Lab 6

1. As you know, a Stonehill password must contain at least eight characters. There must be

   • at least one upper case character
   • at least one lower case character
   • at least one numeric character
   • at least one character that is not a letter or digit

Write a class TestPassword that has one static method:
   boolean validPassword(string password)
that returns true or false depending on whether or not a password is valid.
You must use the methods of the Character class.

Write a second class that demonstrates your method by prompting for 10 passwords and determines the validity of each.

2.
   a. Write a class Point that contains two private data
      int x and int y
      that represent the coordinates of a two-dimensional point.
      Include constructors and getters. Setters are not necessary.
      Have a method distance() that returns the distance from the origin (0,0)
      Implement the Comparable interface so that compareTo(...) is based
      on distance from (0,0). Also, include tpString() so that a point is displayed in
      the form (x,y).

   b. Write a class Box that implements Comparable
      A Box has length, width and height (int)
      Include constructors and getters and a
      int volume() method
      implement compareTo(...) based on volume. Include toString() which returns the
      dimensions

   c. Write a utility class with one method that returns the largest object in an array
      public static Object max(Comparable[] x, int size)

Test your method with a class that
   1. makes an array of 20 random numbers (Range 0-100) and determines the largest
   2. makes an array of 20 random doubles(Range 0.0-1.0) and determines the largest
   3. makes an array with 6 Strings and determines the largest alphabetically.
   4. makes an array with 10 random Point objects with x and y coordinates
      in the range 0 - 99 and determines the largest Point.
   5. makes an array with 10 random Box objects dimensions
      in the range 0 - 30 and determines the largest Box in the array.

Notice that the return type is Object.
3 Integer Extraction

A radio station is paying the dollar value of the numerical part of your address, if you can answer a question correctly. For example, if Herman Munster of 1313 Mockingbird Lane, answers a question correctly, he wins $1313. Write a class with a static utility method that accepts a sequence of characters representing a person’s street address, (“1313 Mockingbird Lane”) and returns the numerical portion of the address

You may assume that the street address has just one number and that number occurs at the start of the address as an int.

    public static int getHouseNumber(String address)