

Enterprise Backend with Java



Lambda

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Object Oriented Programming (OOP)

- Defining Classes
 - Fields
 - Methods
 - Constructor
- Classes can Extend other Classes
 - Inherit
 - `super ()` calls parent method
- Polymorphism
 - `eat()` vs `eat(1)` vs `eat("icecream")`
 - No default for parameters



Object Oriented Programming (OOP)

- Instantiating Objects from classes
 - Inherits properties of class
 - Can @override class methods
- Methods
 - Getter (accessor methods)
 - Setter (mutator methods)



Interfaces in Java

- All methods are abstract
- No fields
- Class can implement multiple Interfaces
 - Multiple Inheritance

Abstract Classes in Java

- At least 1 method is abstract
- Fields
- Class can inherit from only one class

Lambda Expressions in Java

- https://en.wikipedia.org/wiki/Lambda_calculus
- Anonymous functions that can be
 - passed as arguments
 - returned as values



Project (Animal Kingdom Search)

Create an abstract class for animals

- All animals consume food the same way
- Each animal is assigned a unique number, a name, and year discovered regardless of classification.
- The methods will return a string saying how that animal implements the action
- Animals can move, breath, reproduce

Create classes for mammals, birds, fish

- Mammals move - walk, breath - lungs, reproduce - live births
- birds move - fly, breath - lungs, reproduce - eggs
- fish move - swim, breath - gills, reproduce - eggs



Project (Animal Kingdom Search)

Create a collection for the animals using the following data

Mammals:	Name: Panda	Year Named: 1869
	Name: Zebra	Year Named: 1778
	Name: Koala	Year Named: 1816
	Name: Sloth	Year Named: 1804
	Name: Armadillo	Year Named: 1758
	Name: Raccoon	Year Named: 1758
	Name: Bigfoot	Year Named: 2021

Birds:	Name: Pigeon	Year Named: 1837
	Name: Peacock	Year Named: 1821
	Name: Toucan	Year Named: 1758
	Name: Parrot	Year Named: 1824
	Name: Swan	Year Named: 1758

Fish:	Name: Salmon	Year Named: 1758
	Name: Catfish	Year Named: 1817
	Name: Perch	Year Named: 1758



Project (Animal Kingdom Search)

- List all the animals in descending order by year named
- List all the animals alphabetically
- List all the animals order by how they move
- List only those animals the breath with lungs
- List only those animals that breath with lungs and were named in 1758
- List only those animals that lay eggs and breath with lungs
- List alphabetically only those animals that were named in 1758

