

# Workshop - 10

Workshop Value: 10 marks (4.375% of your final grade)

Please review the following documents:

1. Workshop [Grading Policies](#)
2. Workshop [Submission Procedures](#)

## Workshop Overview

**Online webpage calculator application** tools are very popular – especially when you need an estimate when ordering products/services that have a heavy price tag attached. One example of such a product is paint. Performing an accurate cost estimate can get complicated and have many steps involved. Most customers will not dedicate too much time in doing this accurately themselves and will most likely make errors.

## Workshop Details

An online paint estimator tool is required to provide an accurate estimate of the number of cans of paint needed for the customer's needs as well as the total cost (net/sub-total: without tax and gross: with tax). You need to define the overall necessary processes required for this application.

There are some basic requirements you need to account for:

### 1. Paint Types

#### Base Paint

- Base coat paints have less coverage as they are designed to soak into the wall/surface material and seal the pores so a smooth and consistent final coat can be applied for a better professional look.
- Typically, two (2) coats are applied for best results, but this ultimately is up to the customer if it is even used at all
- Base coat paints have a coverage of 11 m<sup>2</sup> and cost \$46.25 per can

#### Finishing Paint

- Finishing paints are more expensive and provide the final desired colour (they also have higher coverage rates if a base coat was used)
- Depending on if a base coat paint was applied (and how many coats), the number of suggested coats required of the finishing paint varies:
  - If two (2) coats of base paint were used, one (1) coat of finishing paint is sufficient
  - If one (1) coat of base paint was used, two (2) coats of finishing paint is suggested
  - If no base paint was used, three (3) coats of finishing paint is suggested
  - The number of planned coats is ultimately up to the customer
- Finishing paints have a coverage of 16 m<sup>2</sup> and cost \$54.50 per can

### 2. Input Information

- You need to be able to determine the overall area that needs painting to be able to provide an estimate.
- You can't ask the customer to simply enter the total area – the online tool must determine and calculate this information based on the necessary inputs from the customer
- You must provision for the customer to enter the required dimensions/measurements that reflect their painting requirements (and this can mean multiple rooms!)
- You can assume metric meter (m) units are used.

Note/Hints

- You should not include openings that don't require painting such as doors and windows
- Don't forget about ceilings...

**3. Output Information**

- The final output to the customer should include the following details:
  - Total area to be painted
  - Itemized listing of the paint, unit cost/can, quantities, and total cost. This means...
    - Base paint (if applicable) will be on its own line (showing the unit cost per can, number of cans required and the total cost for that paint before taxes)
    - Finishing paint will be on its own line (showing the unit cost per can, number of cans required and the total cost for that paint before taxes)
  - Sub-Total of the detailed itemized total above before taxes
  - Taxes (HST) amount to be applied to the sub-total amount at a rate of 13%
  - Total of the sub-total and taxes combined

## Work Breakdown

**[Logic 1]** Define the process that determines the paint type(s) and calculates the number of cans of paint required. The total area information will be sent to this subprocess since this will have been already calculated. This process should prompt for the number of coats of each paint type. Don't ignore the default suggestions for best results – your logic should accommodate different inputs.

**[Logic 2]** Define the process that displays the itemized details of the estimate and calculates the sub-total, taxes, and total cost of the required cans of paint. All the estimate detail information such as total area and the number of cans of each paint type etc. will be sent to this subprocess (as input) as this will have already been determined).

**[Logic 3]** Define the process that calculates the AREA to be painted. This will prompt for the room dimensions along with the door and window details.

**[Group Solution]** Create a "main" process that will call the other subprocesses as required to solve the overall problem.

## Your Task

**Individual Logic Assignment**

1. Determine your individual assigned logic part based on your member# (see **Group Breakdown** link at the beginning of this document)
2. Where applicable, apply the core components of the **computational thinking** approach to problem solving to help you synthesize a solution
3. Submit your individual assigned part to your professor (see **Submission Procedures** link at the beginning of this document)

**Group Solution**

1. In the week the workshop is scheduled, you will be working in your assigned sub-group. See **Group Breakdown** link at the beginning of this document for details on how the sub-groups are determined.

2. Please review what is expected as described in the **Grading Policies** link at the beginning of this document.
3. Submit your group solution to your professor (if you are handing in physical paper answers, follow the directions as set by your professor, otherwise, refer to the **Submission Procedures** link at the beginning of this document)

**Presentation**

Decide among yourselves which member among you in the **sub- group** will be doing a presentation. Priority should be given to those who have not yet done one. Refer to the **Grading Policies**, and **Submission Procedures** links for details on deadlines, expectations and how to submit your work.