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CS 1073 (FR02A)

Assignment 8

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# Section A

## Source Code (Customer.java):

import java.text.NumberFormat;

import java.util.Locale;

/\*\*

\* The customer class holds the name and car and methods relating to costs and last time visited

\* @author Isaac Shoebottom (3429069)

\*/

public class Customer {

/\*\*

\* (String) customer name

\*/

private final String customer;

/\*\*

\* (String) car name

\*/

private final String car;

/\*\*

\* (long) The time in months since the last time the customer has visited

\*/

private long monthsSinceVisit = 0;

/\*\*

\* Currency formatter

\*/

NumberFormat cf = NumberFormat.getCurrencyInstance(Locale.CANADA);

/\*\*

\* The constructor for the customer class, stores the customers name and car model

\* @param customer The customers name

\* @param car The customers car model

\*/

Customer(String customer, String car) {

this.customer = customer;

this.car = car;

}

/\*\*

\* Increases the months since the last time the customer has visited

\*/

void incMonthsSinceVisit() {

monthsSinceVisit++;

}

/\*\*

\* Get the months since the last time the customers has visited

\* @return The months since the last time the customer has visited

\*/

long getMonthsSinceVisit() {

return monthsSinceVisit;

}

/\*\*

\* The cost of the next visit

\* @return The cost of the next visit in double format

\*/

double getNextVisitCost() {

return (20.00 + (monthsSinceVisit\*12.00));

}

/\*\*

\* Create an invoice containing the customers name, car model, last time the visited and the cost of the visit

\* @return A string containing the customers name, car model, last time the visited and the cost of the visit

\*/

String createVisitInvoice() {

double cost = getNextVisitCost();

long lastVisit = getMonthsSinceVisit();

monthsSinceVisit = 0;

return (

"INVOICE\tfor: " + customer + "\n" +

"\t\tmodel: " + car + "\n" +

"\t\tlast visit: " + lastVisit + "\n" +

"\t\tnext visit cost: " + cf.format(cost));

}

}

## Source Code (WarrantyCustomer.java:

/\*\*

\* This class contains a customer that has a warranty. It contains the customers name, car model and overridden methods pertaining to that the customer is a warranty owner

\* @author Isaac Shoebottom (3429069)

\*/

public class WarrantyCustomer extends Customer {

/\*\*

\* (long) The time since the last discount for being a warrenty owned was applied

\*/

private long monthsSinceLastDiscount = 0;

/\*\*

\* Warranty customer constructor, it stores the customers name and car model

\* @param customer The customers name

\* @param car The customers car model

\*/

WarrantyCustomer(String customer, String car) {

super(customer, car);

}

/\*\*

\* The overridden method that applies a discount if the user has not used their discount in 12 months

\* @return The cost of the visit

\*/

@Override

double getNextVisitCost() {

if (monthsSinceLastDiscount >= 12) {

monthsSinceLastDiscount = 0;

return (0.8 \* super.getNextVisitCost());

}

return super.getNextVisitCost();

}

/\*\*

\* Method specific to the warranty owners, increases the months since last discount as well as months since last visit

\*/

@Override

void incMonthsSinceVisit() {

super.incMonthsSinceVisit();

monthsSinceLastDiscount++;

}

/\*\*

\* Create an invoice for warranty owners, includes the months since the last time the discount was applies

\* @return The customers invoice, includes the last time the warranty discount was applied

\*/

@Override

String createVisitInvoice() {

long tempMonthsSinceLastDiscount = monthsSinceLastDiscount;

return(

super.createVisitInvoice() +

"\n\t\tmonths since discount: " + tempMonthsSinceLastDiscount + "\t(has warranty)"

);

}

}

# Section B

## Output:

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

\* HARRISON FORD CUSTOMER SYSTEM \*

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

November 1, 2019

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INVOICE for: John Smith

model: Escape

last visit: 1

next visit cost: $32.00

INVOICE for: Harold Lee

model: Fiesta

last visit: 3

next visit cost: $56.00

months since discount: 3 (has warranty)

INVOICE for: Beth Blart

model: Focus

last visit: 4

next visit cost: $68.00

months since discount: 4 (has warranty)

November 1, 2020

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INVOICE for: John Smith

model: Escape

last visit: 12

next visit cost: $164.00

INVOICE for: Harold Lee

model: Fiesta

last visit: 0

next visit cost: $20.00

months since discount: 3 (has warranty)

INVOICE for: Beth Blart

model: Focus

last visit: 12

next visit cost: $131.20

months since discount: 16 (has warranty)