

Question - 1

Animal Inheritance

SCORE: 50 points

General Programming Inheritance Polymorphism Easy Abstraction Java C++ C#

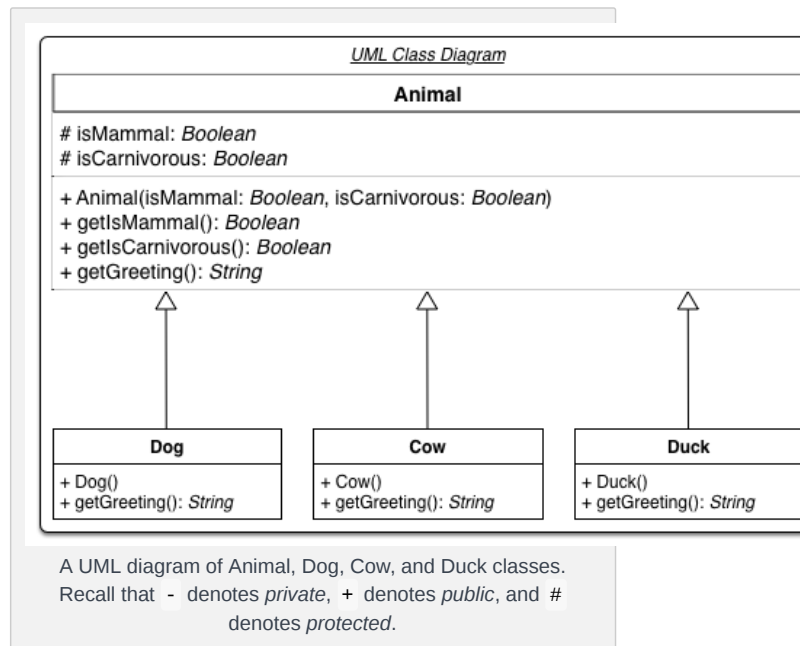
Object Oriented Programming Java 8 Core Skills Problem Solving

In this challenge, you will be asked to build on an abstract class and initialize an instance of each class with a variable. The program will then test your implementation by retrieving the data you stored.

The locked code in the editor does the following:

1. Declares an abstract class named `Animal` with the implementations for `getIsMammal()` and `getIsCarnivorous()` methods, as well as an abstract method named `getGreeting()`.
2. Creates `Dog`, `Cow`, and `Duck` objects.
3. Calls the `getIsMammal()`, `getIsCarnivorous()`, and `getGreeting()` methods on each of these respective objects.

Consider the following UML diagram:



Complete the code in the editor below to implement the following:

1. Three classes named `Dog`, `Cow`, and `Duck` that inherit from the `Animal` class.
2. No-argument constructors for each class that initialize the instance variables inherited from the superclass.
3. Each class must implement the `getGreeting()` method:
 - For a `Dog` object, this must return the string `ruff`.
 - For a `Cow` object, this must return the string `moo`.
 - For a `Duck` object, this must return the string `quack`.

Input Format

There is no input for this challenge.

Output Format

The `getGreeting()` method must always return a string denoting the appropriate greeting for the implementing class.

Sample Output

```
A dog says 'ruff', is carnivorous, and is a
mammal.
A cow says 'moo', is not carnivorous, and is a
mammal.
A duck says 'quack', is not carnivorous, and is
not a mammal.
```

Question - 2

SCORE: 20 points

What will be the output of the following program?

```
public class Demo {
    public static void main(String[] args)
    {
        Simple s = new Simple();
        Simple r = new Simple();
        s.increase();
        r.increase();
        s.display();
        r.display();
    }
}

class Simple {
    static int a = 5;
    void increase() {
        a++;
    }
    void display() {
        System.out.print("a = " + a + " ");
    }
}
```

- ☐ Compilation Error
- ☐ Runtime Error
- ☐ a = 5 a = 5
- ☐ a = 5 a = 6
- ☐ a = 6 a = 6
- ☐ a = 6 a = 7
- ☒ a = 7 a = 7

Question - 3

SCORE: 20 points

Which answer(s) match the given pattern?

Which answer(s) match the given pattern?

pattern: a*b+

- ☐ aaaaa
- ☒ aaaaab

- ☒ b
- ☐ a
- ☐ aaa
- ☒ abbbb
- ☒ aaabbbb