

CS212 Lab 5: Chapters 5 Defining Classes and Methods

Exercises

E.7) Consider a class `MotorBoat` that represents motorboats. A motorboat has attributes for

- The capacity of the fuel tank
- The amount of fuel tank
- The maximum speed of the boat
- The efficiency of the boat's motor
- The distance traveled

The class has methods to

- Change the speed of the boat
- Operate the boat for an amount of time at the current speed
- Refuel the boat with some amount of fuel
- Return the amount of fuel in the tank
- Return the distance traveled so far

If the boat has efficiency e , the amount of fuel used when traveling at a speed s for time t is es^2t . The distance traveled in that time is sxt .

- Write a method heading for each method.
- Write preconditions and postconditions for each method.
- Write some Java statements that test class.
- Implement the class.

E.8) Consider a class `PersonAddress` that represents an entry in an address book. Its attributes are:

- The first name of the person
- The last name of the person
- The e-mail address of the person
- The telephone number of the person

It will have methods to

- Access each attribute
- Change the email address
- Change the telephone number
- Test whether two instances are equal based solely on name

- Write a method heading for each method.
- Write preconditions and postconditions for each method.
- Write some Java statements that test the class.
- Implement the class.