Programming Assignment Sheet 1

Please implement programming assignments in one of the following programming languages:

- Java
- Python (preferred v2.7)
- C++

Send your solution via eMail to christoph.doell@iws.cs.uni-magdeburg.de at least 3 days before the exercise. Remember: *Code is read more frequently that it is written.* So, please add helpful comments to your source code and if necessary documentation on the compilation process.

**Programming Assignment 1  \( \alpha \)-cut Representation**

Implement the data structure from the lecture that can horizontally represent a fuzzy set by its \( \alpha \)-cuts. In detail, solve the following subtasks.

a) Enable the user to enter a finite subset \( L \subseteq [0, 1] \) of relevant degrees of membership.

b) For every \( l \in L \), the user shall be able to specify the \( \alpha \)-cuts corresponding to \( l \).

c) Finally, implement a method that returns the membership degree \( \mu(x) \) of an element \( x \) given your data structure of a fuzzy set.