Programming Paradigms Lab Assignment (CS453)

Assignment Sheet 4: Functional Programming

Duration: Two weeks

1. Write a Scheme Lisp Program to compute factorial of a natural number.

2. Write a Scheme Lisp Program to compute N-th Fibonacci Number, where N is a natural

number.

3. Write a Scheme Lisp Program to compute the HCF of two natural numbers N1 and N2

(N1 >= N2).

4. Write a Scheme Lisp Program to find the largest among N natural numbers.

5. Write a Scheme Lisp Program to compute the sum of N natural numbers.

6. Write a Scheme Lisp Program to implement a binary tree and display each node values. You do not need to take inputs from user.

Assignment Sheet 5 : Java concepts

Time : Two weeks

(You may use java and database connection to check insertion, deletion and modification of records ***if only if you are comfortable with it****. Otherwise simply avoid database connection without hesitation.)*

Develop the below programs with Java basic concepts mentioned below wherever applicable.

- Basic Input and Output
- Class and Object
- Inheritance
- Polymorphism

Problems

1. Write a program to take Name and Roll-Number as input for N students and print those on console.

2. Write a program to design a Student class having Name, Age, Department and Year as data members. It also should contain member functions like ReadData(), PrintData().

3. Write a program to design classes for Student and Professor. Each of these Classes should contain information below. Make sure proper class hierarchy is designed following the principle of inheritance.

Student: Name, Age, Gender, Dept, Year
Professor: Name, Age, Gender, Dept, Course Load, Salary

Provide a mechanism to display the profile/detail of various kind of Object of these class.

Once problem 1, 2 and 3 are completed, then attempt problem 4.

4. A plot is broken into different geometric shapes like Triangle, Rectangle and Circle of different size of arbitrary number. Write a program that provides a mechanism to sum up total area covered by these shapes.