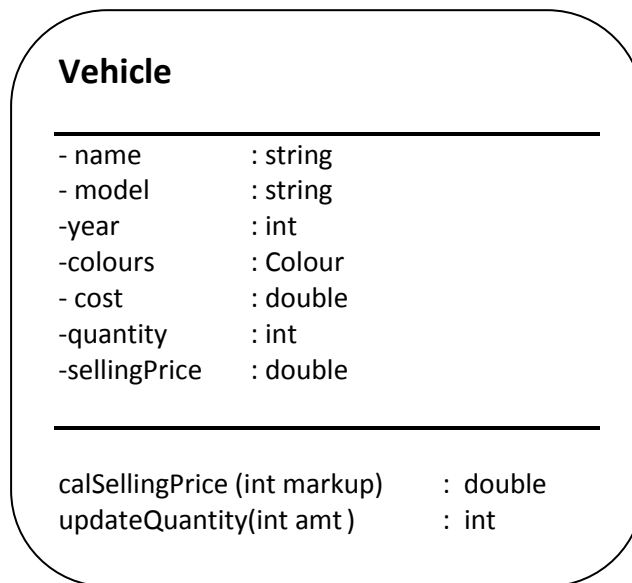


COMP1161 – Introduction to Object-Oriented Programming

PROJECT 1 (worth 5%)

Consider the UML diagram below:



PART A

1. Create the Vehicle class. Note the following:
 - a. The maximum number of colours for EACH Vehicle is FIVE.
 - b. A Vehicle can be any of these colours :- Red, White, Blue, Black and Silver
2. Write TWO constructor methods.
 - a. The first constructor will initialize through formal parameters the name, model, year, colour and cost of a vehicle. The quantity and selling price of EACH Vehicle should be initialized to zero.
 - b. The second constructor will initialize through formal parameters the name, model, quantity, cost, colour and registration number of a vehicle. The selling price of the vehicle should be initialized to the cost price of the vehicle.
3. Write mutator methods for ANY TWO attributes except quantity.
4. Write accessor methods for ANY TWO attributes.
5. Write the `calSellingPrice` method that will calculate and return the selling price of a vehicle given a percentage markup/profit (for example 20% markup).

6. Write the `updateQuantity` method to reduce the number of items in stock after a certain amount is sold. *NB :- Validate the amount sold.* This method should return the number of items sold if the amount given is valid, otherwise it should return -1.
7. Write a `toString` method to display in the format below. *NB :- ensure that all costs are formatted appropriately.*

```
Vehicle : <<Name>>      <<Model>>      <<year>>
        Colour           : << ... >>
        Original Cost     : <<cost>>
        Selling Price     : <<sellingPrice>>
        Quantity in Stock : <<quantity>>
```