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()

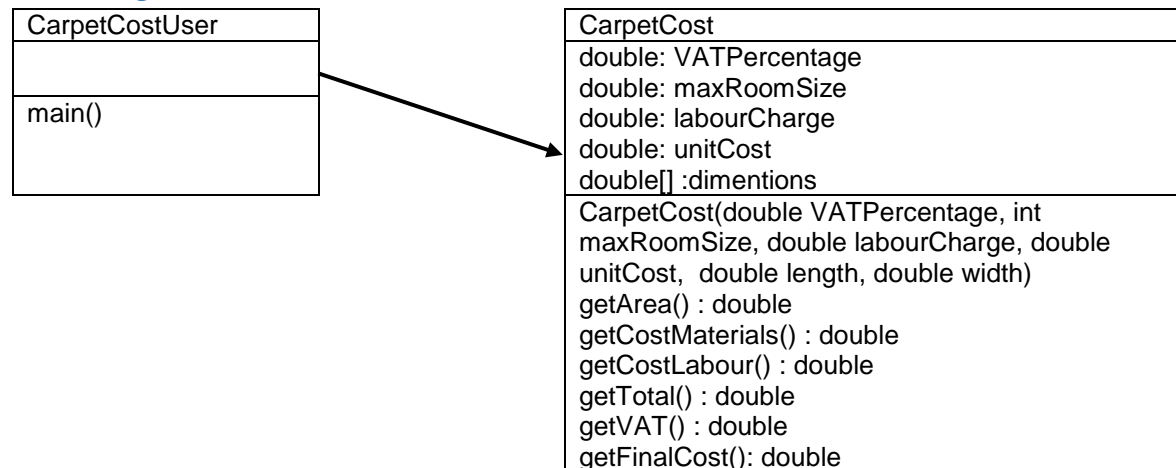OUTPUT "Carpet area cost: £" + newCarpet.getCostMaterials()

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

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

OUTPUT "VAT: £" + newCarpet.getVAT()

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

Class Diagram

CarpetCostUser
main()

CarpetCost
double: VATPercentage
double: maxRoomSize
double: labourCharge
double: unitCost
double[] :dimentions
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
```