Accelerating Information Technology Innovation

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India Summer 2012
Review Session – Java and Python

Intro to Java

Intro to Java

Make a class called `Animal`.

The constructor should take in the name of the animal and save it.

Intro to Java

Add a method that returns the name of the animal.

Intro to Java

Make a new class `AnimalProgram` *with a main() method.*
In the main method, make an animal named "Divya".
Then make an animal named "Ian".
Get the name of the first animal you made, and print it.

Intro to Java

Make a subclass of `Animal` *called* `Elephant`.

Make a second subclass of `Animal` *called* `Duck`.

Intro to Java

Make a method called `speak` *in each class.*

Speak should print the name of the animal,
and then print "speaks" if it is an `Animal`*,*
"trumpets" if it is an `Elephant`*,*
and "quacks" if it is a `Duck`*.*

Intro to Java

Make an interface called `Flyable`,
which contains the method `fly`.
The method returns nothing.

Intro to Java

Make the `Duck` *class implement* `Flyable`.
When the `fly` *method in* `Duck` *is called,*
it should print the name of the animal,
and then print "flies".

Intro to Java

Now make a class called `Airplane`.

`Airplane` *should also implement* `Flyable`.

Intro to Java

Make an `ArrayList` *of 4* `Animals`
named "Alice", "Ben", "Chris", and "Dana".

Print the name of the third animal in the array.

Intro to Java

Make a `HashMap` *called* `myZoo` *that contains an* `Elephant` *named "Frank" and a* `Duck` *named "Georgia". The map should be keyed by the type of the animal.*

Now print the name of the elephant in the zoo.

Intro to Java

In the main method, make a string called `string1`
using the `String` *constructor with the argument "Example".*
Make a second string called `string2`
using the `String` *constructor with the argument "Example".*

Print `string1 == string2`.
Print `string1.equals(string2)`
What do you notice?

Break!

Intro to Python

Intro to Python

Make a class called `Animal`.

The constructor should take in the name of the animal and save it.

Intro to Python

Add a method that returns the name of the animal.

Intro to Python

In the main method, make an animal named "Divya".
Then make an animal named "Ian".
Get the name of the first animal you made, and print it.

Intro to Python

Make a subclass of `Animal` *called* `Elephant`.

Make a second subclass of `Animal` *called* `Duck`.

Intro to Python

Make a method called `speak` *in each class.*

Speak should print the name of the animal,
and then print "speaks" if it is an `Animal`*,*
"trumpets" if it is an `Elephant`*,*
and "quacks" if it is a `Duck`*.*

Intro to Python

Make a `list` *of 4* `Animals`
named "Alice", "Ben", "Chris", and "Dana".

Print the name of the third animal in the list.

Add a fifth animal named "Eliza".

Intro to Python

Make a `dict` *called* `MyZoo` *that contains an* `Elephant` *named "Frank" and a* `Duck` *named "Georgia".*

The dictionary should be keyed by the type of the animal.

Now print the name of the elephant in the zoo.

Add an `Animal` *named "Hal" with the key "Tiger"*

Intro to Python

Make an `Animal` *called* `animal1`
whose name is "Ben".
Make a second `Animal` *called* `animal2`
whose name is also "Ben".

Print `animal1 == animal2`.

Intro to Python

In the `Animal` *class, create a method called* `__eq__`.

This method should take one argument,
which will be an `Animal` *object.*

If the two `Animals` *have the same name, return* `True`.

Otherwise, return `False`.

Print `animal1 == animal2`.

What do you notice?