

Output of A03:

Testing class Car:

Make: Toyota
Model: Prius
Owner: Bob Smith

Make: Tesla
Model: Roadster
Owner: Lisa Ray

New Roadster Owner: Bob Smith

Testing class Country:

Name: Macau
Population: 453,000
Area: 6
Population Density: 75,500

Name: Libya
Population: 5,900,000
Area: 679,358
Population Density: 8

Name: USA
Population: 298,500,000
Area: 3,539,225
Population Density: 84

1960 Population: 179,323,175
1960 Population Density: 50

Learning Objective:

- Learn to distinguish a method declaration from a method call
- Understand how the dot operator is used to access class members from other classes
- Recognize the pattern that underlies the use of getters and setters
- Become fluent in the use of getters and setters
- Include grouping characters to make large numbers easier to read

Turning in:

Make sure to include your name and the assignment number on top of A03.java file. Create one zip file that includes all 3 java files and turn it in via Canvas.

Description:

To help you get started I included a zip file with a starter project. It is called A03.zip. Make sure to un-zip it after downloading.

It includes two classes: Car and Country. Each defines a new type (blueprint). These two classes are already completed. Do not modify them. It also includes a project file: GetterSetter.gpj

What you need to do is to write a program that tests the classes Car and Country.

Start by adding a new file A03.java

To do that right-click the project GetterSetter . (look for the purple icon in the left column) A context menu opens.

Choose *Add File*. Navigate to the folder that includes the un-zipped starter project. For the file name choose **A03.java** Press *Add* and then *Done*.

At this point A03.java has been added to the project. You can see it in the left column. However, the file has not been created yet.

Double click A03.java in the left column and select *Create*.

Now you are ready to add some code to the new file.

In file A03.java create a public class called A03 that includes the main method.

In the main method test first class Car and then class Country.

Make **all your output look like the output provided**. Use empty lines to structure the output as shown above.

To test class Car do the following:

- Print a label that tells the user that you are testing class car (see output)
- Create a new car called myPrius
Set make to Toyota, model to Prius, and owner to Bob Smith

Print the labeled field values line by line (as shown in the output)

- Create a second car called myRoadster.
Make should be Tesla, model Roadster, and the owner Lisa Ray
Print the labeled field values
- The owner of the Prius buys the Roadster.
Update the field owner of the Roadster to reflect that change.
Print the new field value (see output)
Hint: Make sure to access the field of myPrius when changing the
owner of myRoadster. (do NOT user a hard-coded String)

To test class Country do the following:

- Print a label that tells the user that you are testing class country
- Create a new country and call it country1
The name is Macau, the population 453,000, and the area 6 square miles.
Print the labeled field values line by line
Calculate the population density using the method provided in class Country. Print the result (see output)
Hint: The output includes commas to group large numbers by thousands. Adding a comma in the format specifier for integers like this: `% ,d` will include the locale-specific grouping characters
- Create a second country and call it country2
The name is Libya, the population 5,900,000, and the area 679,358 square miles.
Print the labeled field values line by line, as well as the calculated population density
- Create a third country and call it country3
The name is USA, the population 298,500,000, and the area 3,539,225 square miles.
Print the labeled field values line by line, as well as the calculated population density
- In 1960 the US population was 179,323,175.
Update the population of the US to its 1960 value.
Display the updated field as well as the 1960 population density.