There are three elements that a programming language needs to be able to create programs - name them (the Boehm-Jacopini Theorem).

Sequencing, selection, repetition

What is an editor and how do we use it to write programs?

Use it to type in our source code.

What is a compiler and how do we use it to write programs?

Compilers translate source code into a language the machine understands.

What is the name of the IDE we will use this semester?

Eclipse

What is the name of the programming language we are using this semester?

Java

What will you be using the CVS Repositories for this semester?

Storage for lecture code examples and lab code bases. CVS is used to manage files that multiple people will be working on, or to manage the changes to files by one person. We're using it as a distribution mechanism for code.

What will you be using Web-CAT for this semester?

Web-CAT is a web application that is used to submit files for grading.

What does the DrJava interactions pane allow us to do?

Test small pieces of Java code interactively. We can type Java code and hit enter and DrJava will compile and execute the code.

Define what an object-oriented program is.

System of objects that work together to solve some problem.

What are the two main parts of every object?

Properties and capabilities

Property: Something an object has; Features that describe an object

Capability: Function; something the object can do

Define what a class is.

Formal description of properties and capabilities; the source code. Definition of the objects you will create.

Define what an object is.

Has properties and capabilities; single instance of the class; actual thing that exists when the program is running; an element of the problem domain

Why do we give variables a type?

So the system knows how to translate the bits stored in memory at the variable's location; so the system can figure out how much memory to allocate to the variable.

Why do we give variables a name?

So we know how to refer to those memory locations.

Write the Java expression for creating an object whose type is Car.

new Car()

Write the Java variable declaration for a variable whose type is Picture and whose name is familyPicture.

Picture familyPicture;

Write the Java code to create an instance of the Picture class and assign it to the variable you just created.

familyPicture = new Picture();

Call the method removeRedEye() on the object you just created.

familyPicture.removeRedEye();

Suppose the following lines of Java code:

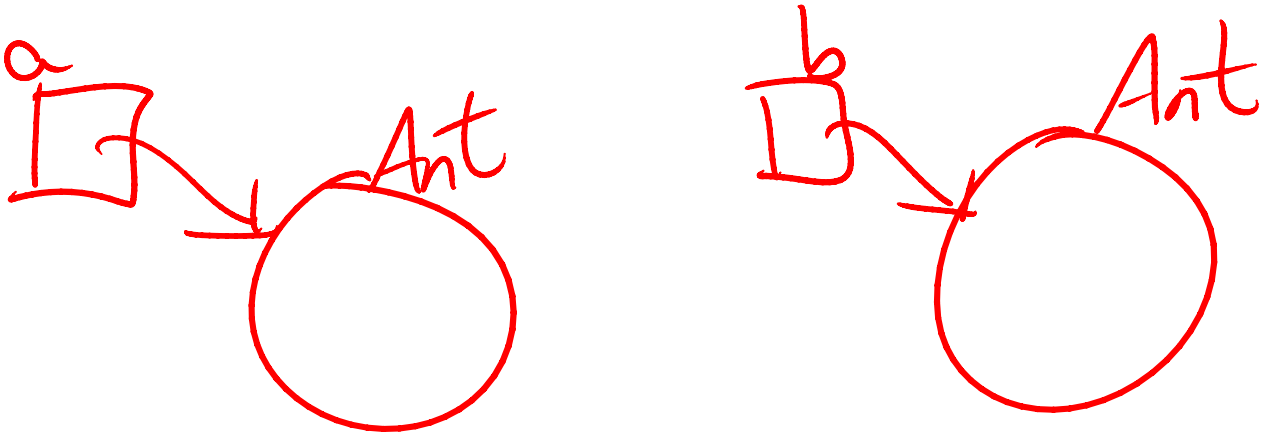
Ant a = new Ant();

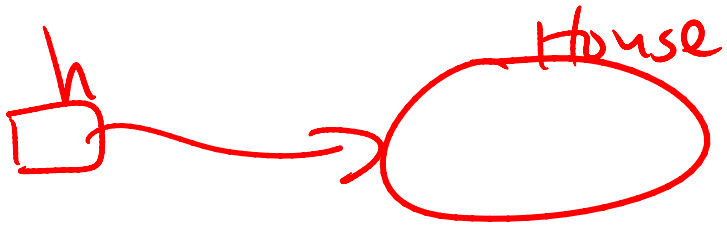
declaration — assignment

Ant b = new Ant();

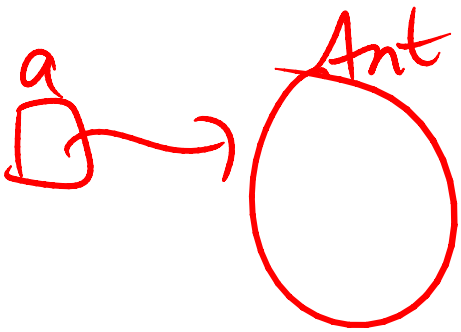
House h = new House();

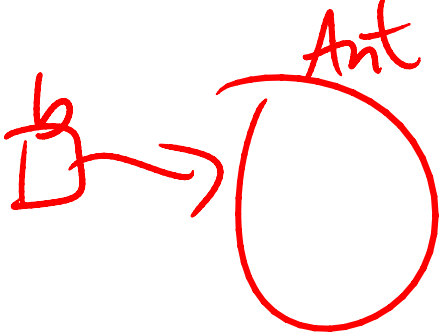
Draw the memory diagram showing the references and objects for these lines of code.

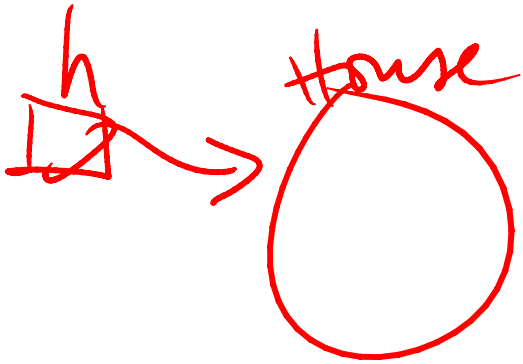


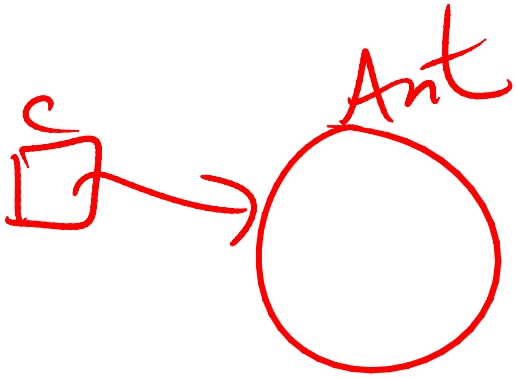


Now suppose we add the following line:
Ant c = new Ant();
Show the appropriate changes in the memory diagram.









new House();