

IST 256
Lab Week 14, Thursday, April 28, 2011
Exam Review Questions

**1. Continuing an example from the last lab:
Reading a File into an Array of Class Objects and using it**

Suppose that we have a file Pictures.txt that contains information about images. Each line of the file has the name of the image, the name of the photographer, the number of prints sold and the type (either Color or B&W for black and white). An example file might look like:

```
MountainAdams,40,B&W
Workers,Salgado,31,B&W
Flower,Mapplethorpe,25,Color
Baseball,Allen,200,Color
Woman,Lange,38,B&W
```

a. In the last lab, we designed a class that is suitable to keep the data from each line of this file. The name of the class was Picture and it had fields for imagename, photographer, numprints, and medium. Here is an example of this class, including public fields and a constructor:

```
// class to hold data for pictures
public class Picture
{
    // fields for the data
    public String imagename;
    public String photographer;
    public int numprints;
    public String medium;

    // Constructor function initializes all fields
    public Picture(String new_im, String new_ph, int new_n, String new_md)
    {
        imagename = new_im;
        photographer = new_ph;
        numprints = new_n;
        medium = new_md;
    }
}
```

b. Here is the declaration of a one-dimensional array of objects of the type Picture defined by the class in part a, and allowing up to 12 elements.

```
Picture [ ] pics = new Picture [ 12 ];
```

c. Write the code that will read the file “Pictures.txt” and put the contents into the one-dimensional array of Pictures declared in part b. It should also save the number of pictures read from the file. (In the interests of brevity, you can make the code be short by not testing for each scan that there is more data, just test in the while loop.)

Suppose that the example code starts with a try/catch section that creates a Scanner sc that can read this file. Fill in the code that reads the file and saves each Picture in an array.

```
// number of pictures read is kept in the variable numpix
int numpix = 0;
try
{
    // create the Reader and Scanner
    BufferedReader in = new BufferedReader( new FileReader(“Pictures.txt”));
    Scanner sc = new Scanner(in);
    sc.useDelimiter(“(\\n\\r)+);

}
sc.close();
}
catch (IOException e)
{
    e.toString();
}
```

d. After reading the file Pictures.txt into the array of Pictures, the program should compute the number of prints sold that are B&W and the number of prints sold that are Color. Show the code and the declaration of two variables to hold the two numbers.

e. After computing two variables that contain the number of B&W and Color prints, write the values of these two variables to a file, with string that labels what they are. Write to a file named "imageresult.txt", without giving any directory path.