Object Oriented programming in Java:

Object Oriented programming is a programming style which is associated with the concepts like class, object, Inheritance, Encapsulation, Abstraction, Polymorphism.

Class: A class is a collection of method and variables.
We can define a class using the class keyword and the class body enclosed by a pair of curly braces, as shown in the following example:

```
public class A
{

}
```

Inheritance: Inheritance feature allows code reusability when a class includes property of another class. In Java “extends” is used to represent inheritance, as shown in the following example:

```
public class Papa {

}

class Child extends Papa {

}
```

Objects: Object is a component of a program that knows how to perform certain actions and how to interact with other elements of the program, as shown in the following example:

```
Rectangle Rect = new Rectangle();
```

Here, Rectangle is a class, Rect is an object of class Rectangle, new is a keyword, Rectangle() is a constructor of class Rectangle.
Abstraction: Abstraction can be achieved using abstract classes in Java. Abstract classes contain abstract methods, which are implemented by the derived class.
Encapsulation: Encapsulation means bundling of data and methods within one unit, e.g., a class in Java. Encapsulation enables a programmer to implement the desired level of abstraction.
Polymorphism: Polymorphism means overloading and overriding, as shown in the following example:

Polymorphism overloading example:

```
 public class OverLoading
 {
   public void sum(int a, int b)
   {
```

```
    System.out.println(a + b);
  }
  public void sum(int a, int b, int c)
  {
    System.out.println(a + b + c );
  }
}
```

Polymorphism overriding example:

```
public class Parent
{
  public virtual void Show()
  {
    System.out.println("Welcome");
  }
}

public class Child extends Parent
{
  public override void Show()
  {
    System.out.println("Swagatam");
  }
}
```

References:

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4. E Horowitz, "Programming Languages", 2nd Edition, Addison Wesley

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