MX. Furthermore, unlike with the exercise sheet, you do not have to execute all queries manually, but can use a recursive resolver. You should also take a look at this part of the documentation: https://dnspython.readthedocs.io/en/latest/resolver-class.html

Hint: Look at how other people on the Internet use this library to better understand how it works. You may also need to play around a bit and compare your solution of the DNS exercise with what the library returns.