Problem 1-Create a working main. Submit the **whole src folder**-call it src2. This should contain two folders (these are the packages): catstuff (containing the cat class) and petinfo (containing your main).

Using the following Cat class, you will create a package called catstuff and put the following Cat class inside. Your main should be in a package called petinfo that uses the Cat class (check the previous problem to guide you). **YOU MUST USE THE CAT CLASS IN THIS PROBLEM OR YOU WILL NOT RECEIVE CREDIT.**

Your main should create a cat object, allow the user to enter information about the cat and finally allow the user to enter 3 favorite foods (sample run follows).

Cat class: (DO NOT MODIFY)

```
package catstuff;

import java.util.ArrayList;
import java.util.Scanner;


public class Cat {

   private String name;
   private String breed;
   private String [] colors;
   private ArrayList<String> favFoods=new ArrayList ();

   public void giveAllInfo()
   {
      Scanner in=new Scanner(System.in);

      System.out.println("Hello!  You will be entering cat info.");

      System.out.println("Enter cat name:");
      name=in.nextLine();
      System.out.println("Enter cat breed:");
      breed=in.nextLine();
      giveColors();


   }
```

```java
private void giveColors()
{
    Scanner in=new Scanner(System.in);
    System.out.println("How many colors?");
    int n=in.nextInt();
    in.nextLine();
    colors=new String[n];

    for (int i=0;i<colors.length;i++)
    {
        System.out.println("Give color "+(i+1)+":");
        colors[i]=in.nextLine();
    }
}


public void printOutCatInfo()
{
    System.out.println("\nName: "+name);
    System.out.println("Breed: "+breed);

    for(int i=0;i<colors.length;i++)
    {
        System.out.println("  Color:"+colors[i]);
    }
    printOutFavFoods();

}

public void addFavFood()
{
    System.out.println("Add a new favorite food:");
    Scanner in=new Scanner(System.in);
    String food=in.nextLine();
    favFoods.add(food);
}

private void printOutFavFoods()
{
    System.out.println("Favorite foods are:");
    for (int i=0;i<favFoods.size();i++)
```

```
        {
            String fd=favFoods.get(i);
            System.out.println(fd);
        }
    }



}



}
```

Sample run:
Hello! You will be entering cat info.
Enter cat name:
Tom
Enter cat breed:
Persian cat
How many colors?
2
Give color 1:
white
Give color 2:
brown
Add a new favorite food:
fish
Add a new favorite food:
treats
Add a new favorite food:
mice

Problem 2- Create a program using a 2D array. Submit a folder called src1 with all packages and classes.

You will create a program that can read in ANY file with headers. The program should allow the user to type in two of the columns (other than the first column) and take the average of the two columns. Finally, the program should print to screen the average along with the first column information and allow the user to make an output file with exactly the same information you printed to screen.

Notes:
1. You are reading in the information as a spreadsheet, meaning you do not need to make objects to hold information (which you would not be able to do anyways since we do not know what information we will be receiving in our file).

2. You should keep all your FileIO methods in one class (see the previous assignment and class code) and call them when necessary. You can decide whether or not to keep this class in a separate package or keep it in the same package as the class that holds your main. Make sure the class is included when you turn in your assignment.

3) DO NOT CODE ALL THE WORK OF THE PROGRAM IN MAIN-**there will be no credit for this assignment if you do not use a minimum of 3 methods to do the work of your program**. You should keep these methods in the same class as your main. You should call the class containing the main method AvgMain and it should be kept in a package of the same name.

Sample Run 1:
Enter file name:
weather1.txt

Enter first column to find.
t
Sorry,we didn't find it.

Enter first column to find.
Temperature High

Enter second column to find.
t
Sorry,we didn't find it.

Enter second column to find.
Temperature Low

Avg of: Temperature High and Temperature Low:

Sat 3/7/2015: 44.0
Sun 3/8/2015: 48.5
Sat 3/14/2015: 62.0
Sun 3/15/2015: 61.5
Mon 3/30/2015: 69.0
Tue 3/31/2015: 74.5
Wed 4/1/2015: 73.5
Thu 4/2/2015: 77.0
Fri 4/3/2015: 67.0

Sat 4/18/2015: 70.0
Sat 4/25/2015: 70.5
Sun 4/26/2015: 71.5
Sat 7/4/2015: 85.5
Sun 7/5/2015: 81.5
Mon 7/6/2015: 85.5

---Enter filename to save to:
output.txt
Done writing to output.txt.

Sample Run 2 **(NOTE: I SHORTENED THE PRINT OUT TO SCREEN WITH … SINCE IT WOULD BE TOO LONG TO PUT HERE-YOU ARE EXPECTED TO PRINT OUT THE WHOLE LIST):**
Enter file name:
nba.txt

Enter first column to find.
points

Enter second column to find.
d
Sorry,we didn't find it.

Enter second column to find.
rebounds

Avg of: points and rebounds:

Russell Westbrook : 17.7
James Harden: 16.55
LeBron James: 15.65
…   *****SHORTENED LIST HERE**

---Enter filename to save to:
output1.txt
Done writing to output1.txt.

Problem 3- Create a program using objects. Submit a folder called src2 with all packages and classes.

Benoît has a large library of albums and wants to organize them by year. He created a spreadsheet of information with the artist name, album name, and year it was published. He wants to be able to print a list to screen with the year and all the albums published that year as well as put the same information in an output file.

Both the year and album should only be printed once (no repeats). The order of the years does not matter.

Notes:
1) You should make an Album class and and AlbumCollection class to allow you to make objects. These classes should be kept in a package called albumstuff.

2) The Album class should not have any methods and all the work should be done in the AlbumCollection class.

3) The main method should be kept in a class called AlbumMain (which should be kept in a package of the same name). In the main, you should **only** create an AlbumCollection object and call methods using this object. **THERE SHOULD BE NO OTHER METHODS OTHER THAN MAIN IN THE AlbumMain CLASS. No credit if there are methods anywhere but the AlbumCollection class.**

Do not hardcode as we will be using multiple files to test the assignment.

Sample Run (NOTE: I SHORTENED THE PRINT OUT TO SCREEN WITH … SINCE IT WOULD BE TOO LONG TO PUT HERE-YOU ARE EXPECTED TO PRINT OUT THE WHOLE LIST):
Enter file name:
albums.txt

Albums by Year

--1966:
Revolver
Pet Sounds
Blonde on Blonde

--1991:
Nevermind
Achtung Baby

Ten
Blood Sugar Sex Magik
Metallica
User Your Illusion 1 &2
…   *****SHORTENED LIST HERE**

---Enter filename to save to:
output2.txt
Done writing to output2.txt.