1. Fill in some code for a `Cat` class, following guidelines given through comments.

```java
public class Cat {
    // instance variables
    private String name;
    private int age;
    private int lives; // number of lives remaining

    // constructor
    public Cat(String x, int y, int z) {
        name = x;
        age = y;
        lives = z;
    }

    // getAge(): Returns the age of the cat
    // birthday(): increases the cat’s age by 1

    // kill(): For cats that have at least one life remaining,
    // decreases the number of lives by 1; no effect
    // on dead cats (i.e., cats with 0 lives).
}
```

2) Write client code that uses the `Cat` class:

a) Instantiate a `Cat` object with name “Luca,” age 11, with 9 lives and assign it to a variable named `myCat`

   ```java
   Cat myCat = new Cat("Luca", 11, 9);
   ```

b) Suppose you have two cat objects `cat1` and `cat2`. Print the average age of these cats.

   ```java
   Cat cat1 = new Cat("Tom", 12, 10);
   Cat cat2 = new Cat("Jerry", 8, 15);
   double avgAge = (cat1.getAge() + cat2.getAge()) / 2;
   System.out.println("The average age is "+avgAge);
   ```
1. Fill in some code for a Cat class, following guidelines given through comments.

```java
public class Cat {
    // instance variables
    private String name;
    private int age;
    private int lives; // number of lives remaining

    // constructor
    public Cat(String x) {
        name = x;
        age = 0;
        lives = 9; // start with 9 lives
    }

    // birthday(): increases the cat’s age by 1
    public void birthday() {
        age++; // increase age by 1
    }

    // kill(): For cats that have at least one life remaining, decreases the number of lives by 1; no effect on dead cats (i.e., cats with 0 lives).
    public void kill() {
        if (lives > 0) {
            lives--;
        }
    }

    // getLives(): Returns number of lives remaining for this cat
    public int getLives() {
        return lives;
    }
}
```

2) Write client code that uses the Cat class:
   a) Instantiate a Cat object with name “Tuna” and assign it to a variable named myCat

   ```java
   String name = "Tuna";
   Cat myCat = new Cat(name);
   ```

   b) Suppose you have two cat objects cat1 and cat2. Print the total number of lives of these cats.

   ```java
   Cat cat1 = new Cat("Garfield");
   Cat cat2 = new Cat("Sunny");

   int totalLives = cat1.getLives() + cat2.getLives();
   System.out.println("Total lives: " + totalLives);
   ```