One important difference between languages that provide syntax to encapsulate the definition of user defined data types is whether the syntax requires the specification details to be separated from the implementation details. Ada requires such a separation. In Ada, the specification information must be placed in the package specification and the implementation details in the package body. Where must the representation details be placed?

Compare Ada with both C++ and Java in this regard. Take and defend a position as to whether requiring separation of the specification and representation information for a data type is a good language design decision.

In ADA, representation details are placed in the package of the program and then used in subprograms. An example of this is shown below:

package accounts is

type account is private; -- declaration comes later

procedure withdraw(an\_account:in out account;

amount :in money);

procedure deposit( an\_account:in out account;

amount :in money);

function create( initial\_balance:money) return account;

function balance( an\_account:in account) return integer;

private -- this part of the package specification

-- contains the full description.

type account is

record

account\_no :positive;

balance :integer;

end record;

end accounts;

In Java and C++, the representation details are in the specific class that is being used.

In my opinion, I like the idea of having representation details being used in the package of the program but that would leave the program open to errors. Depending on the work environment and the type of programmer I am, would change the stance on this subject. If I were working on a project that had no one else’s hands in it, then I am intrigued by using representation details in the package because it could save work down the line in other classes that are being used. If I were working with other programmers, especially lazy ones, that could mis-use the representation details, I would rather use those details in each class.

References:

http://goanna.cs.rmit.edu.au/dale/ada/aln/9\_packages.html