CS152 Project 2

Recursion on Array of Objects

Use BlueJ to write a program that reads a list of data for several houses from the same complex, all located on the same street, from an input file. Houses are stored in an array House[] houseList . Capacity of the list is 70. Actual number of houses in the list depends on the input file. Program should work for input file containing info for any number of houses. Use notepad to create input file "inData.txt". File should be stored in the same folder where all files from BlueJ for this program are located.

Class **House** describes one house object and has variables: int houseNumber, int bedrooms (number of bedrooms), int sqFeet, int year (when house was built), and int cost (given in thousands of dollars). Define House’s constructor to accept and initialize all instance variables. Include getter methods only for instance variables needed outside of class House, such as getCost, getSqFeet... Provide a toString method that returns one line description of a house as String. Provide method isExpensive() that returns a boolean indicating if the house is expensive or not. Expensive means that house cost is above 300 thousand dollars. Provide method isNew() that returns a boolean indicating if the house is new or not. New house means that house was built in 2000 or more recently.

Class **HouseComplex** describes funtionality for list of house objects built on the same street. Class has no instance variables and no constructor. In each method input parameter n is number of occupied positions in the list. Class has the following recursive methods:

* public String toStringRec(House[] list, int n)

//returns String of all houses in the list

* public void printExpensiveHousesRec(House[] list, int n)

//prints all expensive houses in the list

* public int countNewHousesRec(House[] list, int n)

//returns number of new houses in the list

* public House cheapestHouseRec(House[] list, int n)

//returns the cheapest house in the list.

* public ArrayList<House> moderateSizeRec (House[] list, int n)

// returns ArrayList<House> of houses that have

// between 1500 and 2500 square feet (including

// the limits ) **EXTRA CREDIT**

Only method printExpensiveHousesRec prints all expensive houses, all other methods do not print anything. They only return result of specified data type. All methods that return or print several houses should do it by keeping the same relative order of houses as they appear in the original list. (Do not reverse the order.)

Use input file which you will create in notepad. Each line of input file "inData.txt" has houseNumber,bedrooms, sqFeet, year, and cost in that order, and separated by a space. The data for the first two and last two houses in the input file should be as follows:

1 3 1790 2017 310

4 2 1480 2004 280

add additional three rows of house data of your choice .

15 4 2800 1998 320

88 5 4020 2019 460

Class **Tester** has main method. In it, read houses from the input file and store them in House[] myHouses. Also count houses as you read from the input file in variable int houseCount. Invoke each of the methods (plus extra credit if you have done it) from HouseComplex class.

Do not forget to append throws IOException to the main method header in class Tester. In addition, you have to provide

import java.io.\*;

import java.util.\*;

in order to input data from input file and use Scanner class.

**SUBMIT** a single word or PDF document named **p2\_yourLastName\_CS152** with the following:

* Your name, class section, project number, and date of submission in the upper left corner
* Copy of the code for each class in separate rectangle
* Copy of your input file
* Picture of program run from BlueJ.
* UML diagram.