EXERCISE SOLUTIONS

1.   For information on the Car class and a tester for that class, see the class handout.

2.   The SavingsAccount class listing

```java
/**
 * SavingsAccount.java
 * An example of implementing a simple OOP class.
 */

public class SavingsAccount
{
    private double balance;
    private double interest;

    /**
        Constructs a savings account with a given balance and interest rate
        @param initialBalance the initial balance
        @param interest the interest rate as a percent, where 10 = 10% = 0.10
    */

    public SavingsAccount(double initialBalance, double interestRate)
    {
        balance = initialBalance;
        interest = interestRate;
    }

    /**
        Deposits money into the savings account.
        @param amount     the amount to be deposited
    */
    public void deposit(double amount)
    {
        balance = balance + amount;
    }

    /**
        Identifies the current interest rate
        @return the interest rate as a percent 10% = 0.10
    */
    public double getInterest()
    {
        return interest;
    }

    /**
        Sets a new interest rate for savings account
        @param newRate an interest rate, where 10 = 10% = 0.10
    */
    public void setInterest(double newRate)
    {
        interest = newRate;
    }

    /**
        Compound interest for the bank account
    */
    public void addInterest()
    {
        balance = balance * (1 + interest/100);
    }


    /**
        Withdraw money from the savings account.
        @param amount     the amount to be withdrawn
    */
    public void withdraw(double amount)
    {
        balance = balance - amount;
    }
```

```java
    /**
        Return the balance in the Savings account.
        @return the current balance
    */
    public double getBalance()
    {
        return balance;
    }

}
```

3. The **Dog** class listing

```java
/**
 * The Dog class models a dog, primarily in
 * terms of its weight
 */

public class Dog
{
    // instance variables
    private String name;
    private double weight;

    /**
     * Constructor for objects of class Dog
     */
    public Dog(String name, double weight)
    {
        // initialise instance variables
        this.name = name;
        this.weight = weight;
    }

    /**
     * Checks the dog's weight
     * @return the dog's weight in pounds
     */
    public double getWeight()
    {
        return weight;
    }

    /**
     * Give the dog food, which adds to its weight
     * @param  amount the amount of food in pounds
     */
    public void eatFood(double amount)
    {
        weight += amount;
    }

    /**
     * When called, makes dog lose an amount of
     * weight randomly determined, 1 or 2 pounds.
     */
    public void poop()
    {
        int amountPooped = (int) (Math.random() * 2 + 1);
        weight = weight - amountPooped;
    }

    /**
     * Causes dog to vocalize on screen!
     */
    public void speak()
    {
        System.out.println("Bark!");
    }
}
```