

CS 180 Problem Solving and OO Programming

Fall 2011

Recitation Week 4. September 12-16, 2011

Problem 1:

(a) What value is printed by the `println()` statement in the following?

```
int x=3;
x=x+3;
System.out.println(x);
```

(b) What is printed by the `format()` statement in the following?

```
double x=4.5674, y=7.891;
System.out.format("%.3f  %4.0f%n", x, y);
```

(c) What is the range of `z` generated by the following statements? Indicate clearly which values are included in the range and which are not.

```
double y=Math.random();
int z=(int)Math.round(3*y+7); // Why is (int) needed here?
```

(d) What is the range of `x` generated by the following statements?

```
Random r=new Random();
int x=r.nextInt(30);
```

Problem 2:

Write a Java program that generates two objects of type `Cartoon`. Each `Cartoon` object has three attributes: name, gender, and velocity. The name can be any string of characters. The gender must be either "M" or "F". The velocity is an integer in the range 10 to 15 (both inclusive). Each `Cartoon` object can be asked to return its velocity. Assume that the name and gender of the first object generated are, respectively, "Dora" and "F", and that of the second object are, respectively, "Nick Jr" and "M". Generate their velocities using random numbers.

Your program must contain a class named `Cartoon` and at least one method named `main()`. The `Cartoon` class must have a constructor and a method to get the value of an object's velocity. The `main()` method must generate the two objects, obtain their respective velocities using the `getVelocity()` method and print these out.

Suggested steps to solve the problem:

1. Understand the problem.
2. Write the class `Cartoon` with a constructor to create objects of this class. What parameters should be supplied to the constructor? What should be their types? Is the order in which the parameters supplied important?

3. Add a method named `getVelocity()` to the `Cartoon` class. What should this method return? What is the type of the value returned by this method?
4. Write the `main()` method. It should first generate a random number in the range 10 to 15 and then generate a suitably named object. Then it should generate another random number between 10 and 15 and generate a suitably named object. Note that the two random values generated denote the respective velocities of the two objects.
5. After having created the two objects use the `getVelocity()` method on each object to obtain their respective velocities and print these out.

<End of Problems for Week 4>