Questions:  
• What will be printed?

Meow. I am a cat. My name is Kurre

and I am 6 years old.

Woof. I am a Dog. My name is Vilma

and I am 3 years old.

• Explain how it is that the instance variable age of Animal can be used in Cat and Dog when it is declared in Animal.

Since Cat and Dog are subclasses of Animal, they obtain all of the parent classes public and protected properties and methods through inheritence.

• What actually consists an instance of?

**Animal object kurre and vilma contains an instance of Cat and Dog respectively.**

• And what consists a class of?  
The file Animal.java, Cat.java, Dog.java and even Lab1Stage2.java consists of a classes with the same name as the file respectively. A class consists of properties and method definitions.

• What is the difference between a class and an instance?

A **class** is a blueprint which you use to create objects. An **object** is an instance of a class - it's a concrete 'thing' that you made using a specific class. So, 'object' and **'instance**' are the same thing, but the word 'instance' indicates the relationship of an object to its class.

• Change the declaration of the instance variable age of Animal to a class variable using static, in this way:  
public static int age;

• What is the result of the output now? Why?

Meow. I am a cat. My name is Kurre

and I am 3 years old.

Woof. I am a Dog. My name is Vilma

and I am 3 years old.

static fields are special properties that can be accessed without instantiating a class. However, only a single instance of it exists and shared between all objects of the same class. Therefore, when we set the age of vilma to 3, kurre's age will also be set to 3 since the age is now a static field that belongs to Animal.

• It may happen that you get warnings from the compiler that you should access the variable age via Animal.age, but it should be possible to run the program anyway. Otherwise, change the references to age into Animal.age.

• Where is the value of an instance variable stored?

Instance variable were stored under the class it was defined in. For example, the kurre and vilma instance variables were defined in the main method of class Lab1Stage2. Therefore, the varibles belongs to the scope of main method inside Lab1Stage2 class.

• Where is the value of a class variable stored?

Value of class variable was stored inside a property of the class' objects. For example, age is a property of Animal. Therefore, the class variable age will be stored in an Animal instance.

• What refers the variable this to?

The keyword this refers to the class itself. If two variables or methods with the same name are used, this keyword will make sure the current class version of the two will be used instead.