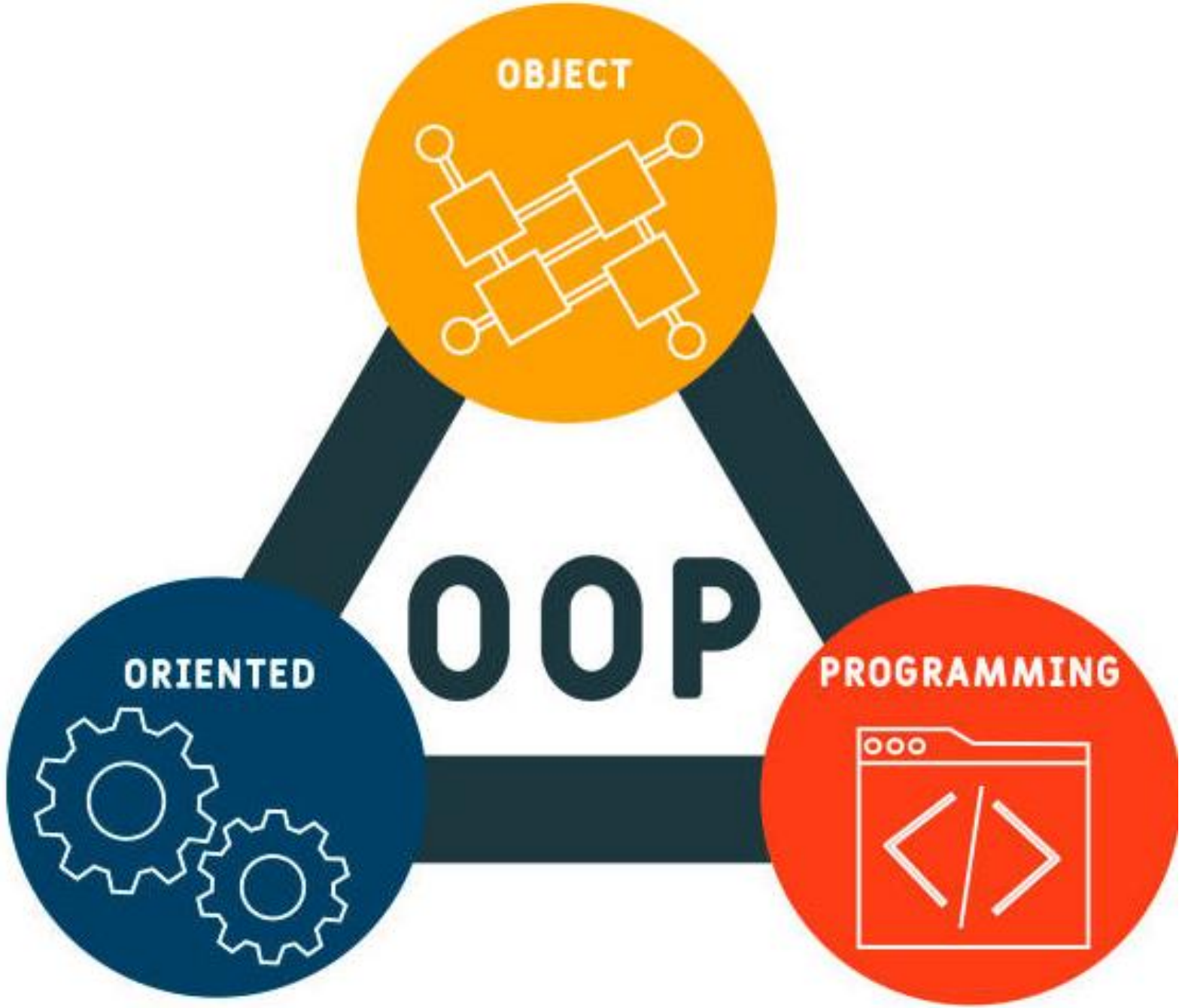

OBJECT
OOP
ORIENTED
PROGRAMMING

OOPS

Object Oriented Programming Structure

IN THE NAME OF ALLAH

بسم الله الرحمن الرحيم

THE GRACIOUS, THE MERCIFUL.

GETS - GETTING EDUCATION WITH TECHNOLOGICAL SYSTEM

Instructor: Sir A.Rehman Ali Brohi

LECTURE: 1
Object Oriented Programming Structure

WE WILL COVER:

1. **OOPS**
2. **Class**
3. **Methods**
4. **Objects**
    - **> Definition**
    - **> Different Ways of Creating an Object**
    - **> Create Programs Class+Methods+objects**
5. **Assaignment**

Object Oriented Programming System/Structure

What is OOP?

= OOP is a Programming Paradigm/Methodology

The way of work/Style
e.g everyone want to earn money
1. Through business
2. Through doing job
3. Though freelancing etc

Types of Programming Paradigm

1.Object Oriented Paradigm
2.Procedural Paradigm
3.Functional Paradigm
4.Logical Paradigm
5.Structural Paradigm

What is OOPS Main Concept?

The 6 Main Pillars of OOPS Are:

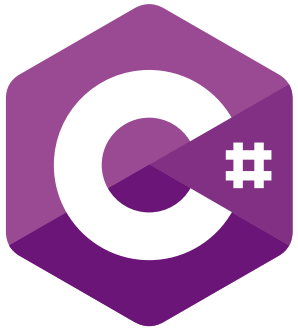
1. Class
2. Objects and Methods
3. Inheritance
4. Polymorphism
5. Abstraction
6. Encapsulation

Question for interview

Which Programming Language is totally/purely Object Oriented Programming?

SmallTalk was first purely object oriented Programming language

After Others

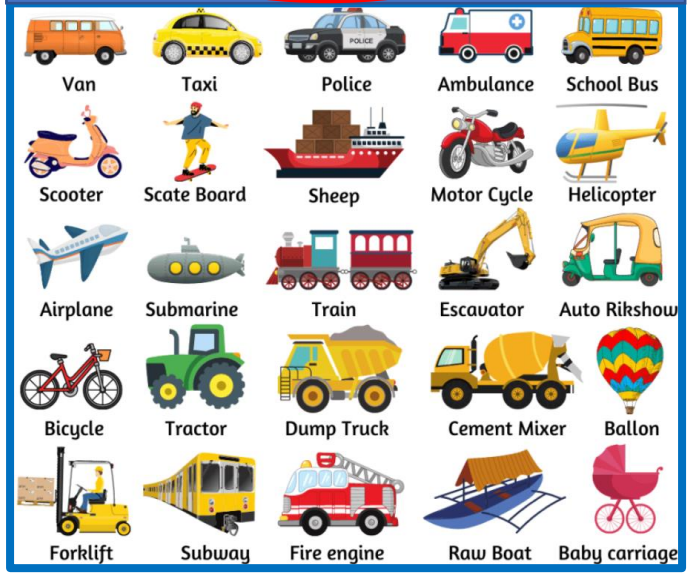


About Class:

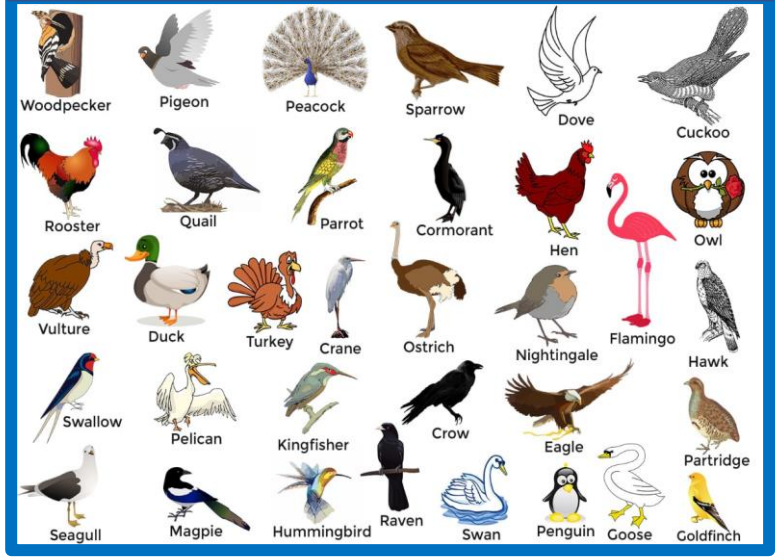
Class Name e.g: Animals+Vehicles+Birds

Animals

Vehicles



Birds

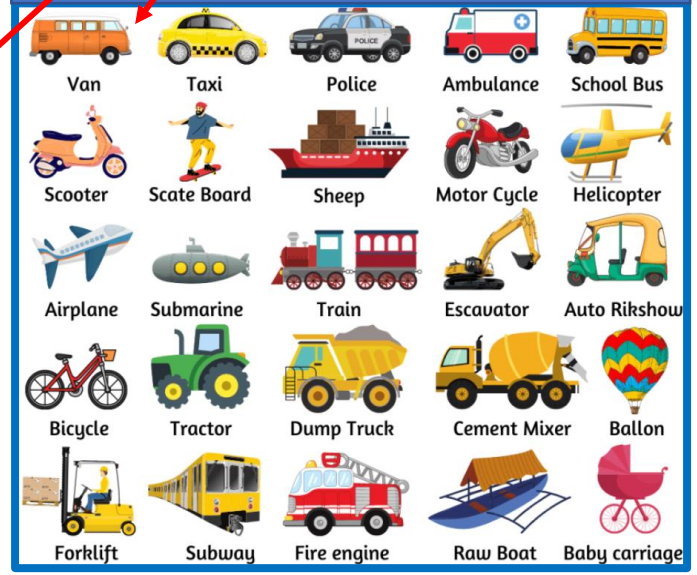


About Object:

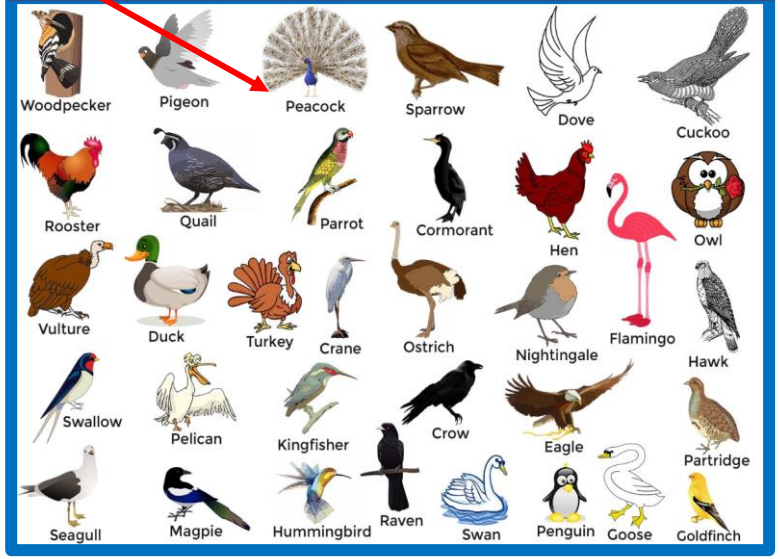
Object Name e.g Cat+Dog+Car+Peacock etc

Animals

Vehicles



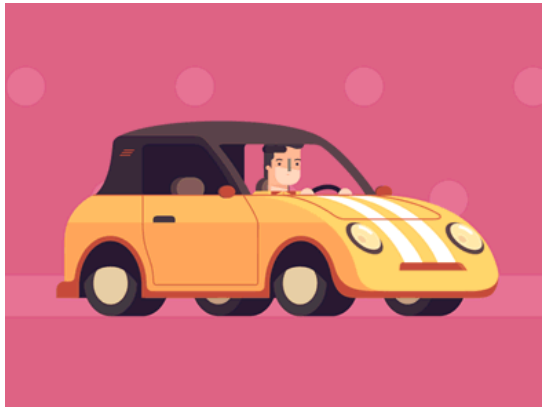
Birds



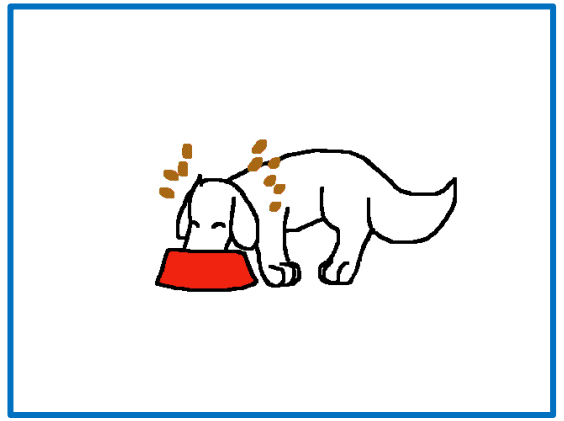
About Method:

Methods e.g: Run(), Eat, Drink(), etc

running

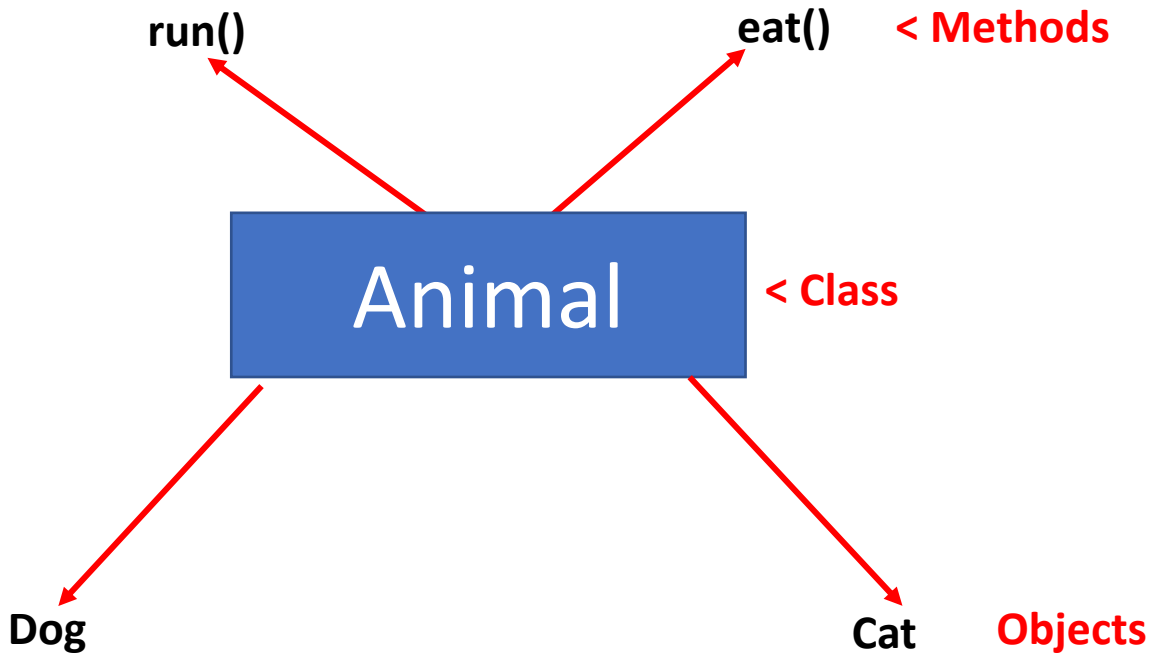


Driving



Eating

Understand About Class/Object/Method



What is Class?

1. Class is the collection of Objects
2. Class is not a real world entity it is just a template or blueprint/prototype
3. Class does not occupy memory

Syntex:-

AccessModifier ClassName {

- Methods
- Constructors
- Fields
- Blocks
- Nested Class

}

NOTE:
if you did not give accessmodifier in class then it will be **default** accessmodifier

What is Method?

1. A set of codes which perform a particular task

Advantages of Methods:

A) Code Reusability
B) Code Optimization

Syntex:-

```
accessModifier returntype methodName (list of parameters){

}
```

What is Object?

1. Object is an instance of Class.
2. Object is real world entity.
3. Object occupies memory.

Dog

Identity	State/Attribute	Behaviours
Name of Dog	Bread, Age, Colour	Eat, Run, Bark

Object Consist of:

A) Identity (Name).
B) State/Attribute (Color, Bread, Age).
C) Behaviour (Eat, Run, Bark) Behaviour represent the Method.

How to create an Object?

1. **New Keyword** 2. newIntance() Method 3. clone Method
2. 4. deserialization 5. factory Method

How to create an Object using new Keyword?

1. Declaration

Animal tony;

2. Instantiation

tony=new Animal();

Construction

3. Initialization

Syntax for creating an object **Animal tony = new Animal();**

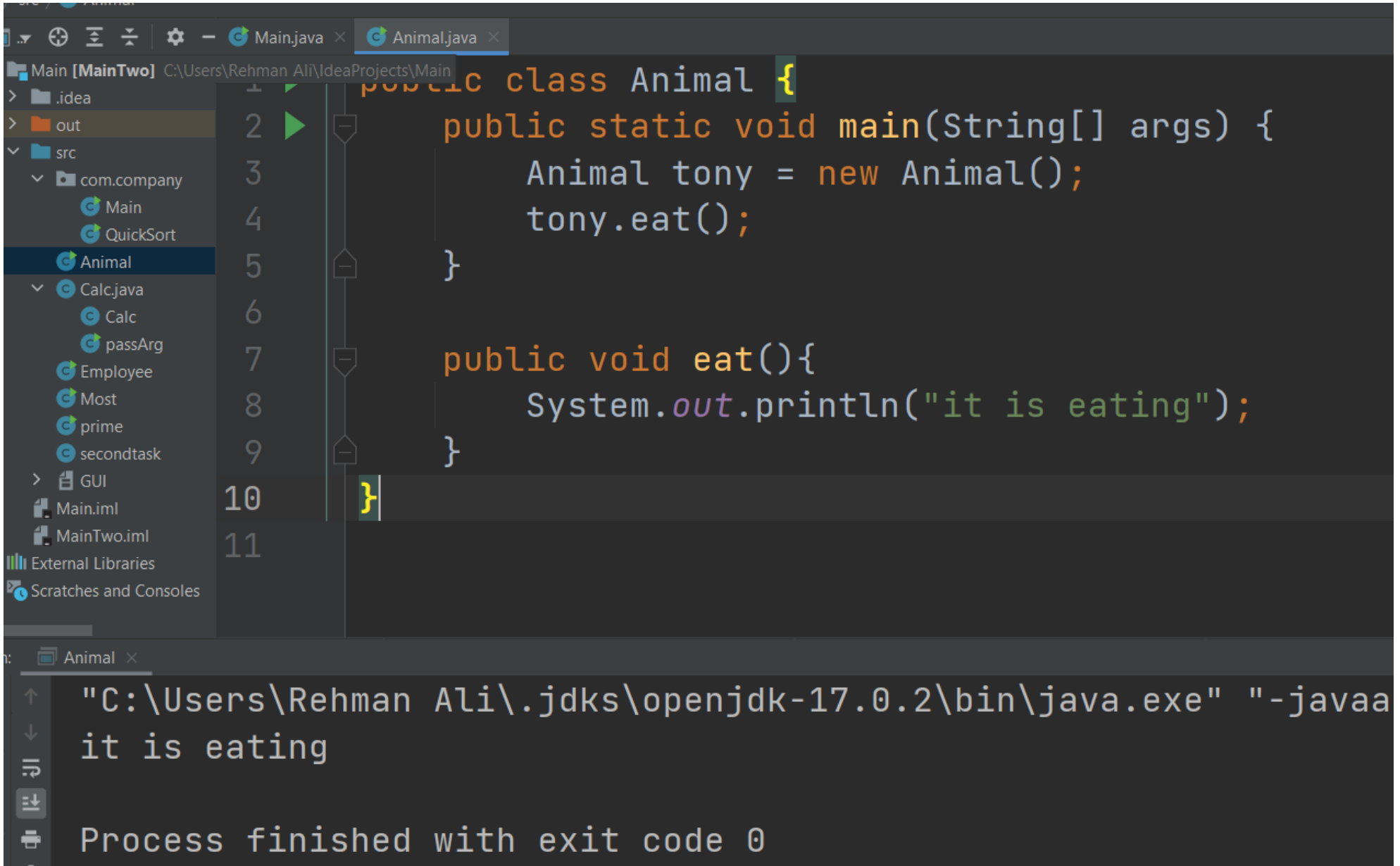
How to call method using its object?

By Using dot(.) Operator

Dot operator is used to call object methods

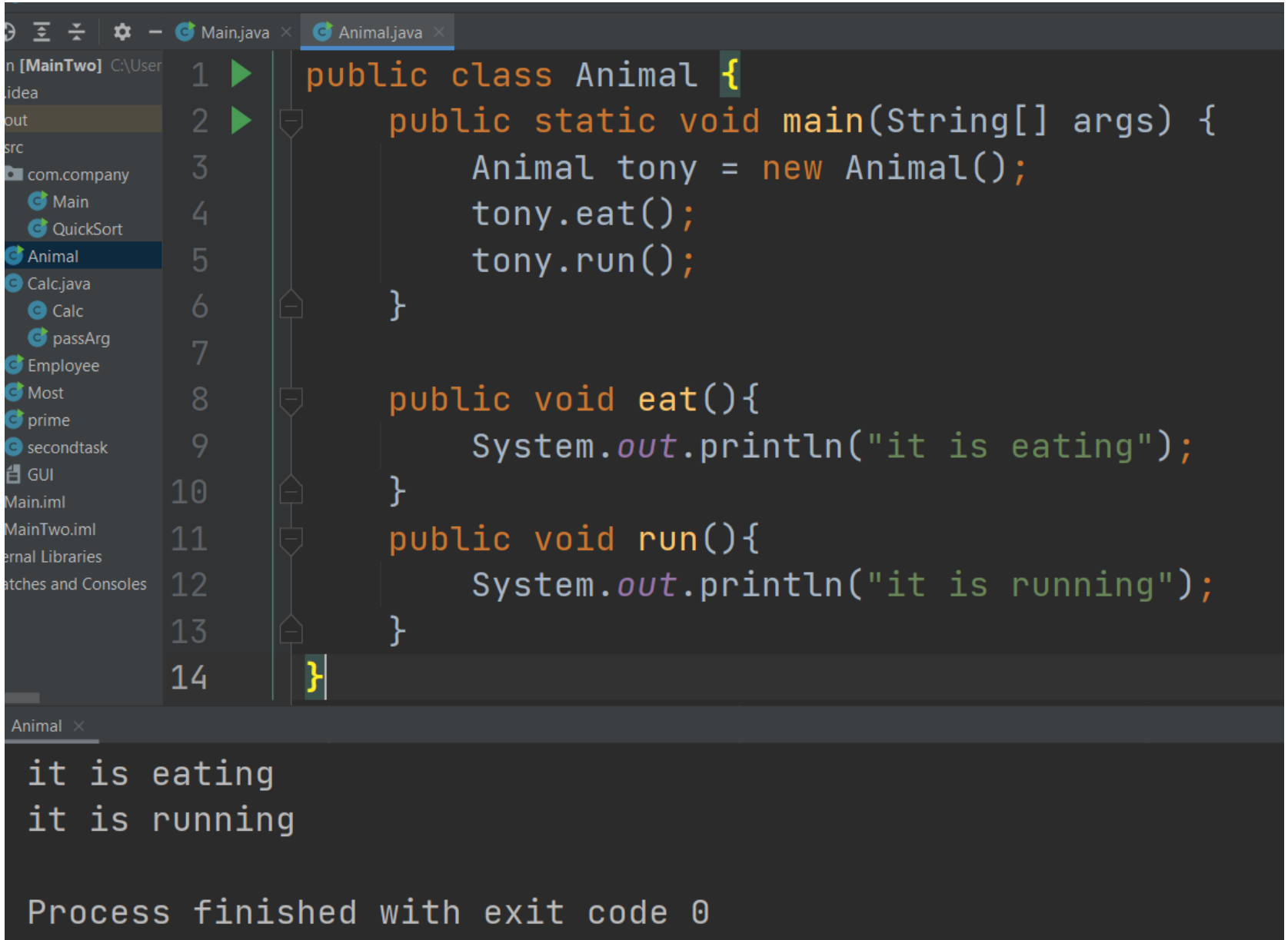
```
tony.run();
```

Simple Program for creating an object with class and methods



After reading the above slide create new method and call it from main method

Create another method in same class and call it

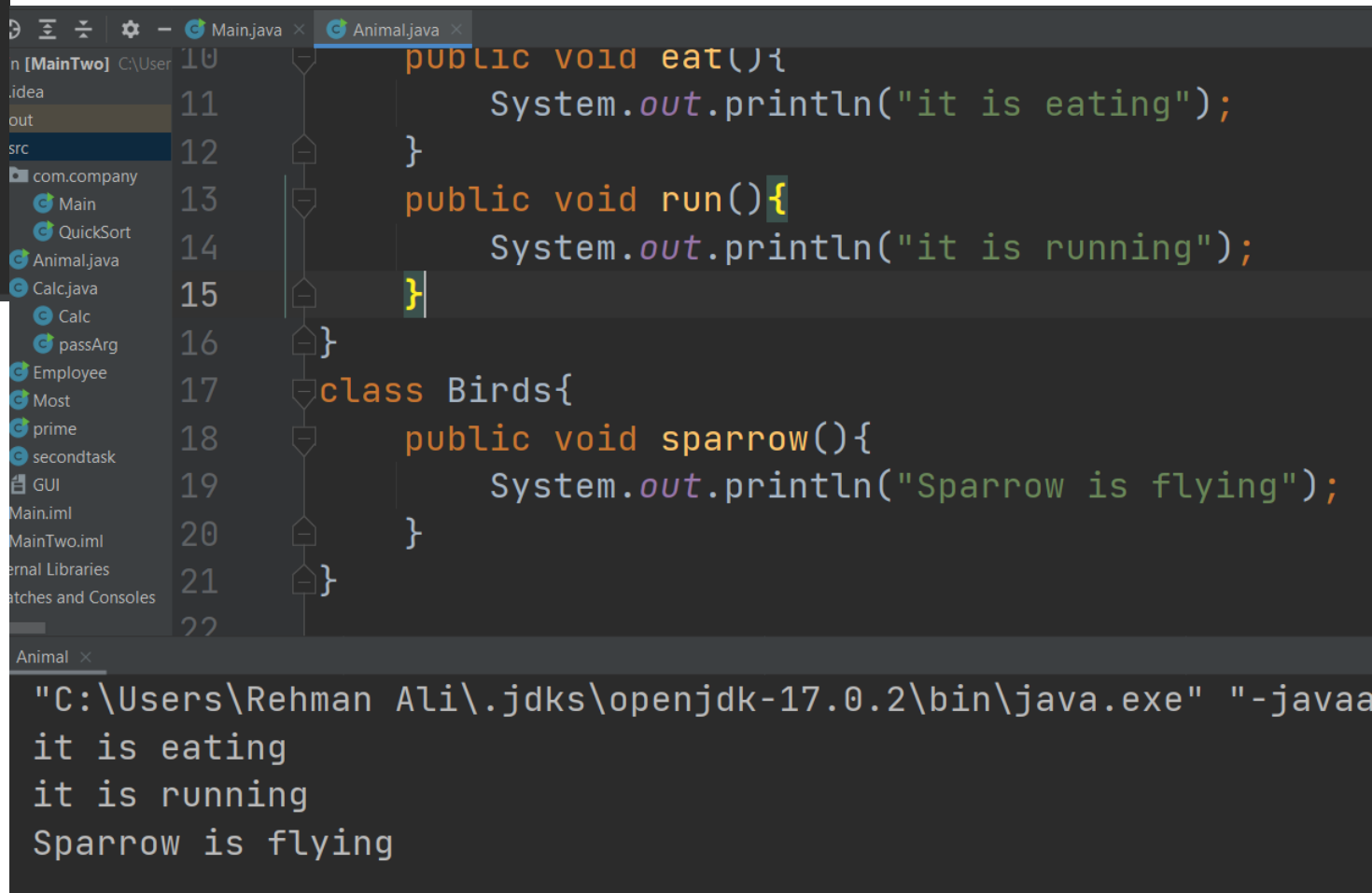


Now Create an other Class with methods and call it form main Method

Animal.java

```java
public class Animal {
    public static void main(String[] args) {
        Animal tony = new Animal();
        tony.eat();
        tony.run();
        Birds birdclass = new Birds();
        birdclass.sparrow();
    }

    public void eat(){
        System.out.println("it is eating");
    }
    public void run(){
        System.out.println("it is running");
    }
```



Do some experiment:

> What if we will write some methods above in main method

Assaignment:
Create Program Name **MiniPrograms**

Create all programs in methods what ever we had study in core class like:

Create Class Name "**SelectionStatement**"

1. DaysCounter = if 500 (years, months, weeks, remaining days)
2. ATMCounter in Ruppees (5000, 1000, 500, etc)
3. Salary
4. Convertor Program (a) Feet to Inch (b) Inch to Feet (c) Kilo To Gram (d) Gram to kilo (e) Days to month
5. TrollyLoad
6. Marksheet
7. Nested if matching the condition
8. Swiping Values
9. number is even or Odd
10. number is Negative or Positive
11. which number is greater using 3 numbers
12. Calculator
13. ATM Machine (Withdraw, deposit, balance check, Exit, try Again)
14. Electricity Bill ((1 to 100 *3) then (101 to 200 *8) then (201 to 300 *12))
15. Season Program

Create Class name “**Loops**”

16. Print 2 table list like(2x1=2 2x2=4 2x3=6 etc)

17. Print Nested Words like

Rehman
Rehman Rehman
Rehman Rehman Rehman

18. Print Nested Char like

R
Re
Reh
Rehm
Rehma
Rehman

19. Create Class Name “**StarPattern**”

A=star B=star C=star etc.

20. Create Class name “**NumberPattern**”

A=NumPattern B=NumPattern etc.

21. Create Class name “**LogicalPrograms**”

A= FizzBuzz Program, B=Fabonic Series C=Factorial Series d=A to Z character Series