

Philip Pesic

Week 13

April 16 2023

Week 13 Prog 4

\* Part 4 - Arrays

Modify the Example 1 code

Add three more derived subclass animals and sounds, for a total of 5 animals: Cat, dog, bird, elephant, mouse

Create an array of 5 'animal type' elements: `animal AnimalArray[5];`

Assign each animal to the `AnimalArray`.

Make a loop that runs five times. In the body of the loop, call the `polyAnimalFunction`, and pass each element of the array into the `polyAnimalFunction`

(Use the loop index to specify which array element )

```
package Prog4;

class prog4 {

    static void polySound(animal poly) {
        poly.animalSound();
    }

    public static void main(String[] args) {
```

Philip Pesic

Week 13

April 16 2023

Week 13 Prog 4

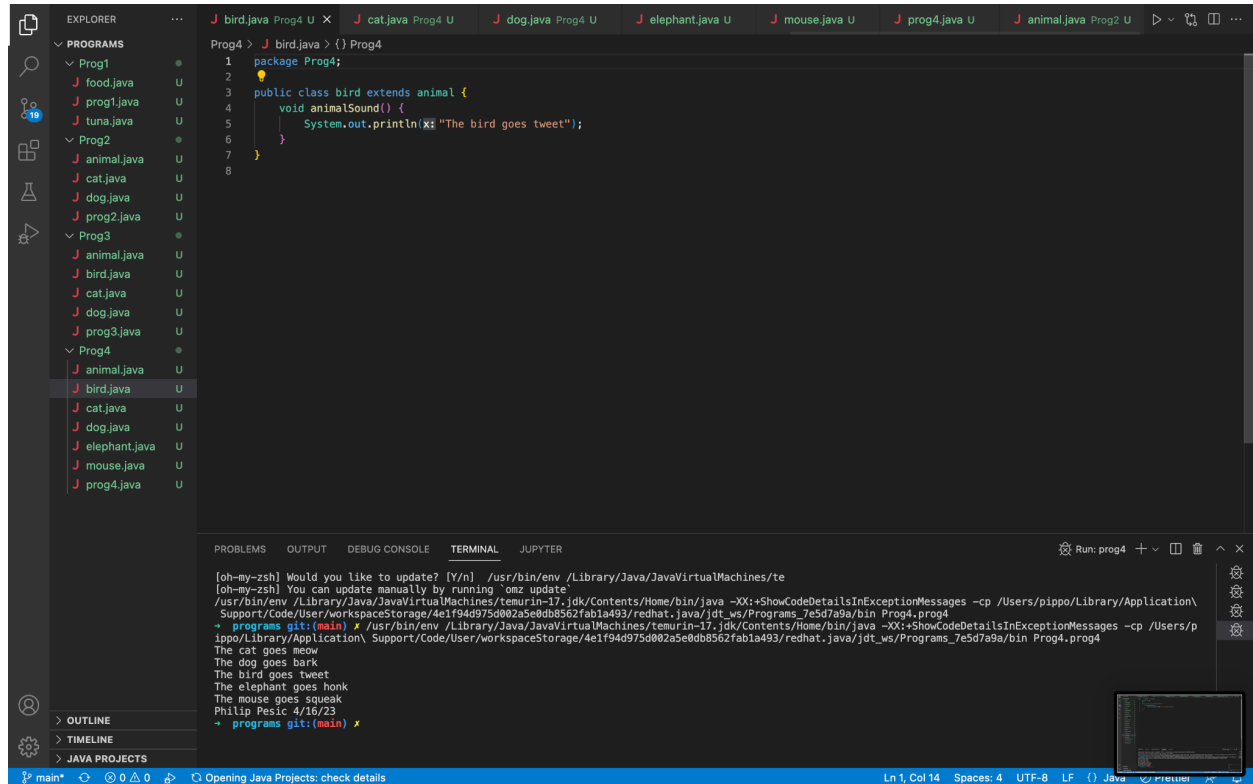
```
    animal[] animals = {new cat(), new dog(), new bird(), new elephant(), new  
mouse()};  
    for(int i = 0; i < 5; i++) {  
        polySound(animals[i]);  
    }  
    System.out.println("Philip Pesic 4/16/23");  
}
```

Philip Pesic

Week 13

April 16 2023

Week 13 Prog 4



The screenshot shows an IDE with a project named 'Prog4'. The Explorer view on the left lists several Java files: Prog1 (food.java, prog1.java, tuna.java), Prog2 (animal.java, cat.java, dog.java, prog2.java), Prog3 (animal.java, bird.java, cat.java, dog.java, prog3.java), and Prog4 (animal.java, bird.java, cat.java, dog.java, elephant.java, mouse.java, prog4.java). The main editor displays the code for 'Prog4 > J bird.java > {} Prog4', which defines a 'bird' class extending 'animal' with a 'animalSound()' method that prints 'The bird goes tweet()'. The Terminal view at the bottom shows the execution of 'prog4.prog4', which outputs the following text: 'The dog goes meow', 'The dog goes bark', 'The bird goes tweet', 'The elephant goes honk', 'The mouse goes squeak', and 'Philip Pesic 4/16/23'. The status bar at the bottom indicates the file is at 'Ln 1, Col 14' with 'Spaces: 4' and 'UTF-8' encoding.

```
1 package Prog4;
2
3 public class bird extends animal {
4     void animalSound() {
5         System.out.println("The bird goes tweet()");
6     }
7 }
8
```

Terminal Output:

```
[oh-my-zsh] Would you like to update? [Y/n] /usr/bin/env /Library/Java/JavaVirtualMachines/te
[oh-my-zsh] You can update manually by running 'omz update'
/usr/bin/env /Library/Java/JavaVirtualMachines/temurin-17.jdk/Contents/Home/bin/java -XX:+ShowCodeDetailsInExceptionMessages -cp /Users/pippo/Library/Application\
Support/Code/User/workspaceStorage/4e1f94d975d002a5e8db8562fab1a493/redhat.java/jdt_ws/Programs_7e5d7a9a/bin Prog4.prog4
+ programs git:(main) * /usr/bin/env /Library/Java/JavaVirtualMachines/temurin-17.jdk/Contents/Home/bin/java -XX:+ShowCodeDetailsInExceptionMessages -cp /Users/p
ippo/Library/Application\ Support/Code/User/workspaceStorage/4e1f94d975d002a5e8db8562fab1a493/redhat.java/jdt_ws/Programs_7e5d7a9a/bin Prog4.prog4
The dog goes meow
The dog goes bark
The bird goes tweet
The elephant goes honk
The mouse goes squeak
Philip Pesic 4/16/23
+ programs git:(main) *
```

Philip Pesic

Week 13

April 16 2023

Week 13 Prog 4

The screenshot shows an IDE with the following components:

- EXPLORER:** A tree view on the left showing a project structure with folders Prog1, Prog2, Prog3, and Prog4. Each folder contains several Java files (e.g., animal.java, bird.java, cat.java, dog.java, elephant.java, mouse.java, prog4.java, tuna.java). The files are marked with 'U' for updated.
- Editor:** The main window displays the code for Prog4 > J cat.java. The code is as follows:

```
1 package Prog4;
2
3 public class cat extends animal {
4     void animalSound() {
5         System.out.println("The cat goes meow");
6     }
7 }
8
```
- TERMINAL:** The bottom panel shows the output of running the program. The output is:

```
[oh-my-zsh] Would you like to update? [Y/n] /usr/bin/env /Library/Java/JavaVirtualMachines/te
[oh-my-zsh] You can update manually by running 'omz update'
/usr/bin/env /Library/Java/JavaVirtualMachines/temurin-17.jdk/Contents/Home/bin/java -XX:+ShowCodeDetailsInExceptionMessages -cp /Users/pippo/Library/Application\
Support/Code/User/workspaceStorage/4e1f94d975d002a5e8db8562fab1a493/redhat.java/jdt_ws/Programs_7e5d7a9a/bin Prog4.prog4
+ programs git:(main) * /usr/bin/env /Library/Java/JavaVirtualMachines/temurin-17.jdk/Contents/Home/bin/java -XX:+ShowCodeDetailsInExceptionMessages -cp /Users/p
ippo/Library/Application\ Support/Code/User/workspaceStorage/4e1f94d975d002a5e8db8562fab1a493/redhat.java/jdt_ws/Programs_7e5d7a9a/bin Prog4.prog4
The cat goes meow
The dog goes bark
The bird goes tweet
The elephant goes honk
The mouse goes squeak
Philip Pesic 4/16/23
+ programs git:(main) *
```

Philip Pesic

Week 13

April 16 2023

Week 13 Prog 4

The screenshot shows an IDE with a project named 'Prog4'. The Explorer panel on the left lists the project structure, including files like 'dog.java', 'cat.java', 'elephant.java', 'mouse.java', 'prog4.java', and 'animal.java'. The main editor displays the code for 'dog.java', which defines a 'dog' class extending 'animal' and implementing the 'animalSound()' method to print 'The dog goes bark()'. The Terminal panel at the bottom shows the execution output, which includes the program's output and a system message about updating the IDE.

```
package Prog4;

public class dog extends animal {
    void animalSound() {
        System.out.println("The dog goes bark()");
    }
}
```

Run: prog4

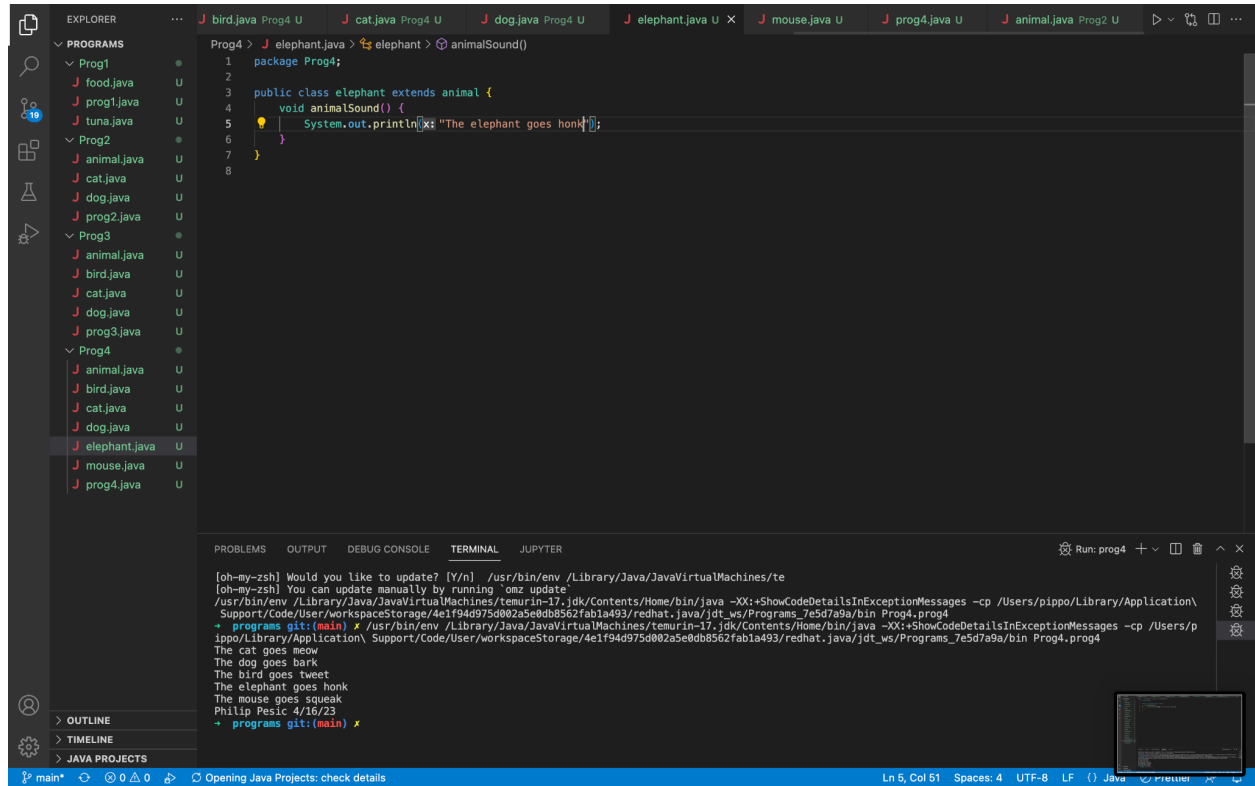
```
[oh-my-zsh] Would you like to update? [Y/n] /usr/bin/env /Library/Java/JavaVirtualMachines/te
[oh-my-zsh] You can update manually by running 'omz update'
/usr/bin/env /Library/Java/JavaVirtualMachines/temurin-17.jdk/Contents/Home/bin/java -XX:+ShowCodeDetailsInExceptionMessages -cp /Users/pippo/Library/Application\
Support/Code/User/workspaceStorage/4e1f94d975d002a5e8db8562fab1a493/redhat.java/jdt_ws/Programs_7e5d7a9a/bin Prog4.prog4
+ programs git:(main) * /usr/bin/env /Library/Java/JavaVirtualMachines/temurin-17.jdk/Contents/Home/bin/java -XX:+ShowCodeDetailsInExceptionMessages -cp /Users/p
ippo/Library/Application\ Support/Code/User/workspaceStorage/4e1f94d975d002a5e8db8562fab1a493/redhat.java/jdt_ws/Programs_7e5d7a9a/bin Prog4.prog4
The dog goes bark
The bird goes tweet
The elephant goes honk
The mouse goes squeak
Philip Pesic 4/16/23
+ programs git:(main) *
```

Philip Pesic

Week 13

April 16 2023

Week 13 Prog 4



The screenshot shows an IDE with a project named 'Prog4'. The Explorer panel on the left lists several Java files: food.java, prog1.java, tuna.java, animal.java, cat.java, dog.java, prog2.java, animal.java, bird.java, cat.java, dog.java, prog3.java, animal.java, bird.java, cat.java, dog.java, elephant.java, mouse.java, and prog4.java. The main editor displays the code for 'elephant.java', which defines a class 'elephant' extending 'animal' with a method 'animalSound()' that prints 'The elephant goes honk'. The terminal at the bottom shows the command to run the program, followed by the output: 'The dog goes meow', 'The dog goes bark', 'The bird goes tweet', 'The elephant goes honk', 'The mouse goes squeak', and 'Philip Pesic 4/16/23'.

```
Prog4 > J elephant.java > elephant > animalSound()
1 package Prog4;
2
3 public class elephant extends animal {
4     void animalSound() {
5         System.out.println("The elephant goes honk");
6     }
7 }
8
```

Run: prog4

```
[oh-my-zsh] Would you like to update? [Y/n] /usr/bin/env /Library/Java/JavaVirtualMachines/te
[oh-my-zsh] You can update manually by running 'omz update'
/usr/bin/env /Library/Java/JavaVirtualMachines/temurin-17.jdk/Contents/Home/bin/java -XX:+ShowCodeDetailsInExceptionMessages -cp /Users/pippo/Library/Application\
Support/Code/User/workspaceStorage/4e1f94d975d002a5e8db8562fab1a493/redhat.java/jdt_ws/Programs_7e5d7a9a/bin Prog4.prog4
+ programs git:(main) * /usr/bin/env /Library/Java/JavaVirtualMachines/temurin-17.jdk/Contents/Home/bin/java -XX:+ShowCodeDetailsInExceptionMessages -cp /Users/p
ippo/Library/Application\ Support/Code/User/workspaceStorage/4e1f94d975d002a5e8db8562fab1a493/redhat.java/jdt_ws/Programs_7e5d7a9a/bin Prog4.prog4
The dog goes meow
The dog goes bark
The bird goes tweet
The elephant goes honk
The mouse goes squeak
Philip Pesic 4/16/23
+ programs git:(main) *
```

Philip Pesic

Week 13

April 16 2023

Week 13 Prog 4

The screenshot shows an IDE with a project named 'Prog4'. The Explorer panel on the left lists files under 'PROGRAMS':

- Prog1
  - food.java
  - prog1.java
  - tuna.java
- Prog2
  - animal.java
  - cat.java
  - dog.java
  - prog2.java
- Prog3
  - animal.java
  - bird.java
  - cat.java
  - dog.java
  - prog3.java
- Prog4
  - animal.java
  - bird.java
  - cat.java
  - dog.java
  - elephant.java
  - mouse.java
  - prog4.java

The main editor shows the code for 'mouse.java' in the 'Prog4' package:

```
1 package Prog4;
2
3 public class mouse extends animal {
4     void animalSound() {
5         System.out.println("The mouse goes squeak");
6     }
7 }
8
```

The bottom panel shows the 'TERMINAL' output for running 'prog4':

```
[oh-my-zsh] Would you like to update? [Y/n] /usr/bin/env /Library/Java/JavaVirtualMachines/te
[oh-my-zsh] You can update manually by running 'omz update'
/usr/bin/env /Library/Java/JavaVirtualMachines/temurin-17.jdk/Contents/Home/bin/java -XX:+ShowCodeDetailsInExceptionMessages -cp /Users/pippo/Library/Application\
Support/Code/User/workspaceStorage/4e1f94d975d002a5e8db8562fab1a493/redhat.java/jdt_ws/Programs_7e5d7a9a/bin Prog4.prog4
+ programs git:(main) * /usr/bin/env /Library/Java/JavaVirtualMachines/temurin-17.jdk/Contents/Home/bin/java -XX:+ShowCodeDetailsInExceptionMessages -cp /Users/p
ippo/Library/Application\ Support/Code/User/workspaceStorage/4e1f94d975d002a5e8db8562fab1a493/redhat.java/jdt_ws/Programs_7e5d7a9a/bin Prog4.prog4
The cat goes meow
The dog goes bark
The bird goes tweet
The elephant goes honk
The mouse goes squeak
Philip Pesic 4/16/23
+ programs git:(main) *
```

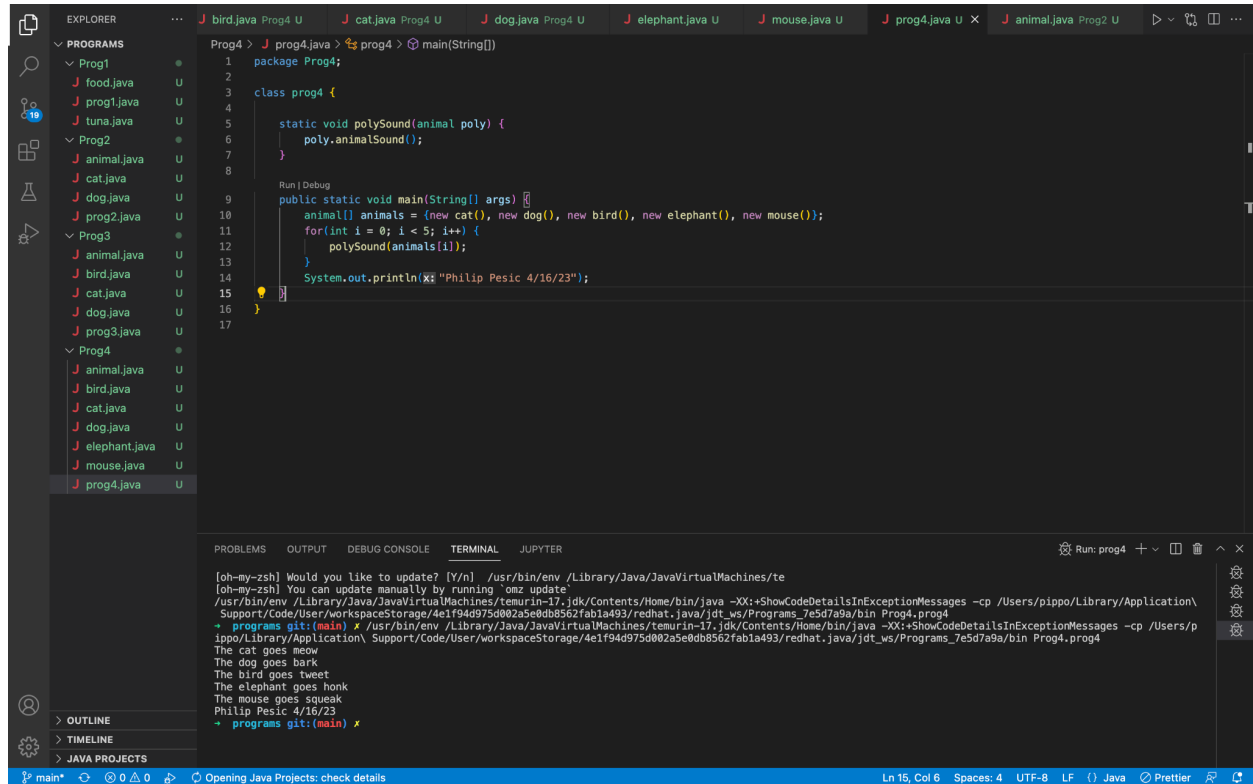
The status bar at the bottom indicates 'Ln 5, Col 50', 'Spaces: 4', 'UTF-8', 'LF', 'Java', and 'Prettier'.

Philip Pesic

Week 13

April 16 2023

Week 13 Prog 4



The screenshot shows an IDE with a project named 'Prog4'. The Explorer panel on the left lists several Java files: Prog1, food.java, prog1.java, tuna.java, Prog2, animal.java, cat.java, dog.java, prog2.java, Prog3, bird.java, cat.java, dog.java, prog3.java, Prog4, animal.java, bird.java, cat.java, dog.java, elephant.java, mouse.java, and prog4.java. The main editor displays the code for 'prog4.java', which includes a package declaration, a class definition with a 'polySound' method, and a 'main' method that creates an array of animal objects and calls 'polySound' on each. The terminal at the bottom shows the output of running the program, which prints the names of the animals and the date 'Philip Pesic 4/16/23'.

```
Prog4 > J prog4.java > prog4 > main(String[])
1 package Prog4;
2
3 class prog4 {
4
5     static void polySound(animal poly) {
6         poly.animalSound();
7     }
8
9     public static void main(String[] args) {
10         animal[] animals = {new cat(), new dog(), new bird(), new elephant(), new mouse()};
11         for(int i = 0; i < 5; i++) {
12             polySound(animals[i]);
13         }
14         System.out.println("Philip Pesic 4/16/23");
15     }
16 }
17
```

```
[oh-my-zsh] Would you like to update? [Y/n] /usr/bin/env /Library/Java/JavaVirtualMachines/te
[oh-my-zsh] You can update manually by running 'omz update'
/usr/bin/env /Library/Java/JavaVirtualMachines/temurin-17.jdk/Contents/Home/bin/java -XX:+ShowCodeDetailsInExceptionMessages -cp /Users/pippo/Library/Application\
Support/Code/User/workspaceStorage/4e1f94d975d002a5e8db8562fab1a493/redhat.java/jdt_ws/Programs_7e5d7a9a/bin Prog4.prog4
+ programs git:(main) * /usr/bin/env /Library/Java/JavaVirtualMachines/temurin-17.jdk/Contents/Home/bin/java -XX:+ShowCodeDetailsInExceptionMessages -cp /Users/p
ippo/Library/Application\ Support/Code/User/workspaceStorage/4e1f94d975d002a5e8db8562fab1a493/redhat.java/jdt_ws/Programs_7e5d7a9a/bin Prog4.prog4
The cat goes meow
The dog goes bark
The bird goes tweet
The elephant goes honk
The mouse goes squeak
Philip Pesic 4/16/23
+ programs git:(main) *
```

I learned how to create arrays of objects