CS 1400 - Lab 8

Maximum Points: 10 pts.

Lab Topics

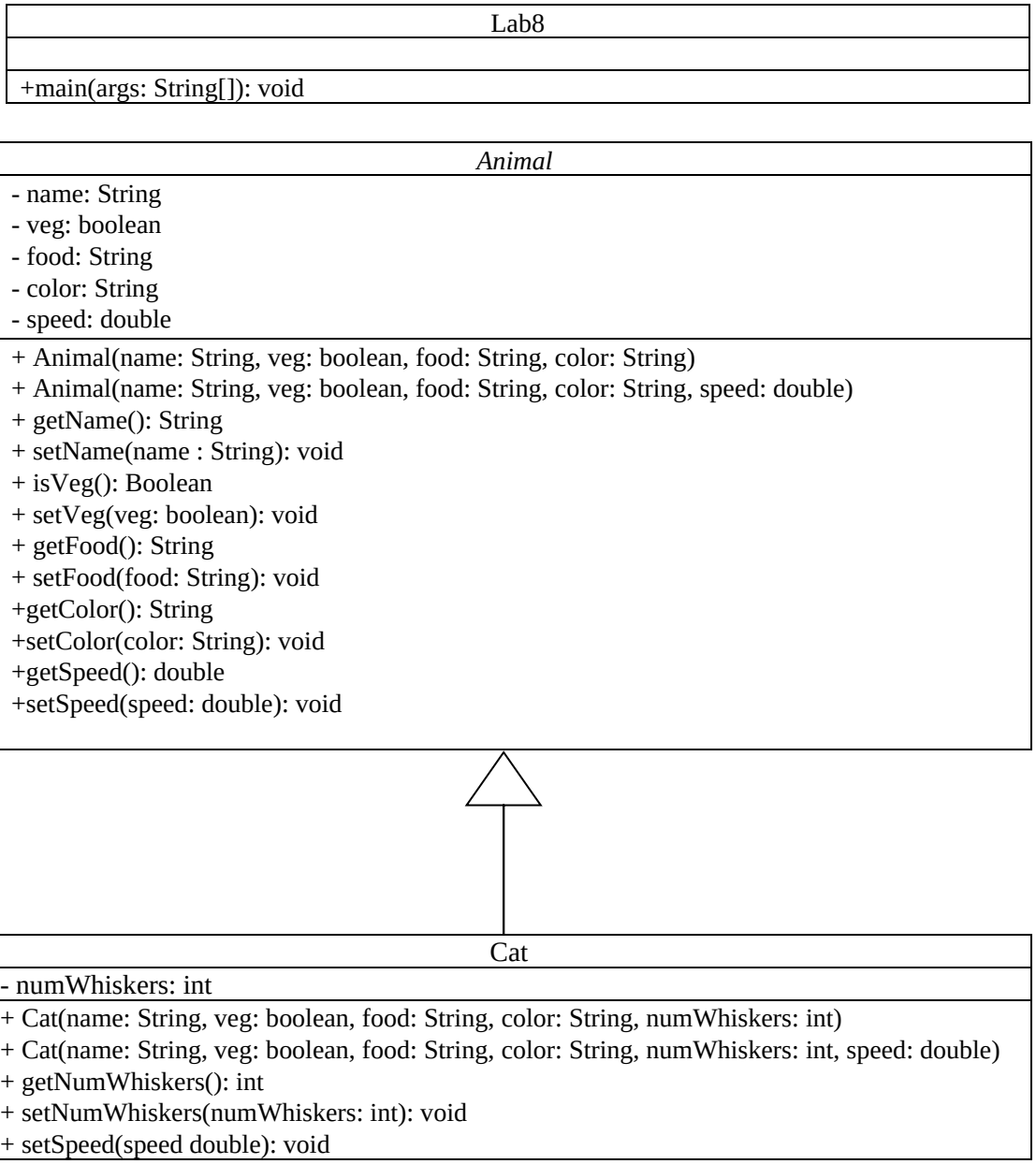
- Inheritance
- Class overriding
- Method overload

Use the following Coding Guidelines:

1) Download the template file Lab8.java from Canvas and fill-in-the-blanks to create your Java program. You will also need to create two other files called Animal.java and Cat.java.
2) Give identifiers semantic meaning and make them easy to read (examples numStudents, grossPay, etc.).
3) Keep identifiers to a reasonably short length.
4) Use uppercase for constants. Use upper camel case for classes. Use lower camel case for all other identifiers (variables, methods, objects).
5) Use tabs or spaces to indent code within blocks (code surrounded by braces). This includes classes, methods, and code associated with ifs, switches, and loops. Be consistent with the number of spaces or tabs that you use to indent.
6) Use white space to make your program more readable.
7) Use comments to explain how the parts of your program work.

Lab Problem: Building a cat from an animal

In Lab 8, your job is to create an inheritance relationship between the classes Cat and Animal. The driver program Lab8.java should work correctly after you implement those two classes following the UML class diagram shown below. Make sure to implement all methods defined. Note that Animal is an abstract class and Cat inherits from Animal. Also, the Cat class overrides the setSpeed() method increasing the Cat's speed by 10%. Please, submit your three files, Cat.java, Animal.java, and Lab8.java and don't change anything in the driver program.


Lab8
+main(args: String[]): void
Animal
- name: String
- veg: boolean
- food: String
- color: String
- speed: double
+ Animal(name: String, veg: boolean, food: String, color: String)
+ Animal(name: String, veg: boolean, food: String, color: String, speed: double)
+ getName(): String
+ setName(name : String): void
+ isVeg(): Boolean
+ setVeg(veg: boolean): void
+ getFood(): String
+ setFood(food: String): void
+getColor(): String
+setColor(color: String): void
+getSpeed(): double
+setSpeed(speed: double): void
Cat
- numWhiskers: int
+ Cat(name: String, veg: boolean, food: String, color: String, numWhiskers: int)
+ Cat(name: String, veg: boolean, food: String, color: String, numWhiskers: int, speed: double)
+ getNumWhiskers(): int
+ setNumWhiskers(numWhiskers: int): void
+ setSpeed(speed double): void

Sample Output

Below is an example of what your output should roughly look like when this lab is completed. Text in RED represents user input.

```
What is the cat's name? Bob
Is Bob a vegetarian cat? true
What kind of food does Bob like? milk
What is Bob color? white
How many whiskers does Bob have? 12
What is the avg speed of Bob? 30


Bob is the cat's name.
Bob is a vegetarian cat.
Bob is a cat that eats milk.
Bob is a(n) white cat.
Bob is a cat that has 12 whiskers.
Bob is a cat that runs 30.0 mph.

**********************************************************************

What is the cat's name? Johnny
Is Johnny a vegetarian cat? false
What kind of food does Johnny like? fish
What is Johnny color? black
How many whiskers does Johnny have? 10
What is the avg speed of Johnny? 0


Johnny is the cat's name.
Johnny is not a vegetarian cat.
Johnny is a cat that eats fish.
Johnny is a black cat.
Johnny is a cat that has 10 whiskers.
Johnny is a cat that runs 22.0 mph.

**********************************************************************
```

Submit Lab8.java, Animal.java, and Cat.java to Gradescope

Please submit the files Lab8.java, Animal.java, and Cat.java to the “Lab 8” link on Gradescope. Make sure it is compiling and producing the expecting outputs. You are done.