

Homework: ML modules and Haskell type classes

Deadline: 7th June 2015

Grades:

2.0 - < 4p

3.0 - 4p

3.5 - 5p

4.0 - 6p

4.5 - 7p

5.0 - 8p

### Problem 1

- (2p) In file `task1.hs` you can find a basic implementation of sets on lists. Implement a new type class, which will deal with sets in a *more clever* way (use different data structure with access time less than  $O(n)$ , you can assume that  $(\text{Ord } a, \text{Set } m\ a) \Rightarrow \text{MySet } m\ a$ ). Separate data structure implementation from your implementation of `Set`.
- (2p) Translate your implementation to SML Modules using any translation. If you're going to use a different one, than shown during the lecture, please comment your code and explain *your* translation.

### Problem 2

- (2p) Implement a generic *circular buffer* in terms of SML modules.
- (2p) Translate your implementation to Haskell type classes using any translation, but if you're going to use a different translation than shown during the lecture, comment your code and explain what happens.

Code quality will be taken into account, for every implementation attach some basic examples of usage. You can reuse already available implementations of data structures – implementing them is not the point of this task. You can use implementations from language libraries and snippets from web, but remember not to violate the licence of the code you are using.