Modern Programming Languages (CS508)
SPRING 2012
Solution Assignment No. 2

Total Marks: 20 **Dead line: May 04, 2012**

Application:

AlstraSoft E-Friends

Scenario:

Suppose you are developing an online first-degree friendship building social network for **E-friends** application at **Alstrasoft Pvt Ltd** that strive to be the premier provider of web-based software solutions for businesses worldwide. As a web development and software company, Alstrasoft specialize mainly in web design and software programming.

Evaluation:

Now In the same E-friends application you are required to develop a payment processor system '**EPay Enterprise**', with the growing demand for online payment processing business similar to Paypal. In this application **maintenance** typically puts strain on your organization's resources. So language of choice here would be a structured, statically typed imperative computer programming language like **'Ada'.**Another important thing to note here is that you are working in a distributed team with different developers at different locations.

a) How Ada encourages good programming practices by incorporating '**Reliability'** and **'modularity'. [5]**

Solution:

Ada is a programming language designed to support the construction of long-lived, highly reliable software systems. The language includes facility to define packages of related types, objects, and operations. The packages may be parameterized and the types may be extended to support the construction of libraries of reusable, adaptable software components. The operations may be implemented as subprograms using conventional sequential control structures, or as entries that include synchronization of concurrent threads of control as part of their invocation. The language treats modularity in the physical sense as well, with a facility to support separate compilation.

Modularity:

Ada formally support the modularity and hence make good program practice so that different program developers can work at the same time on different modules of a program this make program development much faster. This language organizes code into self-contained units that can be planned, written, compiled, and tested separately; this feature allows programs to be written in portions by teams working in parallel before being integrated into the final product. So working in distributed programming environment where different developers are working at different locations there is strong need of modularity.so a system components can easily be divided or separated anywhere in this language and then can be combined later on.

Reliability:

Reliability means that a program does not deviate from the expected behavior under all the circumstances. It facilitates reuse and the development of large applications. These characteristics increase the software's reliability.Ada strong typing detects errors more easily in both initial and separate unit compilations. Ada's exception handling mechanism supports fault-tolerant applications by providing a complete and portable way of detecting and gracefully responding to error conditions. Ada's tasking features support parallelism using high-level constructs instead of ad-hoc, error-prone calls to operating system primitives.

b) Developing a signup form for users, define and declare variables for following two fields shown in diagram using Ada language **[5]**

Solution:

For Suite or Apt# field:

Suite_Apt : String(1-100);
Apt_Number : String(1-100);

For City field:
City: Unbounded_String;

Note:
Variable name can be any of your choice but first comes variable name then its data type:

***VariableName* : *DataType*;**

For the field of Suit or Apt# we can declare and define variables in both ways we can name this field as Suite_Apt or we can use variable with name 'Apt_Number'.both are correct and can be used.any other variable name can also be used.

c) Ada supports string concatenation like C/C++**,** Write complete Ada Code (program) to print following output: **[10]**

My Full Name is: Amir Ali

Note: Here" First string is "My Full Name is:" and second string is "Amir Ali"

Solution:

```
with Ada.Text_IO; -- intent to use

use Ada.Text_IO; -- direct visibility


procedure Print  is
   FirstName : String := "My Full Name is:";
   LastName  : String := "Amir Ali";

begin
    Put_Line(FirstName & LastName); -- Concatenating the
Strings and showing output

end Print;
```

The End