

## **BILAGA A – ADT (Övning 1)**

### Type (Typ)

List

Description: List is a finite ordered sequence of elements. Element is an element of a list.

### Properties (Egenskaper)

A new list is empty, meaning that its size is 0.  
The list can store an undetermined number of elements.  
The elements are ordered but not sorted.

### Operations (Operationer)

Description: Creates a new list

Pre: true

Post: a new empty list has been created,  
isEmpty() == true

`create()`

Description: Deletes a list

Pre: true

Post: The list has been deleted

`destroy()`

Description: Inserts a new element into a list

Pre:  $0 \leq \text{position} < \text{size}() + 1$

Post: The element `e` has been inserted at the position  
"position" in the list. The elements that were at  
positions  $\geq$  "position" prior to the insertion are  
now at their old position + 1

`insert(in: Element e, in: Integer position)`

Description: Removes an element from a list

Pre: The element exists in the list

Post: The element has been removed from list

`remove(in: Integer position)`

Description: Sorts all elements in list by increasing order.

Pre: True

Post: The list has been sorted by increasing order.

`sort()`

Description: Checks whether a list is empty or not

Pre: true

Post: result = true if the list is empty, false  
otherwise

`isEmpty(out: Boolean)`

Description: Checks whether an element is part of a list.

Pre: True

Post: Returns true if the element exists otherwise false

`isElement(in: Integer Search Criteria, out: Boolean)`

Description: Get the position for a specified value

Pre: True

Post: Returns the position of first value that match the criteria

`getPos(in: Integer Search Criteria, out: Integer position)`

Description: Returns the number of elements in list

Pre: True

Post: Has returned the number of elements in list

`size(out: Integer number)`

Description: Returns the element

Pre: Position exists

Post: Has returned the value of the element at the given position.

`getElement(in: Integer Position ,out: Integer Value)`