TỔ CHỨC GIÁO DỤC FPT

PRO192 LAB 3

Using Java and the given project to develop a programe with the below requirements:

You have **main()** method and **menu()** in **Main.class** within this project already.

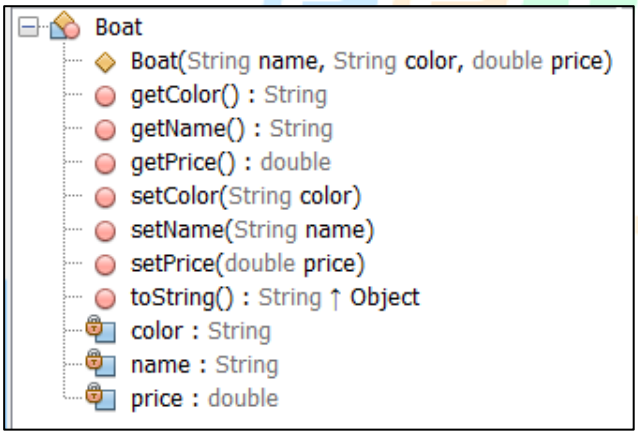
- Design and code a class named **Boat** that holds information about a **Boat** and class named **MyBoat** which is derived from **Boat.**
- Class **Boat** including some attributes: *name, color, price*; its getters and setters; and its constructors as well as function members.
- **MyBoat** has an attribute is *model (The model consists of exactly 8 characters. The 2nd and 3rd characters represent the manufacturing year, while the 6th and 7th characters indicate the version. Ex: M18LAV1A);* and some function members as its constructor, getSalePrice() and toString(). The getSalePrice() will return 5% discount of Price if the last character of code equal to "A".
  - toString():String - return information of a Boat as a string as format of *Name color price model*
  - getSalePrice():double – use to determine sale fare of a Boat, *sale price = original price – discount*, where:
    - discount = 5 percent out of original price if last of *model* is 'A'. *The comparison must ignores the case during comparison*

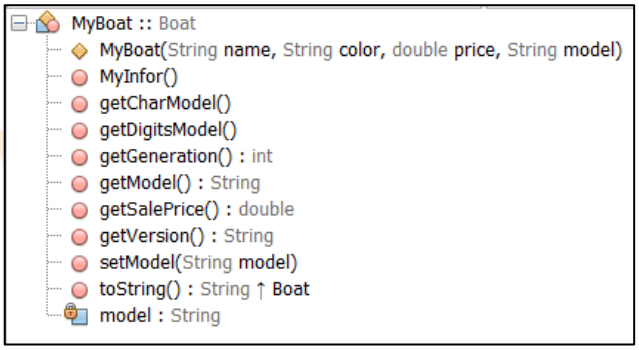
  Do not format the format the result.

```
public class MyBoat extends Boat{
    private String model;
    public void MyInfor() {...3 lines }
    //Getters and Setters
    public String getModel() {...3 lines }
    public void setModel(String model) {...7 lines }
    //Constructor
    public MyBoat(String name, String color, double price, String model)
    public int getGeneration() {...4 lines }
    public String getVersion() {...4 lines }
    public void getCharModel() {...13 lines }
    public void getDigitsModel() {...14 lines }
    public double getSalePrice() {...7 lines }
    @Override
    public String toString() {...4 lines }
}
```

```
public class Boat {
    private String name;
    private String color;
    private double price;

    public Boat(String name, String color, double price)
    public void setName(String name) {...3 lines }
    public void setColor(String color) {...3 lines }
    public void setPrice(double price) {...3 lines }
    // Getter methods
    public String getName() {...3 lines }
    public String getColor() {...3 lines }
    public double getPrice() {...3 lines }
    @Override
    public String toString() {...3 lines }
}
```





1. public void MyInfor()

   //To display student information: Ex: He180001 - VU VAN HUY

2. public int getGeneration()

   //Extract 2 characters from model to get generation. The second and the third characters of model is the generation. For example: model = "M18LAV1A". The system will return "2018"; model = "M23LAV2B" then the system will return "2023".

3. public String getVersion()

   //Extract 2 characters from model to get version. The fifth and the sixth character of model is version. Ex, model = "M18LAV1A", then "V1" is version; model = "M23LAV2B" then the system will return "V2".

4. public void getCharModel()

   //The system will extract all the letters from the model and sort them in ascending order. Ex, model = "M18LAV1A", then "A A L M V" are letter characters; model = "M23YAV2C" then the system will return "A C M V Y".

5. public void getDigitsModel()

//The system will extract all the digits from the model and sort them in ascending order. Ex, model = "M18LAV1A", then "1 1 8" are digit characters; model = "M23YAV6C" then the system will return "2 3 6".

6. public double getSalePrice()

//If the last character of *model* is "A", getSalePrice() will return 5% discount of original price. Ex, model = "M18LAV1A" original price = 15000.0, the output result = 14250.0; model = "M23YAV6C", original price = 16500.0, the output result = 16500.0

```
run:
Input boat's infor:
1. Input boat's name: Speed boat
2. Input boat's color: Red
3. Input boat's model: M18LAV1A
4. Input boat's price: 15000

1. Display boat's info
2. Display sale price
3. Display boat's generation
4. Display boat's version
5. Display characters of model
6. Display digits of model
7. Edit boat's name
8. Edit boat's color
9. Edit boat's price
10. Edit boat's model
11. Display Student infor
12. Quit
==>>Your selection is:
```


------- Test case ------

MyBoat("Speed boat", "Red", 15000.0, "M18LAV1A");

1. Display boat's infor
   Selection is: 1 Output: MyBoat name= Speedboat, color= Red, price= 15000.0, model= M18LAV1A
2. Display sale price:
   Selection is: 2 Output: Sale price: 14250.0

```
1. Display boat's info
2. Display sale price
3. Display boat's generation
4. Display boat's version
5. Display characters of model
6. Display digits of model
7. Edit boat's name
8. Edit boat's color
9. Edit boat's price
10. Edit boat's model
11. Display Student infor
12. Quit
==>>Your selection is: 1
MyBoat name= Speed boat, color= Red, price= 15000.0, model= M18LAV1A
BUILD SUCCESSFUL (total time: 6 minutes 50 seconds)
```

```
==>>Your selection is: 2
Sale price: 14250.0
BUILD SUCCESSFUL (total time:
```

```
==>>Your selection is: 3
Year of manufacture: 2018
BUILD SUCCESSFUL (total time:
```

3. Display boat's generation:
   Selection is: 3 Output: Year of manufacture: 2018
4. Display boat's version:
   Selection is: 4 Output: Boat's version: V1

```
==>>Your selection is: 4
Boat's version: V1
BUILD SUCCESSFUL (total t
```

```
==>>Your selection is: 5
A A L M V
BUILD SUCCESSFUL (total time
```

5. Display characters of model:
   Selection is: 5 Output: Boat's version: V1
6. Display digits of model:
   Selection is: 6 Output: Boat's version: V1

```
==>>Your selection is: 6
1 1 8
BUILD SUCCESSFUL (total time
```

7. Edit boat's name:
   Selection is: 7
   Input: Enter new boat's name: Supper Speed Vip Boat
   Output: MyBoat name= Supper Speed Vip Boat, color= Red, price= 15000.0, model= M18LAV1A

```
==>>Your selection is: 7
Enter new boat's name: Supper Speed Vip Boat
MyBoat name= Supper Speed Vip Boat, color= Red, price= 15000.0, model= M18LAV1A
BUILD SUCCESSFUL (total time: 39 seconds)
```

8. Edit boat's color:
   Selection is: 8
   Input: Enter new boat's color: Light Blue
   Output: MyBoat name= Speedboat, color= Light Blue, price= 15000.0, model= M18LAV1A

```
==>>Your selection is: 8
Enter new boat's color: Light Blue
MyBoat name= Speedboat, color= Light Blue, price= 15000.0, model= M18LAV1A
BUILD SUCCESSFUL (total time: 14 seconds)
```

9. Edit boat's price:
   Selection is: 9
   Input: Enter new boat's price: 16250.5
   Output: MyBoat name= Speedboat, color= Red, price= 16250.5, model= M18LAV1A

```
==>>Your selection is: 9
Enter new boat's price: 16250.5
MyBoat name= Speedboat, color= Red, price= 16250.5, model= M18LAV1A
BUILD SUCCESSFUL (total time: 9 seconds)
```

10. Edit boat's model:
    Selection is: 10
    Input: Enter new boat's model: M23LAV2B
    Output: MyBoat name= Speedboat, color= Red, price= 15000.0, model= M23LAV2B

```
==>>Your selection is: 10
Enter new boat's model: M23LAV2B
MyBoat name= Speedboat, color= Red, price= 15000.0, model= M23LAV2B
BUILD SUCCESSFUL (total time: 21 seconds)
```

11. Display Student infor //To display Student ID – Student full name

Selection is: 11

```
==>>Your selection is: 11
He180001 - VU VAN HUY
BUILD SUCCESSFUL (total time: 4 seconds)
```