Lab #4: Painting Invoice

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Algorithm

This project will require two objects, a Room and a House. A Room represents a room that can be painted and a House represents a collection of Rooms. The driver will allow an employee of WePaintHouses LLC to add Rooms to the house that are scheduled to be painted, and create an invoice for that House.

The program will start by asking for the name of the owner of the House, the distance from company headquarters to the House and the maximum number of rooms that could be painted in the House. The employee will then have the option to enter a new Room to be invoiced, list the rooms currently scheduled for painting, and exiting the program to save the invoice.

The Room object will store the length, width, and height of a room. Additionally, it will hold the number of coats of paint required for the room to be completed. It will have getters and setters for these data members as well as helper functions to calculate the volume, paintable area, and gallons of paint required for the room. This information will be available to the employee through the list rooms option.

The House object will store the owner’s name, the distance to the House and the maximum number of paintable Rooms. There will be getters and setters for these data members. Additionally, a House will store a vector of Rooms representing rooms in the house to be painted. It will have helper functions to add a room that should be painted, access a room from the vector, find the total number of coats necessary to paint all the rooms. This information will be used to generate the invoice.

The driver will start by asking for the name, distance and number of possible rooms. These will be used to create a house. The driver will then create a menu loop allowing the employee to enter a letter choice from the menu. The first option is to add a Room to the House. The driver will get the length, width, height and number of coats for a new Room and add it to the list in the House to be invoiced. The second option will be to print a list of rooms currently on the invoice in the House. The third option will be to exit the program. Upon exiting, the employee will be asked if they would like to save the invoice to a file. The program will end after printing the invoice on the screen.

Screen-Shots of Running Program

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Description automatically generatedA black screen with white text

Description automatically generatedA screenshot of a computer screen

Description automatically generatedA screenshot of a computer screen

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Description automatically generated

Integrity Statements

* I have not shared the source code in my program with anyone other than the pre-approved human sources.
  + *Please include a note here if you have used one or more of the pre-approved human sources or received special permission from me.*
* I have not used source code obtained from another student, or any other unauthorized source, either modified or unmodified.
* If any source code or documentation used in my program was obtained from another source, such as the course textbook or course notes, that has been clearly noted with a proper citation in the comments of my program.
  + *It would also be helpful to include a note here of which sources you used*
* I have not knowingly designed this program in such a way as to defeat or interfere with the normal operation of any machine it is graded on or to produce apparently correct results when in fact it does not.