

Homework 1 (to be sent by email before the mid-term exam)

Write a *Bag* (Multiset) generic package. A *Bag* contains elements and their multiplicity as well. Removing an element means decreasing its multiplicity.

The *Bag* type should be a record with a discriminant, which is the maximum capacity of the bag. In the record put an array that contains (element, multiplicity) pairs. The type of the elements is the parameter of the generic package.

Define the *Add* and the *Remove* procedures, and the *Multiplicity* function over the type *Bag*.

Write a *For\_Each* iterator, which is an inner generic procedure. This generic has a *Process\_Elem* parameter procedure which will be applied over each pair of a bag.

In a demo program illustrate the usage of the operations of the package instantiated for integers.