

# Algorithmic Methods of Data Mining

## Homework 1

**Due:** 6/11/2016, 23:59.

### Instructions

You must hand in the homeworks electronically and before the due date and time.

**Handing in:** You must hand in the homeworks by the due date and time by an email to `aris@dis.uniroma1.it` that will contain as attachment (**not links to some file-uploading server!**) a .zip or a .tar.gz file with your answers and subject

[Algorithmic Methods for Data Mining] Homework 1

After you submit, you will receive an acknowledgement email that your project has been received and at what date and time. If you have not received an acknowledgement email within 2 days after you submit then contact the instructor.

The solutions for the theoretical exercises must contain your answers either typed up or hand written clearly and scanned.

For information about collaboration, and about being late check the web page.

The goal of the first assignment focuses on building up your skills on Python. The assignment is done electronically using the HACKERRANK online service available from the following URL:

<https://www.hackerrank.com>

You must create an account and complete as many challenges as you can from the list included below. When you are finished and want to submit your assignment, from the `hackerrank` site, go to the *submissions* page under your profile and produce a PDF printout. This is available from the following url:

<https://www.hackerrank.com/submissions/all>

The first homework has to be done by each person individually.

To hand it in, send an email to `aris@dis.uniroma1.it` with the subject [ADM] Homework 1. You must include as attachment:

- The pdf file that you created.
- The Python code of your solutions, clearly organized.

Note, you should send an attachment with your solution in the email (attachment), not links to some file-uploading server.

**Don't forget to check the collaboration policy at the course web page.**

Let's go to the homework. The Python challenges that you need to complete are the following:

- Introduction (all – total: 8 - max points: 85)  
<https://www.hackerrank.com/domains/python/py-introduction>
- Data types (all – total: 6 - max points: 60)  
<https://www.hackerrank.com/domains/python/py-basic-data-types/difficulty/all/page/1>
- Strings (all – total: 14 - max points: 220)  
<https://www.hackerrank.com/domains/python/py-strings/difficulty/all/page/1>  
<https://www.hackerrank.com/domains/python/py-strings/difficulty/all/page/2>

- Sets (all – total: 13 - max points: 170)  
<https://www.hackerrank.com/domains/python/py-sets/difficulty/all/page/1>  
<https://www.hackerrank.com/domains/python/py-sets/difficulty/all/page/2>
- Collections (all – total: 8 - max points: 220)  
<https://www.hackerrank.com/domains/python/py-collections/difficulty/all/page/1>
- Date and Time (all – total: 2 - max points: 40)  
<https://www.hackerrank.com/domains/python/py-date-time/difficulty/all/page/1>
- Exceptions (only 1 - max points: 10)  
<https://www.hackerrank.com/challenges/exceptions>
- Built-ins (only 3 - max points: 80)  
<https://www.hackerrank.com/challenges/zipped>  
<https://www.hackerrank.com/challenges/python-sort-sort>  
<https://www.hackerrank.com/challenges/ginorts>
- Python Functionals (only 1 - max points: 20)  
<https://www.hackerrank.com/challenges/map-and-lambda-expression>
- Regex and Parsing challenges (all – total: 17 - max points: 560)  
<https://www.hackerrank.com/domains/python/py-regex/difficulty/all/page/1>  
<https://www.hackerrank.com/domains/python/py-regex/difficulty/all/page/2>
- XML (all – total: 2 - max points: 40)  
<https://www.hackerrank.com/domains/python/xml/difficulty/all/page/1>
- Closures and Decorations (all – total: 2 - max points: 60)  
<https://www.hackerrank.com/domains/python/closures-and-decorators/difficulty/all/page/1>
- Numpy (all – total: 15 - max points: 300)  
<https://www.hackerrank.com/domains/python/numpy/difficulty/all/page/1>