Universidad de las Fuerzas Armadas ESPE

Object Oriented Programming

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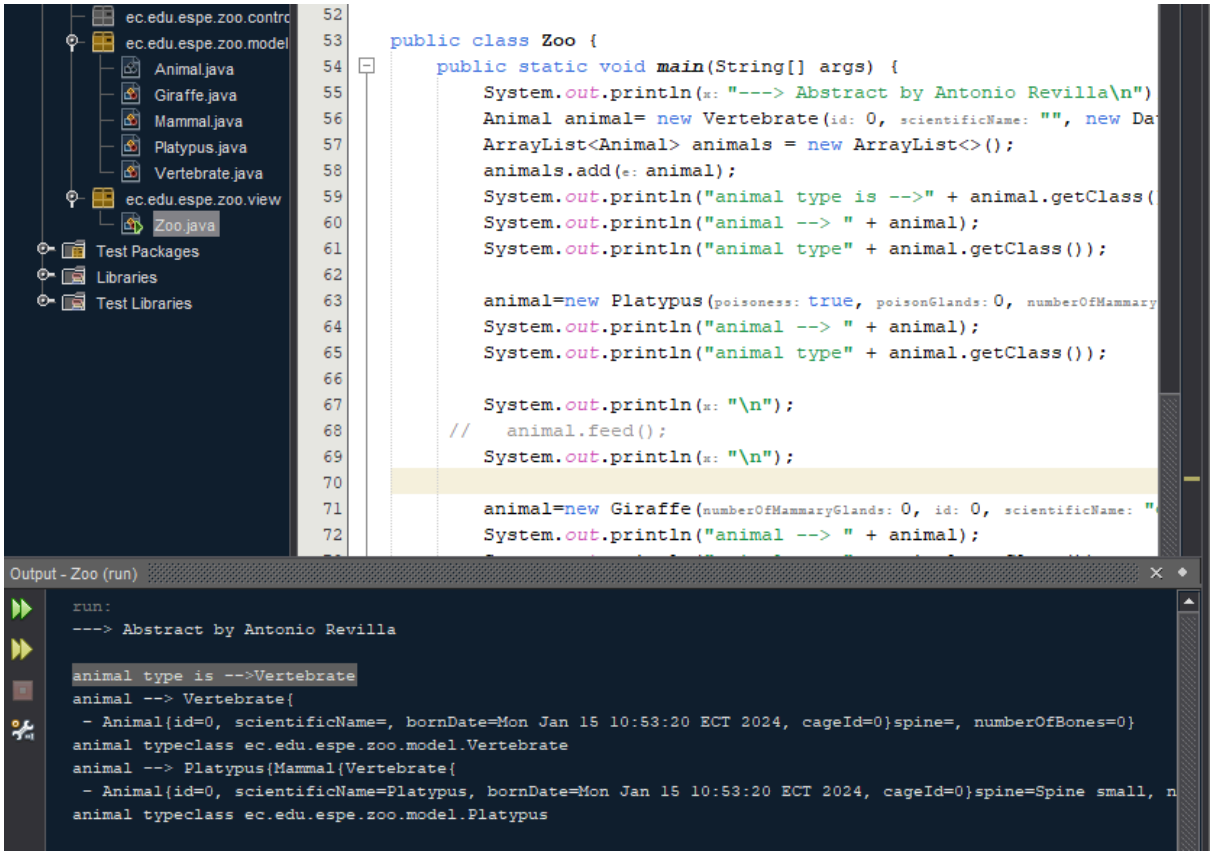
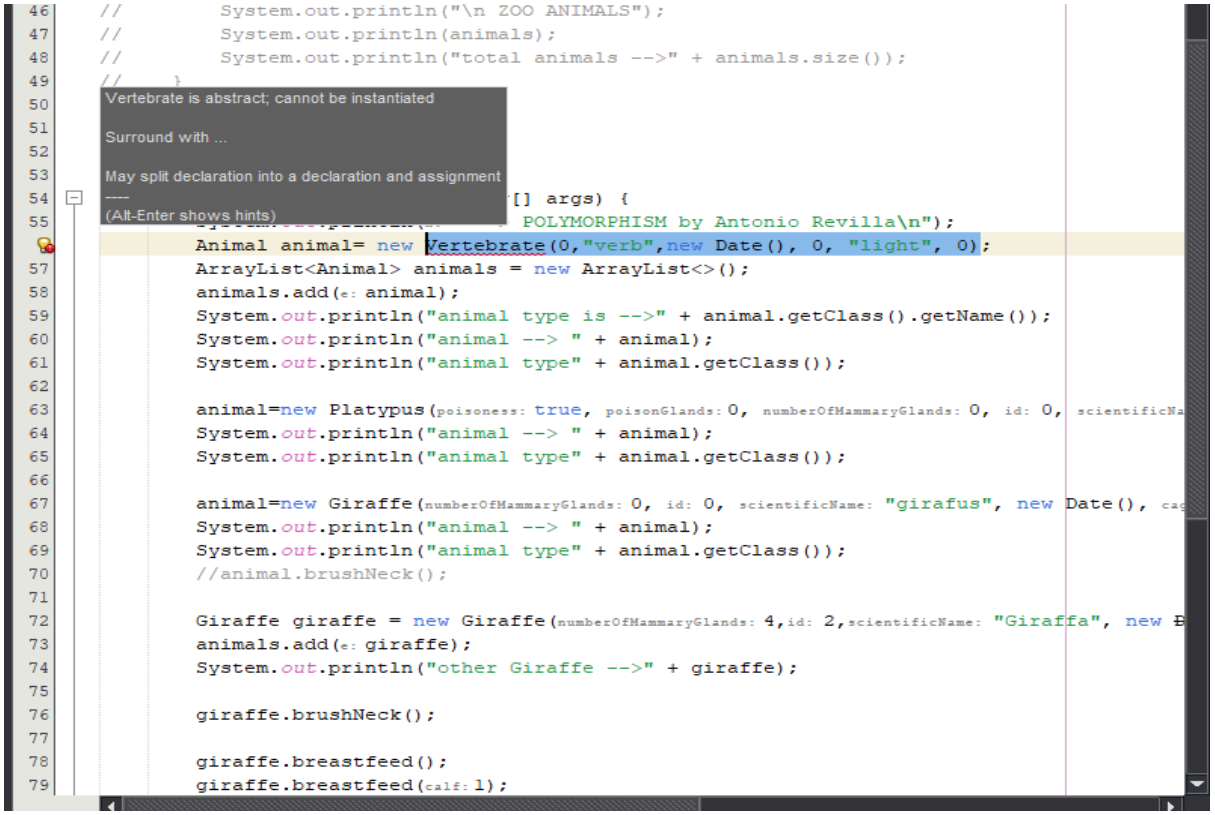
Nrc: 14575

WorkShop # 28

Topic:Abstraction

1.


ec.edu.espe.zoo.contro
ec.edu.espe.zoo.model
Animal.java
Giraffe.java
Mammal.java
Platypus.java
Vertebrate.java
ec.edu.espe.zoo.view
Zoo.java
Test Packages
Libraries
Test Libraries
public class Zoo {
public static void main(String[] args) {
System.out.println("---> Abstract by Antonio Revilla\n")
Animal animal= new Vertebrate(id: 0, scientificName: "", new Da
ArrayList<Animal> animals = new ArrayList<>();
animals.add(e: animal);
System.out.println("animal type is -->" + animal.getClass(
System.out.println("animal --> " + animal);
System.out.println("animal type" + animal.getClass());
animal=new Platypus(poisoness: true, poisonGlands: 0, numberOfMammary
System.out.println("animal --> " + animal);
System.out.println("animal type" + animal.getClass());
System.out.println(x: "\n");
// animal.feed();
System.out.println(x: "\n");
animal=new Giraffe(numberOfMammaryGlands: 0, id: 0, scientificName: "
System.out.println("animal --> " + animal);
Output - Zoo (run)
run:
---> Abstract by Antonio Revilla
animal type is -->Vertebrate
animal --> Vertebrate{
- Animal{id=0, scientificName=, bornDate=Mon Jan 15 10:53:20 ECT 2024, cageId=0}spine=, numberOfBones=0}
animal typeclass ec.edu.espe.zoo.model.Vertebrate
animal --> Platypus{Mammal{Vertebrate{
- Animal{id=0, scientificName=Platypus, bornDate=Mon Jan 15 10:53:20 ECT 2024, cageId=0}spine=Spine small, n
animal typeclass ec.edu.espe.zoo.model.Platypus


// System.out.println("\n ZOO ANIMALS");
// System.out.println(animals);
// System.out.println("total animals -->" + animals.size());
Vertebrate is abstract; cannot be instantiated
Surround with ...
May split declaration into a declaration and assignment
(Alt-Enter shows hints)
[] args) {
POLYMORPHISM by Antonio Revilla\n");
Animal animal= new Vertebrate(0,"verb",new Date(), 0, "light", 0);
ArrayList<Animal> animals = new ArrayList<>();
animals.add(e: animal);
System.out.println("animal type is -->" + animal.getClass().getName());
System.out.println("animal --> " + animal);
System.out.println("animal type" + animal.getClass());
animal=new Platypus(poisoness: true, poisonGlands: 0, numberOfMammaryGlands: 0, id: 0,
System.out.println("animal --> " + animal);
System.out.println("animal type" + animal.getClass());
animal=new Giraffe(numberOfMammaryGlands: 0, id: 0, scientificName: "girafus", new Date(),
System.out.println("animal --> " + animal);
System.out.println("animal type" + animal.getClass());
//animal.brushNeck();
Giraffe giraffe = new Giraffe(numberOfMammaryGlands: 4,id: 2,scientificName: "Giraffa", new
animals.add(e: giraffe);
System.out.println("other Giraffe -->" + giraffe);
giraffe.brushNeck();
giraffe.breastfeed();
giraffe.breastfeed(calf: 1);

```
53  public class Zoo {
54      public static void main(String[] args) {
55          System.out.println(x: "---> POLYMORPHISM by Antonio Revilla\n");
56          Animal animal= new Mammal(numberOfMammaryGlands: 0, id: 0, scientificName: "", new Date(), cag
57          ArrayList<Animal> animals = new ArrayList<>();
58          animals.add(e: animal);
59          System.out.println("animal type is -->" + animal.getClass().getName());
60          System.out.println("animal --> " + animal);
```

Output - Zoo (run)

```
run:
---> POLYMORPHISM by Antonio Revilla

animal type is -->ec.edu.espe.zoo.model.Mammal
animal --> Mammal{Vertebrate{
 - Animal{id=0, scientificName=, bornDate=Mon Jan 15 09:51:31 ECT 2024, cageId=0}spine=, numberOfBones=0}n
animal typeclass ec.edu.espe.zoo.model.Mammal
animal --> Platypus{Mammal{Vertebrate{
 - Animal{id=0, scientificName=Platypus, bornDate=Mon Jan 15 09:51:31 ECT 2024, cageId=0}spine=Spine small
animal typeclass ec.edu.espe.zoo.model.Platypus
animal --> Giraffe{Mammal{Vertebrate{
 - Animal{id=0, scientificName=girafus, bornDate=Mon Jan 15 09:51:31 ECT 2024, cageId=0}spine=big spine, n
animal typeclass ec.edu.espe.zoo.model.Giraffe
other Giraffe -->Giraffe{Mammal{Vertebrate{
 - Animal{id=2, scientificName=Giraffa, bornDate=Thu Feb 01 00:00:00 ECT 3923, cageId=3}spine=long, number
bursh the neck of the giraffe
giraffe is breastfeeding
giraffe is breast feeding it`s calf number -->1

 ZOO ANIMALS
[Mammal{Vertebrate{
 - Animal{id=0, scientificName=, bornDate=Mon Jan 15 09:51:31 ECT 2024, cageId=0}spine=, numberOfBones=0}n
 - Animal{id=2, scientificName=Giraffa, bornDate=Thu Feb 01 00:00:00 ECT 3923, cageId=3}spine=long, number
 - Animal{id=2, scientificName=Giraffa, bornDate=Thu Feb 01 00:00:00 ECT 3923, cageId=3}spine=long, number
total animals -->3
BUILD SUCCESSFUL (total time: 0 seconds)
```

Output 57:55 INS

```
Animal is abstract; cannot be instantiated

May split declaration into a declaration and assignment
---
(Alt-Enter shows hints)

[] arg
POLYM
        Animal animal= new Animal();
```

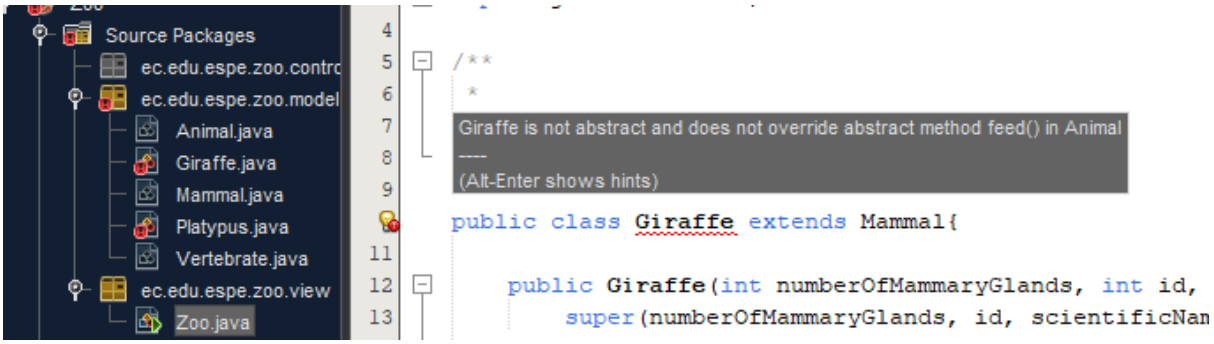
```
52
53  public class Zoo {
54      public static void main(Str
55          System.out.println(x: "-                villa\n");
57          Animal animal= new Mammal(0, 0, "", new Date(), 0, "", 0);
58          ArrayList<Animal> animals = new ArrayList<>();
59          animals.add(e: animal);
60          System.out.println("animal type is -->" + animal.getClass().get
```

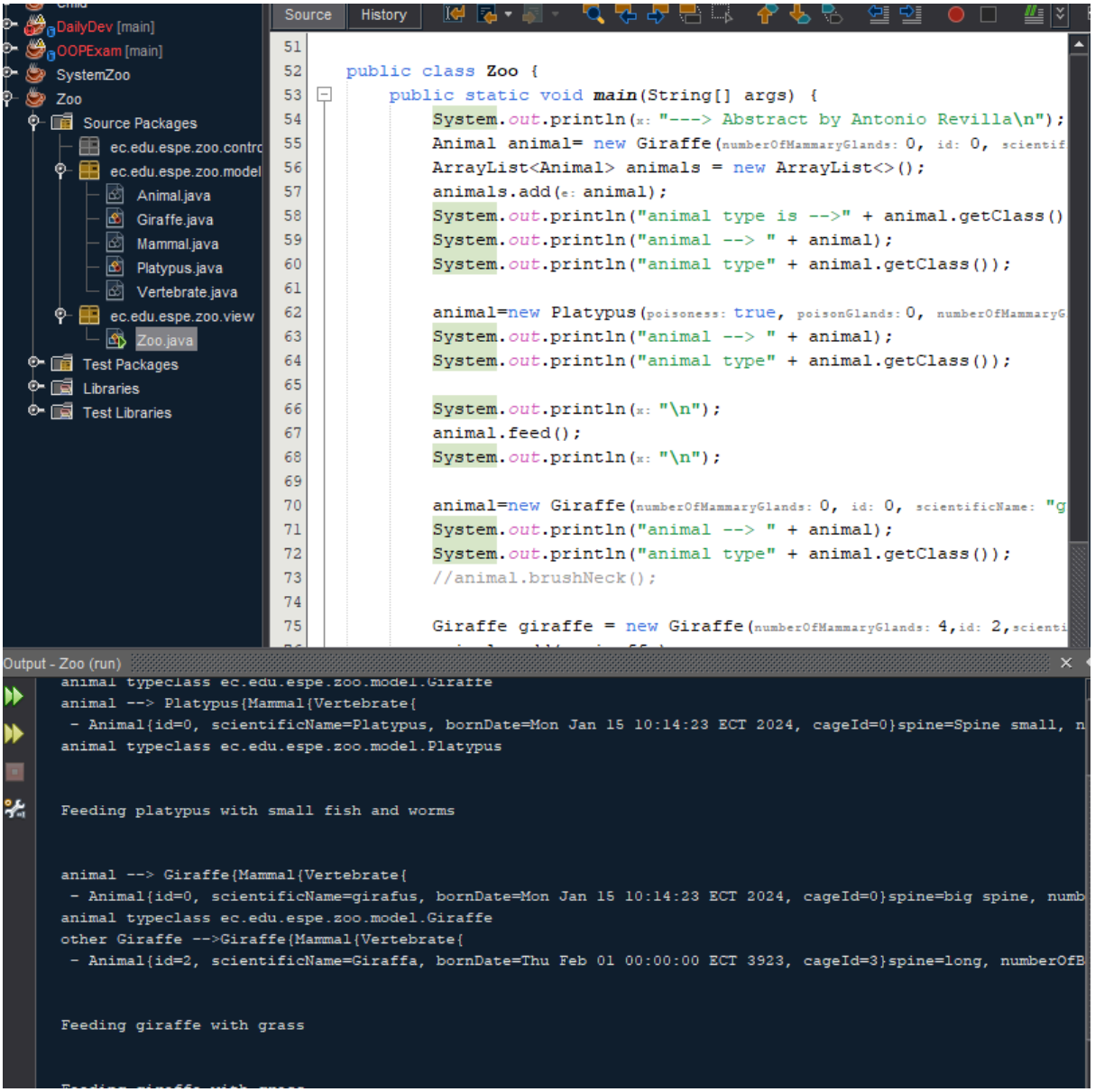
Mammal is abstract; cannot be instantiated

(Alt-Enter shows hints)

```java
public class Zoo {
    public static void main(String[] args) {
        System.out.println(x: "---> Abstract by Antonio Revilla\n");
        Animal animal= new Giraffe(numberOfMammaryGlands: 0, id: 0, scientificName: "giraffe", new Da
        ArrayList<Animal> animals = new ArrayList<>();
        animals.add(e: animal);
        System.out.println("animal type is -->" + animal.getClass().getSimpleName());
        System.out.println("animal --> " + animal);
        System.out.println("animal type" + animal.getClass());

        animal=new Platypus(poisoness: true, poisonGlands: 0, numberOfMammaryGlands: 0, id: 0, scientificNa
        System.out.println("animal --> " + animal);
        System.out.println("animal type" + animal.getClass());

        animal=new Giraffe(numberOfMammaryGlands: 0, id: 0, scientificName: "girafus", new Date(), cag
        System.out.println("animal --> " + animal);
        System.out.println("animal type" + animal.getClass());
        //animal.brushNeck();

        Giraffe giraffe = new Giraffe(numberOfMammaryGlands: 4,id: 2,scientificName: "Giraffa", new D
        animals.add(e: giraffe);
        System.out.println("other Giraffe -->" + giraffe);

        giraffe.brushNeck();
```

```
Zoo (run)
run:
---> Abstract by Antonio Revilla

animal type is -->Giraffe
animal --> Giraffe{Mammal{Vertebrate{
 - Animal{id=0, scientificName=giraffe, bornDate=Mon Jan 15 09:59:14 ECT 2024, cageId=0}spine=heavy, numb
animal typeclass ec.edu.espe.zoo.model.Giraffe
```




DailyDev [main]
OOPExam [main]
SystemZoo
Zoo
Source Packages
ec.edu.espe.zoo.contro
ec.edu.espe.zoo.model
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Platypus.java
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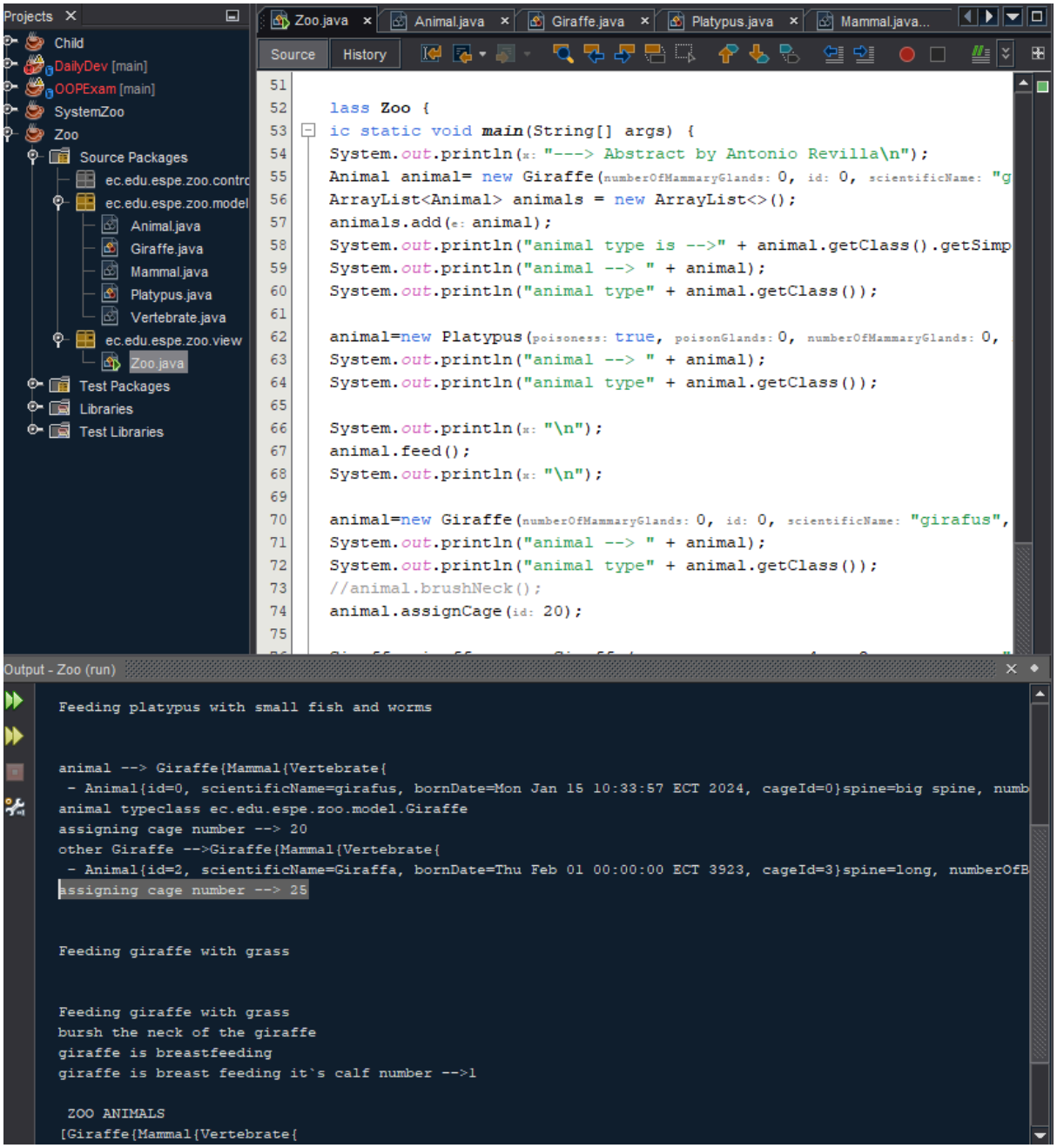
Zoo.java
Test Packages
Libraries
Test Libraries
Source
History
public class Zoo {
public static void main(String[] args) {
System.out.println("---> Abstract by Antonio Revilla\n");
Animal animal= new Giraffe(numberOfMammaryGlands: 0, id: 0, scientif
ArrayList<Animal> animals = new ArrayList<>();
animals.add(e: animal);
System.out.println("animal type is -->" + animal.getClass()
System.out.println("animal --> " + animal);
System.out.println("animal type" + animal.getClass());
animal=new Platypus(poisoness: true, poisonGlands: 0, numberOfMammaryG
System.out.println("animal --> " + animal);
System.out.println("animal type" + animal.getClass());
System.out.println("\n");
animal.feed();
System.out.println("\n");
animal=new Giraffe(numberOfMammaryGlands: 0, id: 0, scientificName: "g
System.out.println("animal --> " + animal);
System.out.println("animal type" + animal.getClass());
//animal.brushNeck();
Giraffe giraffe = new Giraffe(numberOfMammaryGlands: 4,id: 2,scienti
Output - Zoo (run)
animal typeclass ec.edu.espe.zoo.model.Giraffe
animal --> Platypus{Mammal{Vertebrate{
- Animal{id=0, scientificName=Platypus, bornDate=Mon Jan 15 10:14:23 ECT 2024, cageId=0}spine=Spine small, n
animal typeclass ec.edu.espe.zoo.model.Platypus
Feeding platypus with small fish and worms
animal --> Giraffe{Mammal{Vertebrate{
- Animal{id=0, scientificName=girafus, bornDate=Mon Jan 15 10:14:23 ECT 2024, cageId=0}spine=big spine, numb
animal typeclass ec.edu.espe.zoo.model.Giraffe
other Giraffe -->Giraffe{Mammal{Vertebrate{
- Animal{id=2, scientificName=Giraffa, bornDate=Thu Feb 01 00:00:00 ECT 3923, cageId=3}spine=long, numberOfB
Feeding giraffe with grass


Projects
Child
DailyDev [main]
OOPExam [main]
SystemZoo
Zoo
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Platypus.java
Mammal.java...
Source
History
51
52 lass Zoo {
53 ic static void main(String[] args) {
54 System.out.println(x: "---> Abstract by Antonio Revilla\n");
55 Animal animal= new Giraffe(numberOfMammaryGlands: 0, id: 0, scientificName: "g
56 ArrayList<Animal> animals = new ArrayList<>();
57 animals.add(e: animal);
58 System.out.println("animal type is -->" + animal.getClass().getSimp
59 System.out.println("animal --> " + animal);
60 System.out.println("animal type" + animal.getClass());
61
62 animal=new Platypus(poisoness: true, poisonGlands: 0, numberOfMammaryGlands: 0,
63 System.out.println("animal --> " + animal);
64 System.out.println("animal type" + animal.getClass());
65
66 System.out.println(x: "\n");
67 animal.feed();
68 System.out.println(x: "\n");
69
70 animal=new Giraffe(numberOfMammaryGlands: 0, id: 0, scientificName: "girafus",
71 System.out.println("animal --> " + animal);
72 System.out.println("animal type" + animal.getClass());
73 //animal.brushNeck();
74 animal.assignCage(id: 20);
75
Output - Zoo (run)
Feeding platypus with small fish and worms
animal --> Giraffe{Mammal{Vertebrate{
- Animal{id=0, scientificName=girafus, bornDate=Mon Jan 15 10:33:57 ECT 2024, cageId=0}spine=big spine, numb
animal typeclass ec.edu.espe.zoo.model.Giraffe
assigning cage number --> 20
other Giraffe -->Giraffe{Mammal{Vertebrate{
- Animal{id=2, scientificName=Giraffa, bornDate=Thu Feb 01 00:00:00 ECT 3923, cageId=3}spine=long, numberOfB
assigning cage number --> 25
Feeding giraffe with grass
Feeding giraffe with grass
bursh the neck of the giraffe
giraffe is breastfeeding
giraffe is breast feeding it`s calf number -->1
ZOO ANIMALS
[Giraffe{Mammal{Vertebrate{