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CPS 150 02 – Algorithms and Programming 1

Lab 6

9/15/2020

**Program 1 Algorithm**

1. Start program
2. Import JOption class
3. Prompt the user to input a value for the cost of a new car
4. Declare a double variable to store the value of the cost of a new car
5. Prompt the user to input a value for the estimated number of miles driven per year
6. Declare a double variable to store the value of the number of miles driven per year
7. Prompt the user to input a value for the estimated gas price
8. Declare a double variable to store the value of the estimated gas price per gallon
9. Prompt the user to input a value for the car’s efficiency in miles per gallon
10. Declare a double variable to store the value of the car’s efficiency
11. Prompt the user to enter a value for the resale value after five years
12. Declare a double variable to store the resale value after five years
13. Declare a double variable to store the total cost of owning the car for five years – assign it the value of cost of new car + ((5\*miles / efficiency) \* gas price) – resale value
14. Print out the total cost of owning the car for five years
15. Declare a double variable to store the average price of a new hybrid car (looked up on internet)
16. Declare a double variable to store the average price of a used hybrid car (also looked up on internet)
17. Compare the total cost of the car to the price of a new hybrid car and a used hybrid car
18. End program

**Program 1 Running Screenshot**

First Run Screenshots (all steps)

**A screenshot of a cell phone

Description automatically generated**

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Second Run Screenshots (only last two steps)

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A screenshot of a cell phone

Description automatically generated

**Program 1 Code**

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CPS 150 02

Lab 6

CarCost: number, number, number, number, number; number

program takes in a value from the user for the cost of a new car, the estimated miles

driven per year, the estimated gas price, the efficiency in miles per gallon, and the estimated

resale value after 5 years then calculates the total cost of owning the car for 5 years

Total cost = cost of new car + ((5\*miles / efficiency) \* gas price) – resale value

ex1: user inputs 30000, 15000, 2.5, 25, 10000 - program outputs 27500.0

ex2: user inputs 56500.62, 8200, 2.21, 21, 22500 - program outputs 38315.381

ex3: user inputs 42000, 5000, 2.11, 31, 30000 - program outputs 13701.612

ex4: user inputs five hundred, x, nine, apple, -10000 - program outputs error

ex5: user inputs -40000, 6545, 2.09, 35.5, 22000 - program outputs -60073.373

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//Import JOption class

import javax.swing.JOptionPane;

public class CarCost {

public static void main(String [] args){

//Prompt the user to input a value for the cost of a new car

String input1 = JOptionPane.showInputDialog("Enter the cost of a new car: $");

//Declare a double variable to store the value of the cost of a new car

double newCar = Double.parseDouble(input1);

//Prompt the user to input a value for the estimated number of miles driven per year

String input2 = JOptionPane.showInputDialog("Enter the estimated number of miles per year: ");

//Declare a double variable to store the value of the number of miles driven per year

double miles = Double.parseDouble(input2);

//Prompt the user to input a value for the estimated gas price

String input3 = JOptionPane.showInputDialog("Enter the estimated gas price ($ per gallon): $");

//Declare a double variable to store the value of the estimated gas price per gallon

double gasPrice = Double.parseDouble(input3);

//Prompt the user to input a value for the car’s efficiency in miles per gallon

String input4 = JOptionPane.showInputDialog("Enter the car's efficiency (miles per gallon): ");

//Declare a double variable to store the value of the car’s efficiency

double efficiency = Double.parseDouble(input4);

//Prompt the user to enter a value for the resale value after five years

String input5 = JOptionPane.showInputDialog("Enter the car's resale value after 5 years: $");

//Declare a double variable to store the resale value after five years

double resale = Double.parseDouble(input5);

//Declare a double variable to store the total cost of owning the car for five years

double totalCost = newCar + ((5\*miles / efficiency) \* gasPrice) - resale;

//Print out the total cost of owning the car for five years

JOptionPane.showMessageDialog(null, "The total cost of owning a new car for 5 years is: $" + totalCost);

//Declare a double variable to store the average price of a new hybrid car

double newHybrid = 30000.0;

//Declare a double variable to store the average price of a used hybrid car

double usedHybrid = 20000.0;

//Compare the total cost of the car to the price of a new hybrid car and a used hybrid car

if(totalCost > newHybrid){

JOptionPane.showMessageDialog(null, "It would likely be cheaper to buy a new hybrid car!");

}

else if(totalCost < newHybrid && totalCost > usedHybrid){

JOptionPane.showMessageDialog(null, "It would likely be cheaper to buy a used hybrid car!");

}

else{

JOptionPane.showMessageDialog(null, "It would likely be cheaper to stick with the new car!");

}

//End program

}

}