Lab 4 – Object Passing

Note:

Add copy constructor and equals method in all questions.

Use this operator in copy constructor and object passing methods.

1. Create an encapsulated class Rectangle with **length** and **width** as data members. Create
   a. Default constructor
   b. One- argument constructor
   c. two- argument constructor
   d. display ()
   e. calculateArea ()
   f. checkSquare()
   g. CompareArea(?) //compares two objects and returns the object with larger area.

2. Create an encapsulated class Point class with **x** and **y** as data members. Create
   a. Default constructor
   b. One- argument constructor (for x)
   c. two- argument constructor
   d. display()
   e. move()
   f. checkOrigin()
   g. AddTwoPoints(Point pa)// Creates and returns a new point from two other points
   h. AddThreePoints(???)

3. Create an Encapsulated class Student with following:
   Data Members:
   a. String Name
   b. Int [] Result_array[5] // Result array contains the marks for 5 subjects
   Methods:
   a. Default constructor
   b. One- argument constructor (for Name)
   c. two- argument constructor
   d. Average (???) // it returns the average based on the marks in the array.

e. CompareAverage(?) //compares Average of two students

5. Create an Encapsulated class Book.
   a. Its data members are
      i. author
      ii. chapterNames[5]

   Methods:
   a. Default constructor
   b. two- argument constructor
   c. Create a method compareAuthors that compares the author of two Books and returns true if both books have same author and false otherwise. (This method Must manipulate two Book objects)

   d. Create a method compareChapters that compares the chapters of two books and returns true if both books have same chapters and false otherwise. (This method Must manipulate two Book objects)

6. Create a class "University" having following characteristics:

Data Members:

- String uniName;
- String rectorName,
- String location;
- String departments[20]; // it's a string array

Constructors:

- No argument. {Initialize department array with five values}
- A Constructor setting values of all parameters.

Methods:

1. Set methods for all Data Members
2. Get methods for all data members
3. Display
   - This methods displays all the data members of the class
4. AddADepartment
   - This method should ask the user for a new department name and add it in the departments [] array.
5. CheckLocation //Boolean
   - This method should check if a university is located in a particular city or not.
6. CompareDepartment(University u)// returns the university with larger number of departments.