Yindi’s Labels—Online Order Form

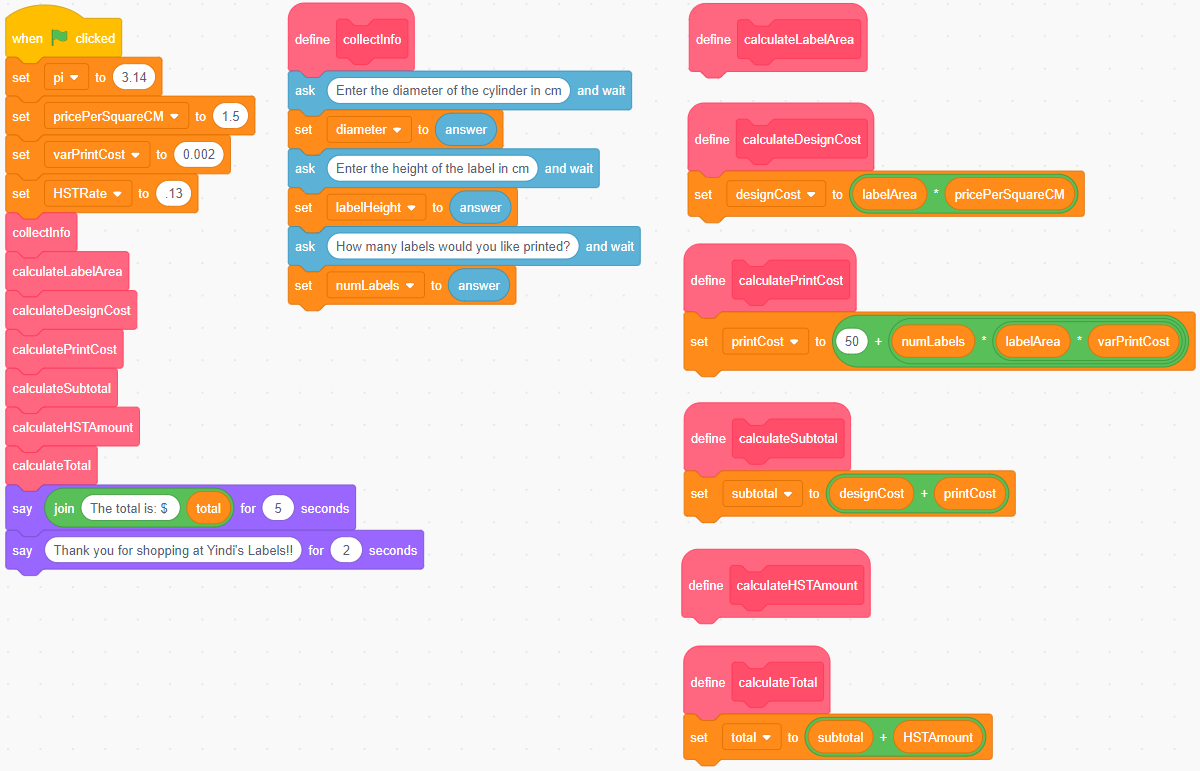
**Algebra**

**Unit 3 Line Master 4a**

Here is a link to the partially completed Scratch application   
Yindi created for her clients.

<https://scratch.mit.edu/projects/718912470/editor/>

**Remember:** You must be logged in to save your work in your   
Scratch account.

The code is shown below:

Yindi’s Labels—Online Order Form   
 (cont’d)

**Algebra**

**Unit 3 Line Master 4b**

1. What 3 pieces of information is the user asked to enter?

2. Once the code has been completed, what 5 pieces of information  
 will the application calculate and display?

Here is a sample of what will appear on the stage after the code   
is completed and a client has entered their data:

Timeline

Description automatically generated

Yindi’s Labels—Online Order Form   
 (cont’d)

**Algebra**

**Unit 3 Line Master 4c**

Pseudocode has also been partially written for this application:

subprogram collectInfo

output “Enter the diameter of the cylinder in cm”

store user input as diameter

output “Enter the height of the label in cm”

store user input as labelHeight

output “Enter the number of labels you would like printed”

store user input as numLabels

subprogram calculateLabelArea

labelArea = pi \* diameter \* labelHeight

subprogram calculateDesignCost

designCost = labelArea \* pricePerSquareCM

subprogram calculatePrintCost

printCost = 50 + numLabels \* labelArea \* varPrintCost

subprogram calculateSubtotal

*#complete this*

subprogram calculateHSTAmount

HSTAmount = HSTrate \* subtotal

display HSTAmount

subprogram calculateTotal

*#complete this*

*#Main program*

pi = 3.14

pricePerSquareCM = 1.50

varPrintCost = 0.001

run subprogram collectInfo

run subprogram calculateLabelArea

run subprogram calculateDesignCost

Yindi’s Labels—Online Order Form   
 (cont’d)

**Algebra**

**Unit 3 Line Master 4d**

run subprogram calculatePrintCost

run subprogram calculateSubtotal

run subprogram calculateHSTAmount

run subprogram calculateTotal

output “The total is: $”, **total**

3. Identify the following data used in the application:  
 a) What does the pricePerSquareCM variable represent?  
 What is the value of this variable when the program opens?  
 b) What does the varPrintCost variable represent?  
 What is the value of this variable when the program opens?

4. Complete the Scratch application by:

a) Writing the code for the calculateLabelArea subprogram

b) Writing the code for the calculateHSTAmount subprogram

5. Complete the pseudocode by:

a) Writing the pseudocode for the calculateSubtotal

b) Writing the pseudocode for the calculateTotal application

**Hints:**

* Use the partially completed pseudocode to help you complete   
  the code in Scratch.
* Use several multiplier operators inserted into one another   
  to calculate the area of the label.

Yindi’s Labels—Online Order Form   
 (cont’d)

**Algebra**

**Unit 3 Line Master 4e**

Graphical user interface, text, application, chat or text message

Description automatically generated

* Use the partially completed Scratch application to help you complete the pseudocode.

Extensions:

* Provide different **varPrintCost** rates for the labels based on   
  bulk purchases.   
  For example, if the user orders 500 to 999 labels, they get   
  a reduced rate.   
  If they order at least 1000 labels, they get an even greater reduction.   
  *Hint:* **Conditional Statements** would work for this.
* Alter the code to ensure the variables that represent the subtotal, HSTAmount, and total only contain two decimal places.   
  This is trickier than it sounds!