CO225 Lab 11

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September 22, 2014

You are required to submit answers to this lab.

Use the provided `setimp.ml` file as the basis for these questions.

1. Extend signature `Set` to include all operations listed below.

```
module type Set = sig
  type 'a set
  (** the empty set **)
  val empty : 'a set
  (** insert element into given set **)
  val insert : 'a -> 'a set -> 'a set
  (** is element a member of given set? **)
  val member : 'a -> 'a set -> bool
  (** number of elements in set **)
  val size: 'a set -> int
  (** union of two sets **)
  val union: 'a set -> 'a set -> 'a set
  (** intersection of two sets **)
  val intersect: 'a set -> 'a set -> 'a set
  (** set contents as list **)
  val as_list 'a set -> 'a list
end
```

   Now implement the new operations in module `ListSet`. Hint: `union` and `intersection` can be simply[1] specified using a combination of `insert` and/or `member`.

2. Reimplement the `Set` signature using a binary search tree, in a module named `BSTset`.

[1] there are more efficient but complex methods.