

CSCI 1301 – Programming Principles I
Georgia Southern University
Department of Computer Science
Fall 2024

Assignment 9

Point Value: 20 points

Due: Friday November 15, 2024, start of lab

Description

Chuck, a recently reformed slumlord, has hired you to help stabilize his real estate holdings. After years of neglect for his buildings and tenants, he met someone, rescued a puppy, and decided he could no longer continue his ways. He has decided that he is going to reinvest all of the ill-gotten gains back into the properties. A local charity has agreed to take over ownership and operate some of the fixed properties.

After speaking with an attorney and renovating the donated properties, Chuck needs his renovation/maintenance costs over 4.75 years to be less than half of the projected 10.25-year rental revenue for any properties he keeps.

The data that he gives you contains two sets of data contained in arrays. One array contains the annual maintenance and upkeep costs and the other array contains the annual rental income in \$USD. For simplicity, assume that those costs and rental incomes will not change for these calculations.

Using the constraints and data listed above, write a Java program that determines which properties need to be donated and which should be kept.

Your program should use a value returning method named `keepProperty()` that takes the annual maintenance/renovation costs of a **single** property as the first parameter, and the annual rental income of that **single** property as the second parameter (both doubles). This method should determine if that property's renovation/maintenance costs over 4.75 years are less than half of the projected 10.25-year rental revenue. The method should return a true if the property is to be kept or a false if it is to be donated.

The result of this method call should be stored in a separate "decision" array of booleans with a true (keep) or false (donate) in the corresponding index position for each property.

Your program should clearly output the following:

- the total maintenance/renovation of the properties before the donation
- the total rental income of the properties before the donation
- the total maintenance/renovation of the properties kept after the donation
- the total rental income of the properties kept after the donation
- Chuck's total lost rental income of properties donated

Additionally, create a void method named `printDecisions()` that takes any boolean “decision array” as a parameter and prints property number and keep or donate on each line for each element in the array.

For this assignment, use the given information for maintenance/renovations and rental incomes (no user input needed), however, your program should work for any similarly typed arrays of any length. Remember to use `System.out.printf()` to get the required formatting.

Annual maintenance/renovations (\$USD)

21500, 29275, 37250, 35322, 19757, 24625, 30300, 18759, 15217, 27090, 12439, 22005

Annual rental income (\$USD)

26752, 21421, 39759, 24783, 15297, 25264, 32159, 16157, 21705, 19420, 18275, 21350

For instance, Property 0 will be kept because half of its 10.25 year rental income (\$137,104) is greater than its 4.75 year cost (\$102,125).

HINT: Using the `,` format modifier will allow for auto-commas at the thousands digit(s). Review `printf()` in Chapter 4 for all options.

Expected Output/Sample Run

For the above maintenance/renovations and rental incomes, output should look like the following:

Total maintenance/renovation before donation: \$293,539.00

Total rental income before donation: \$282,342.00

Total maintenance/renovation after donation: \$163,336.00

Total rental income after donation: \$185,264.00

Total Donated Rental Income: \$97,078.00

Property 0 - keep
Property 1 - donate
Property 2 - keep
Property 3 - donate
Property 4 - donate
Property 5 - keep
Property 6 - keep
Property 7 - donate
Property 8 - keep
Property 9 - donate
Property 10 - keep
Property 11 - keep

Code

Use the provided template for this assignment. Make any necessary modifications to classes and class headers to complete this assignment.

```
public class PAssign09 {  
    public static void main(String[] args) {  
        // add your code here  
    }  
}
```

Deliverables

Name your program PAssign09.java. Programming Assignment 9 is to be individual work. Submit the program by the specified due date. Submit each file to its corresponding assignment on Gradescope.

See and follow the Programming Assignment Format document for submission requirements.

Use a utility similar to <https://www.diffchecker.com/> and the Expected Output to compare your program's output with the requested output as well as the unit tests provided within Gradescope. Programming is in the details, so double check punctuation, spacing, and case if your output does not match. When copying and pasting, be aware that Microsoft Word sometimes replaces normal quotes with Smart Quotes, which may need to be edited.

Last modified: November 4, 2024