1 Introducing Modula-3

To get a feel for Modula-3, implement the following:

- A linked list module List:
  - List should be implemented as a separately compiled module.
  - List.T should be an OBJECT type.
  - The List module should have three separate parts: List, ListRep, and ListImpl. List is the highly opaque interface that users of the list module should use. ListRep reveals more information of the internals of the implementation to be used by modules extending List. ListImpl should contain the actual implementation of the list module.
  - The only operations that you need to support are insert (which inserts a new element in the list) and print, which prints the list.

- A main module which creates a list of integers and a list of reals (using the List interface above), inserts a few elements in each, and then prints out the resulting lists.

2 Compiling a Modula-3 Program


A basic Modula-3 installation is available on lectura in /usr/local/cm3. The executable itself is in /usr/local/cm3/bin/cm3. You will also need to add /usr/local/cm3/lib to your LD_LIBRARY_PATH environment variable.

Here’s a simple example:

> setenv LD_LIBRARY_PATH /usr/local/cm3/lib
> cat Main.m3
MODULE Main; IMPORT IO;
BEGIN IO.Put("Hello World\n"); END Main.
> /usr/local/cm3/bin/cm3
--- building in SOLgnc ---
new source -> compiling Main.m3
And a slightly more complex one:

```pascal
> cat A.i3
INTERFACE A;
  PROCEDURE DoIt();
END A.
> cat A.m3
MODULE A;
IMPORT IO;
PROCEDURE DoIt() =
  BEGIN IO.Put("Hello World\n"); END DoIt;
BEGIN
  END A.
> cat Main.m3
MODULE Main; IMPORT A;
BEGIN
  A.DoIt();
END Main.
```

> /usr/local/cm3/bin/cm3
--- building in SOLgnu ---
new source -> compiling A.i3
new source -> compiling Main.m3
new source -> compiling A.m3
-> linking prog
> SOLgnu/prog
Hello World

## 3 Submission and Assessment

The deadline for this assignment is 10:30AM, Monday, April 5. You should submit the assignment electronically using the Unix command `turnin cs520.7 <files>`. This assignment is worth 2% of your final grade.

Don't show your code to anyone, don't read anyone else's code, don't discuss the details of your code with anyone. If you need help with the assignment see the instructor.