A. Identifying Big-O Notations
   a. O(1)
   b. O(n)
   c. O(log n) - Binary Search
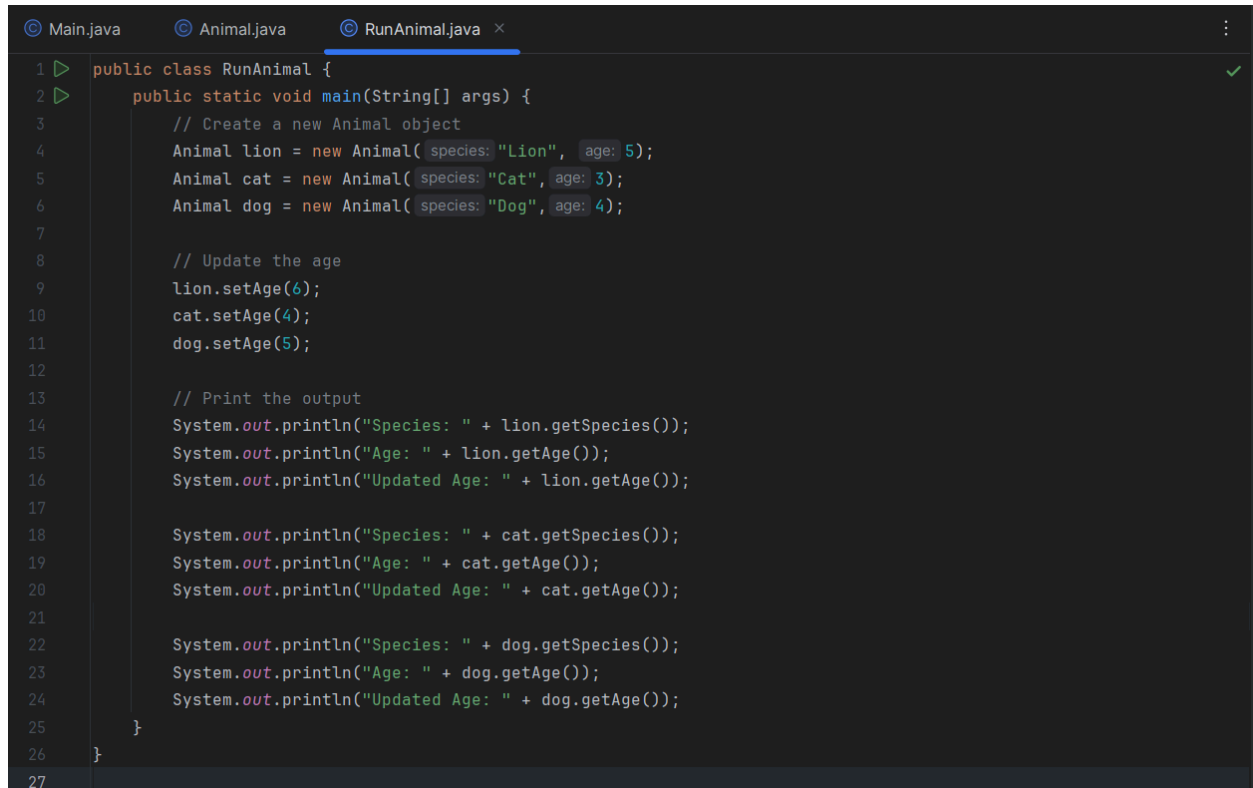   d. O(n^2) - Quick sort
   e. O(n^2) - Bubble sort

B. Programming
   a. Animal class

```java
public class Animal {
    // The species of the animal (e.g. "dog", "cat", "lion")
    3 usages
    private String species;
    // The age of the animal in years
    3 usages
    private int age;
    // Constructor for the Animal class. Initializes the species and age of the animal
    1 usage
    public Animal(String species, int age) {
        this.species = species;
        this.age = age;
    }
    // Getter method for the species attribute
    1 usage
    public String getSpecies() {
        return species;
    }
    // Setter method for the species attribute
    no usages
    public void setSpecies(String species) {
        this.species = species;
    }
    // Getter method for the age attribute
    2 usages
    public int getAge() {
        return age;
    }
    // Setter method for the age attribute
    1 usage
    public void setAge(int age) {
        this.age = age;
    }
}
```

b. RunAnimal class

```java
public class RunAnimal {
    public static void main(String[] args) {
        // Create a new Animal object
        Animal lion = new Animal( species: "Lion",  age: 5);
        Animal cat = new Animal( species: "Cat", age: 3);
        Animal dog = new Animal( species: "Dog", age: 4);

        // Update the age
        lion.setAge(6);
        cat.setAge(4);
        dog.setAge(5);

        // Print the output
        System.out.println("Species: " + lion.getSpecies());
        System.out.println("Age: " + lion.getAge());
        System.out.println("Updated Age: " + lion.getAge());

        System.out.println("Species: " + cat.getSpecies());
        System.out.println("Age: " + cat.getAge());
        System.out.println("Updated Age: " + cat.getAge());

        System.out.println("Species: " + dog.getSpecies());
        System.out.println("Age: " + dog.getAge());
        System.out.println("Updated Age: " + dog.getAge());
    }
}
```