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Professor Justh

CMSC 203 – 30963

Project 2

2/19/15

External documents

**Driver Class Algorithm:**

1. First step is to create the header file so to do this we import java.util.Scanner to be able to read from the keyboard and also import javax.swing.JOptionPane to allow access to the JOptionPane class
2. Then we create the DriverEstimate Class and define the public static void main class in side this
3. Define and initialize variables: For instance, *String job*, user inputted variable (carpet, paint or etc.), *String t*, task stored carpet, paint, or etc. to estimate worker class, *String again*, user inputted data to continue the program n is to quit, *String yds*, square yards of carpet or paint String variable for JOptionPane, *String prc*, cost of carpet or paint String variable for JOptionPane, *double yards*, cost of carpet or paint Double variable stored to estimate worker class, *double price*, cost of carpet or paint Double variable stored to estimate worker class and, *double cost*, total estimated cost of task retrieved by estimate worker class.
4. Then create a method e of Estimate worker class
5. Create a do-while loop until the user enters n, which is assigned to a value again, and this quits the loop
6. Prompt the user to enter job of paint or carpet in JOptionPane class and use setTask instance from method e from estimate worker class and use getTask to get back a value for task
7. Use an if, else if and else statement checking if the task is paint, carpet or misc., respectively.
8. Inside the else statement give an error message using JOptionPane message dialogue saying “I do not know that task”
9. In each distinct body of the if and else if statement, paint and carpet, ask user to enter the square yards with work needed to be done
10. In a while loop, validate if the size of the square yards is NOT between 0 to 500, and inside it give an error and repeat #9
11. After that use setSize instance with from Estimate worker class and getSize instant to get back the correct number of square yards to be painted or carpeted
12. The use JOptionPane to ask the user how much does one gallon of paint cost or how much does one square yard of carpeting cost, respectively.
13. In another while loop check if price is less than 0, if so inside the while loop give an error message and repeat #12
14. After that use setCost instance with from Estimate worker class and getCost instant to get back the correct cost paint per gallon or carpet per square yard
15. Finally, ask the user if they want another estimate, let them enter n to quit, and assign their input to a variable
16. If the user enters n then the program breaks out of the do-while loop, but if they enter any other character, then the program loops back to the beginning again

**Class documentation:**

/\*\* DriverEstimate driver class:

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This class is a driver class that utilizes the worker class, Estimate, to perform calculations and determine the total cost of task estimate. In the class I create a method e of Estimate worker class which I can use instances of the Estimate class in my DriverEstimate class. The DriverEstimate class utilizes the JOptionPane class to obtain inputs from the user on which task they would like to do, paint or carpet, how many square yards they need to be painted or carpeted (0 and 500), and the price of a gallon of paint or square yard of carpet. The class uses while loop as a method of input validation, uses decimal format to display total cost in US currency.

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**Variables used in my program:**

/\*\* job user inputed variable (carpet, paint or etc.) \*/

String job = "";

/\*\* task stored carpet, paint, or etc. to estimate worker class \*/

String t = "";

/\*\* square yards of carpet or paint String variable for JOptionPane \*/

String again = "";

/\*\* square yards of carpet or paint Double variable stored to estimate worker class \*/

String yds = "";

/\*\* cost of carpet or paint String variable for JOptionPane \*/

String prc = "";

/\*\* user inputed data to continue the program n is to quit \*/

**double** yards = 0.0;

/\*\* cost of carpet or paint Double variable stored to estimate worker class \*/

**double** price = 0.0;

/\*\* total estimated cost of task retrieved by estimate worker class \*/

**double** cost = 0.0;

**Test Cases:** (Red = invalid case)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Task input | Input (square yards) | Input (price) | Expected Output | Actual Output |
| Paint | 48.0 | 20.0 | $864.00 | $864.00 |
| Paint | 5 | 100.3 | $170.30 | $170.30 |
| Paint | 2.5 | - 6.5 |  |  |
| Carpet | 25.5 | 5.2 | $311.10 | $311.10 |
| Carpet | 0 | 99.99 | $0.00 | $0.00 |
| Carpet | - 101.2 |  |  |  |
| Tile |  |  |  |  |

**Learning Experience:**

In program 2 I learned how to use a worker class, Estimate and create a driver class, DriverEstimate. And how to create a method and an instance of a class. Moreover, I learned how to implement a do-while loop and use while loops to perform input validation. I also learned about selection control statements and repetition control statements. I learned more on the use of relational and logical operators throughout the program as well.

**Assumptions:**

The user of the program will enter any character or number to quit the program during the end of the do-while loop check, when asked to enter another estimate. The user will enter valid numerical values for the input square yards and input price (this should be within the double-type restraints) and they will not enter extraneous characters or char/string characters for the input square yards and input price variable. (This way one may prevent the result of errors in the program). We can assume that paint or carpet are entered in lowercase. Assume Estimate worker class is does not need modifications and performs its task correctly.