

Advanced Programming (I00032)

A DSL for Sets with GADT's

Assignment 10

In assignment 8 we introduced a DSL for set expressions:

```
:: Expression
  = New
  | Insert      Element Set
  | Delete      Element Set
  | Variable    Ident
  | Intersection Set    Set
  | Integer     Int
  | Size        Set
  | Oper        Expression Op Expression
  | (=.) infixl 2 Ident Expression
:: Op      =  +. | -. | *.
:: Set     ::= Expression
:: Element ::= Expression
:: Ident   ::= String
```

Adapt this DSL, such that it guarantees static type safety for expressions using the poor man's version of GADT's. For instance, `Size (Integer 1)` should give a compile-time error from `Clean`. Most likely you have to change some details of the DSL in order to let the `Clean` type system do its work properly. The overloaded operators `+.` and `-.` for integers and sets should be part of your DSL. Adapt the evaluation and printing function from assignment 8 for the new DSL.

Can you also make the `iTask` simulator work? If not, explain why. Hint: webforms generated by `iTask` cannot really be used for types containing functions.

Deadline

The deadline for this assignment is November 29, 13:30h.