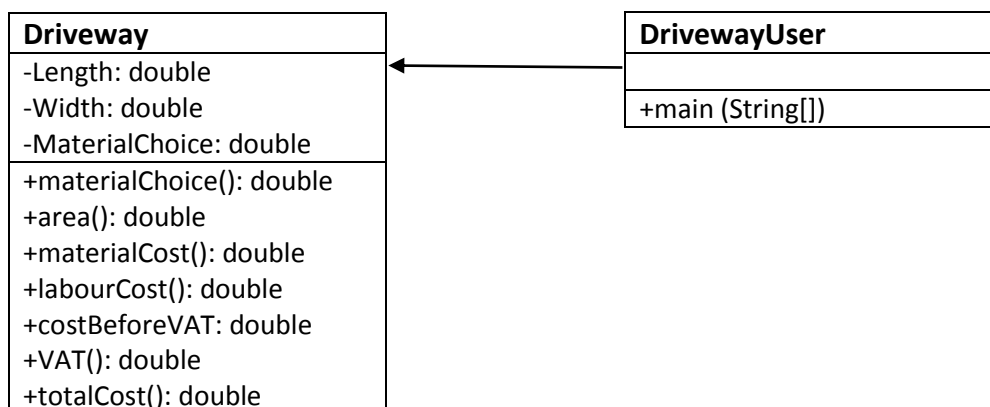# Driveway

Analysis

The program Driveway will calculate how much it will cost the user to cover their driveway in tarmac. To complete the extended requirements I will have to also give the prices of covering it in brick or stone.

Design

There will be two classes, called Driveway and DrivewayUser. There will be a total of eight methods across the two classes to calculate and output the cost of each material. To pass the required values between the two different classes I will be calling Driveway in DrivewayUser and passing the values of length, width and material choice using a constructor.

Class Diagram

Driveway
-Length: double
-Width: double
-MaterialChoice: double
+materialChoice(): double
+area(): double
+materialCost(): double
+labourCost(): double
+costBeforeVAT: double
+VAT(): double
+totalCost(): double

DrivewayUser
+main (String[])

Pseudo Code

Public class DrivewayUser

Main = string args

    Call driveway class

    Create new scanner

    Get width

    Start IF

        State error if value less than 0

Jack Reynard   200932508

Start else

Get length

End if

Start IF

State error if value less than 0

Start else

Start for

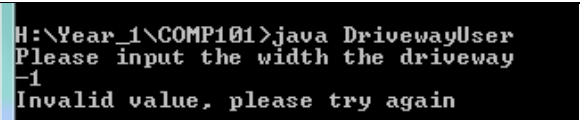Create new driveway class

Output values

End for

End IF

Public class Driveway

Create constructor

Method = materialChoice

Start IF

materialChoice = 1 return 12.5

materialChoice = 2 return 17

materialChoice = 3 return 20.5

Start else

Invalid value returns 0

End IF

Testing

Test	Expected Result	Actual Result
A negative value is given for width	An error message will appear	

0 is the value given for width	An error message will appear	`H:\Year_1\COMP101>java DrivewayUser`
		`Please input the width the driveway`
		`0`
		`Invalid value, please try again`

A correct value is given for the width but a negative is given for the length	An error message will appear	`H:\Year_1\COMP101>java DrivewayUser`
		`Please input the width the driveway`
		`3`
		`Please input the length the driveway`
		`-5`
		`Invalid value, please try again`

A correct value is given for the width but 0 is given for the length	An error message will appear	`H:\Year_1\COMP101>java DrivewayUser`
		`Please input the width the driveway`
		`2`
		`Please input the length the driveway`
		`0`
		`Invalid value, please try again`

A non-integer value is given for the width	An error message will appear	`H:\Year_1\COMP101>java DrivewayUser`
		`Please input the width the driveway`
		`a`
		`Exception in thread "main" java.util.InputMismatchException`
		`        at java.util.Scanner.throwFor(Unknown Source)`
		`        at java.util.Scanner.next(Unknown Source)`
		`        at java.util.Scanner.nextDouble(Unknown Source)`
		`        at DrivewayUser.main(DrivewayUser.java:16)`

A correct value is given for the width but a non-integer value is given for the length	An error message will appear	`H:\Year_1\COMP101>java DrivewayUser`
		`Please input the width the driveway`
		`2`
		`Please input the length the driveway`
		`a`
		`Exception in thread "main" java.util.InputMismatchException`
		`        at java.util.Scanner.throwFor(Unknown Source)`
		`        at java.util.Scanner.next(Unknown Source)`
		`        at java.util.Scanner.nextDouble(Unknown Source)`
		`        at DrivewayUser.main(DrivewayUser.java:25)`

| A correct value is given for length and width | The costs are printed out for all three surfaces | ```
H:\Year_1\COMP101>javac DrivewayUser.java

H:\Year_1\COMP101>java DrivewayUser
Please input the width the driveway
2
Please input the length of the driveway
5
The area of your driveway is 10.0 metres squared
The cost of your driveway is 125.0 pound sterling
The labour cost of your driveway is 281.25 pound sterling
The cost before VAT of your driveway is 406.25 pound sterling
The cost after VAT of your driveway is 81.25 pound sterling
The total cost of your driveway is 487.5 pound sterling


The area of your driveway is 10.0 metres squared
The cost of your driveway is 170.0 pound sterling
The labour cost of your driveway is 292.5 pound sterling
The cost before VAT of your driveway is 462.5 pound sterling
The cost after VAT of your driveway is 92.5 pound sterling
The total cost of your driveway is 555.0 pound sterling


The area of your driveway is 10.0 metres squared
The cost of your driveway is 205.0 pound sterling
The labour cost of your driveway is 301.25 pound sterling
The cost before VAT of your driveway is 506.25 pound sterling
The cost after VAT of your driveway is 101.25 pound sterling
The total cost of your driveway is 607.5 pound sterling
``` |
| --- | --- | --- |