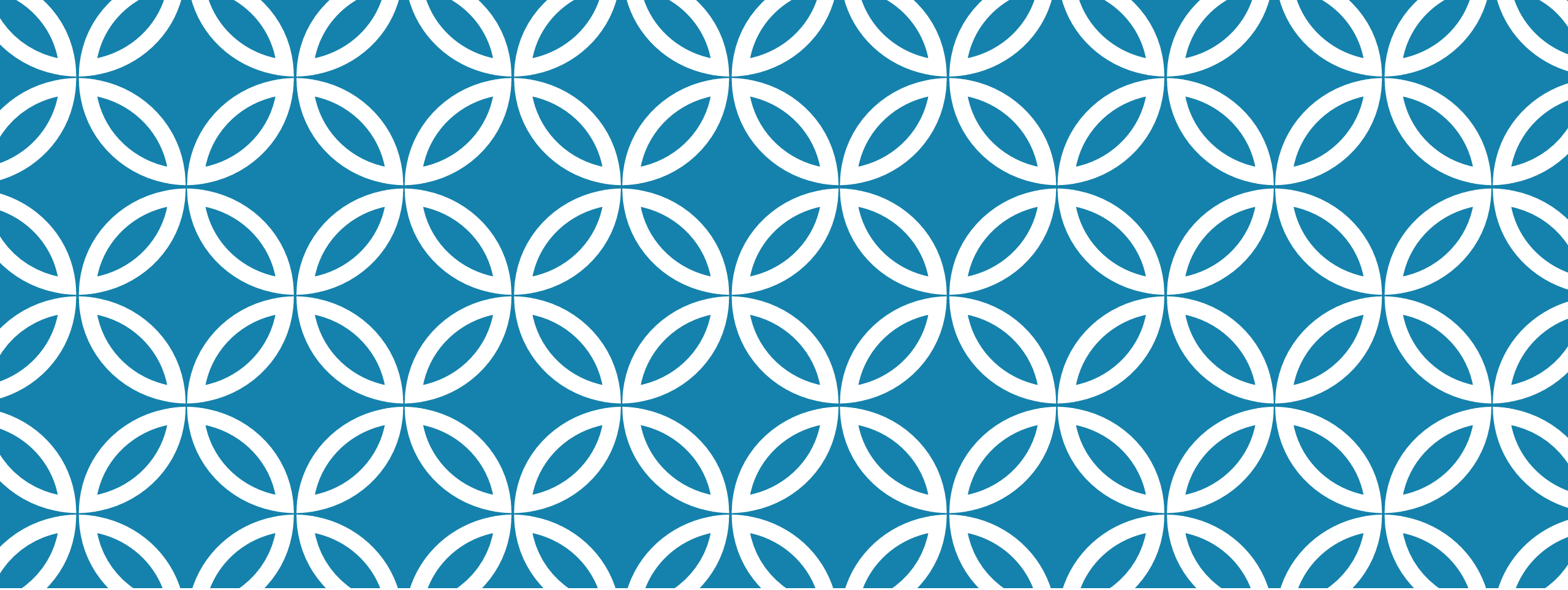

OBJECT ORIENTED PROGRAMMING

OBJECT-ORIENTED PROGRAMMING

Object means a real word entity such as pen, chair, table etc.

Object-Oriented Programming is a methodology or paradigm to design a program using classes and objects.

It simplifies the software development and maintenance by providing some concepts:

- Object
- Class
- Inheritance
- Polymorphism
- Abstraction
- Encapsulation

OBJECT

Any entity that has state and behavior is known as an object. For example:

chair, pen, table, keyboard, bike etc.

CLASS

Collection of objects is called class.

INHERITANCE

When one object acquires all the properties and behaviors of parent object

i.e. known as inheritance. It provides code reusability. It is used to achieve

runtime polymorphism

POLYMORPHISM

When one task is performed by different ways i.e. known as polymorphism

An example can be to speak something e.g. cat speaks meows, dog barks woof etc, this can be inherited from the sound class. Achieved by Method Overriding and overloading

ABSTRACTION

Hiding internal details and showing functionality is known as abstraction.

For example: phone call, we don't know the internal processing.

In java, we use abstract class and interface to achieve abstraction

ENCAPSULATION

Binding (or wrapping) code and data together into a single unit is known as encapsulation. For example: capsule, it is wrapped with different medicines.

A java class is the example of encapsulation. Java bean is the fully encapsulated class because all the data members are private here

DATA TYPES IN JAVA

Boolean

Char

Int

Float

double

VARIABLES AND DATA TYPES IN JAVA

Variable is a name of memory location.

There are three types of variables in java:

- local
- instance
- static

1)Local Variable

A variable which is declared inside the method is called local variable.

2)Instance Variable

A variable which is declared inside the class but outside the method, is called instance variable . It is not declared as static.

3)Static variable

A variable that is declared as static is called static variable. It cannot be local.

EXAMPLE TO UNDERSTAND THE TYPES OF VARIABLES IN JAVA

```
class A {
int data=50; //instance variable
static int m=100;//static variable
void method(){
int n=90;//local variable
}
}//end of class
```

OPERATORS

Arithmetic operators are used in mathematical expressions in the same way that they are used in algebra.

Operators are either

Arithmetic

Bitwise

Assignment

Relational

Conditional

ACCESS MODIFIERS

They specify the scope of a variable or class or method

Access Modifier	within class	within package	outside package by subclass only	outside package
Private	Y	N	N	N
Default	Y	Y	N	N
Protected	Y	Y	Y	N
Public	Y	Y	Y	Y

CONSTANTS IN JAVA

A constant is a variable which cannot have its value changed after declaration.

It uses the 'final' keyword.

Syntax

modifier final dataType variableName = value; //global constant

modifier static final dataType variableName = value; //constant within a c