Lab 1 Questions
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Where are classes stored in the JVM runtime system?
- Classes are a hierarchy in which similarly propertied objects reside. The JVM provides an environment in which Java bytecode can be executed. Classes can be found in pacakages with the JVM runtime system (libraries, etc.)

How are objects created in the JVM?
- Objects are created by using the pnemonic "new", and initializing the object with an invokespecial instruction.

How are constructors named in Jasmin and the JVM?
- The declaration of objects requires the use of "new" and invokespecial for initialization. .field denotes a reference to a variable being held with a specific type. .method is used for the construction of methods to be used on data stored in the class or its objects.

Where are constructors stored in the JVM runtime system?
In Java, the "new" keyword signifies heap object creation.

Where are methods stored in the JVM runtime system?
- Methods belong to the classes that they're implemented into. They may have static, public, or private declaration to denote their compatibility with other classes. A new stack frame structure is established on the call stack.

Where are method names and types stored in the JVM runtime system?
- The arguements for the method (which are popped off the current method's operand stack) are placed in local variables of the new stack from structure

How are objects represented in the local memory of the JVM?
- Using local variables signifies that there is a reference to the heap by which objects reside.

How are objects represented on the stack in the JVM?
- An entry for an object contains not the object itself, but a pointer into memory (into the heap) where the object resides.

What is the lifetime of a static variable in the JVM?
- Static variables in Java have a static lifetime. Meaning they are present when the program compiles until it terminates.

List three distinct classes of memory associated with a Java program and for each class, identify the lifetime of the stored values.
- Stack, local variables, and heap. Stack memory is limited by the runtime of the program. Its contents go out of existence when there are no more references to its contents or its contents are deallocated. Local variables are associated with the method they reside in and terminate once the method is over. Heap objects are elligible for garbage collection once their contents become deallocated or all other references to them are eliminated.

How do you create a heap object in Jasmin?
Heap objects are created in Jasmin using "new" and the invokespecial initialization instruction.

How do you create a new object of a class in Jasmin? What two Jasmin instructions are essential to do? Give an example of the commands and specify the type of object created in your example.

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- new example                     ;instruction for creating a new object of a class
- invokespecial example/<init>()V ;initialize the object with reference to the class
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How are objects on the heap disposed of? Explain either how to do it or how it happens.
Objects that reside in the heap are disposed of by the garbage collecting framework, which happens when Objects no longer have pointers to reference them.

What facility associated with the JVM is responsible for dealing with disposed heap objects?
Garbage collection.

What is the lifetime scheme of objects stored in the heap?
Objects stored in the heap come into existance as soon as they are initialized until they have no more active references to them or the program terminates.