COMP101 LAB5

# Requirements

* Write a program which calculates and prints:
  + The Area of an apartment
  + The Cost of materials to carpet the apartment
  + The Labour charge to carpet the apartment
  + The total cost
  + The VAT cost
  + The final overall cost
* When given:
  + The length of the apartment
  + The width of the apartment

# Analysis and Design

I will write a program which uses an target class for the Carpet which will then mean that an object or Carpet will be created and given the attributes for . The application class will use this to produce an output which is printed to the console

Each of the things to be calculated had to be broken down:

carpetArea = length \_ width

carpetAreaCost = floorArea \* 4:75

labourCharge = 16:50 + (floorArea \_ 4) if floorArea <= 100

18:15 + 1:1 \* (floorArea \_ 4) if floorArea > 100

costBeforeVAT = carpetAreaCost + labourCharge

VAT = costBeforeVAT \* 0:2

totalCost = costBeforeVAT + V AT

## Pseudo code

### main (Carpet Cost User)

SET DOUBLE VATPercentage AS 20

SET DOUBLE maxRoomSize AS 100

SET DOUBLE labourCharge AS 20

SET DOUBLE unitCost AS 20

OUTPUT "Please input apartment length (in meters):"

INPUT length

OUTPUT "Please input apartment width (in meters):”

INPUT width

NEWOBJECT OF TYPE CarpetCost WITH ATTRIBUTES

(VATPercentage, maxRoomSize, labourCharge, unitCost, length, width)

OUTPUT “The apartment has length”+ newCarpet.dimentions[0] + “and width” newCarpet.dimentions[1]

OUTPUT "Area of appartment: "+, newCarpet.getArea()

OUTPUT "Carpet area cost: £” + newCarpet.getCostMaterials()

OUTPUT "Labour service charges: £” + newCarpet.getCostLabour()

OUTPUT "Total before VAT: £” + newCarpet.getTotal()

OUTPUT "VAT: £” + newCarpet.getVAT()

OUTPUT "Final Cost: £” + newCarpet.getFinalCost()

## Class Diagram

|  |  |  |
| --- | --- | --- |
| CarpetCostUser |  | CarpetCost |
|  | double: VATPercentage  double: maxRoomSize  double: labourCharge  double: unitCost  double[] :dimentions |
| main() |
|  | CarpetCost(double VATPercentage, int maxRoomSize, double labourCharge, double unitCost, double length, double width)  getArea() : double  getCostMaterials() : double  getCostLabour() : double  getTotal() : double  getVAT() : double  getFinalCost(): double |

# Testing

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Input | | Output | | | | | | As expected |
| Length | Width | Area | Carpet Cost | Labour Cost | Total PreVAT | VAT | Final Cost |
| 12 | 12 | 144.00 | 684.00 | 57.75 | 741.75 | 148.35 | 890.10 | yes |
| 3 | 2 | 6.00 | 28.50 | 18.00 | 46.50 | 9.30 | 55.80 | yes |

# C:\Users\BenHa\OneDrive\Documents\JAVA\Lab 5>java CarpetCostUser

# Please input apartment length (in meters):12

# Please input apartment width (in meters):12

# The apartment has length 12.00 and width 12.00.

# Area of appartment: 144.00

# Carpet area cost: £684.00

# Labour service charges: £57.75

# Total before VAT: £741.75

# VAT: £148.35

Final Cost: £890.10