

Lab07. Classes and Objects

Script Languages (INZ004455)

Wojciech Thomas

18th November 2020

1 Learning goals

After this lab you should be able to:

1. Create your own class,
2. Know what is a purpose of constructor,
3. Know how to convert an object into a string,
4. Use objects,
5. Create a new class using inheritance.

2 Exercises

Artefacts to be uploaded to ePortal: - file: `app7.py`

Use regular expressions to parse loglines.

1. Download logfile from ePortal.
2. Learn about classes `IPv4Address` and `IPv4Network`. How can you check if an IPv4 address belongs to IPv4 network using these objects?
3. Learn about class **`datetime`**.
4. Create a function that:
 - take as an argument timestamp from the log file (e.g. `18/Oct/2020:01:30:42 +0200`),
 - returns a new **`datetime`** object.
5. Create your class to store the HTTP request. What attributes should contain this class? Include at least:

- constructor (what arguments are required?),
- a method to convert the object into a string,
- a method to return the request method
- a method to return the requested resource

6. Create your own class to store **log entry**. Create at least:

- constructor,
- a method to convert object into string

Use the classes you have already created or learned.

7. Create a function that:

- takes as an argument one line of the log file,
- returns log entry object.

8. Create a function that:

- reads the content of the logfile,
- returns a list of log entry objects.

9. Create a class for exception **Malformed HTTP request**. Choose arbitrarily exception used as a base class for your exception.

- Modify the function, that creates a log entry object, to raise an exception in the case of the problem.
- Modify the function, that reads the content of a log file, to catch this exception, and log a number of exceptions raised.

10. Create a function that displays all requests between two given moments in time. Both moments should be passed as arguments. If the second argument is earlier than the first one display the message.