Universitas Amikom Yogyakarta

PEMROGRAMAN

Polymorphism

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http://coding4ever.net/

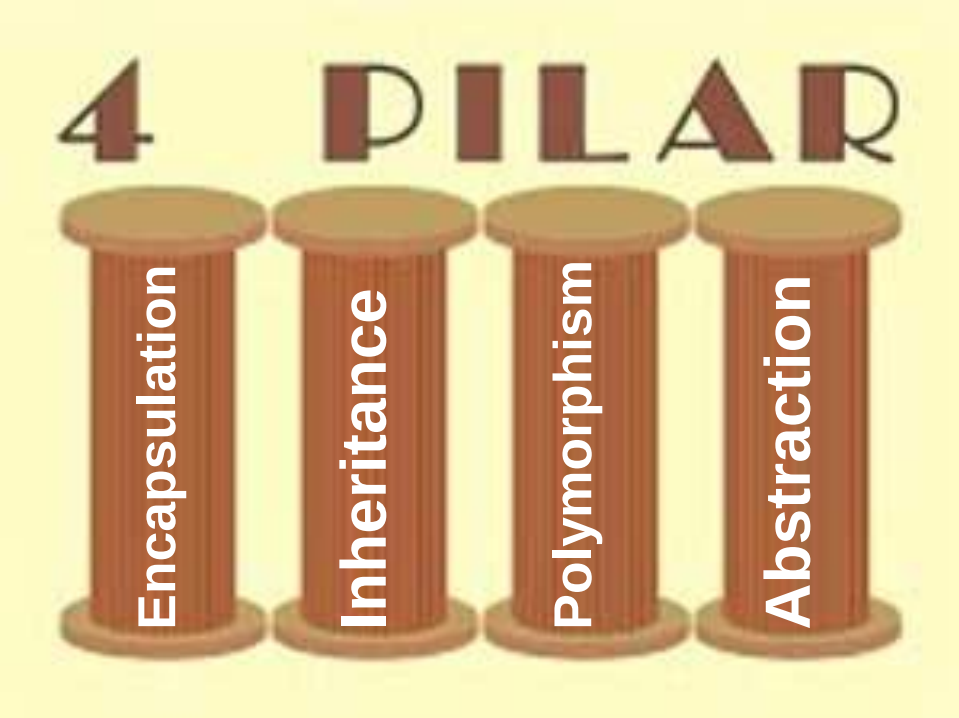
https://github.com/rudi-krsoftware/open-retail

Materi

- Definisi Polymorphism
- Implementasi Virtual Method
- Override (menimpa) Virtual Method
- Implementasi Polymorphism di program

Konsep OOP

OOP



Polymorphism

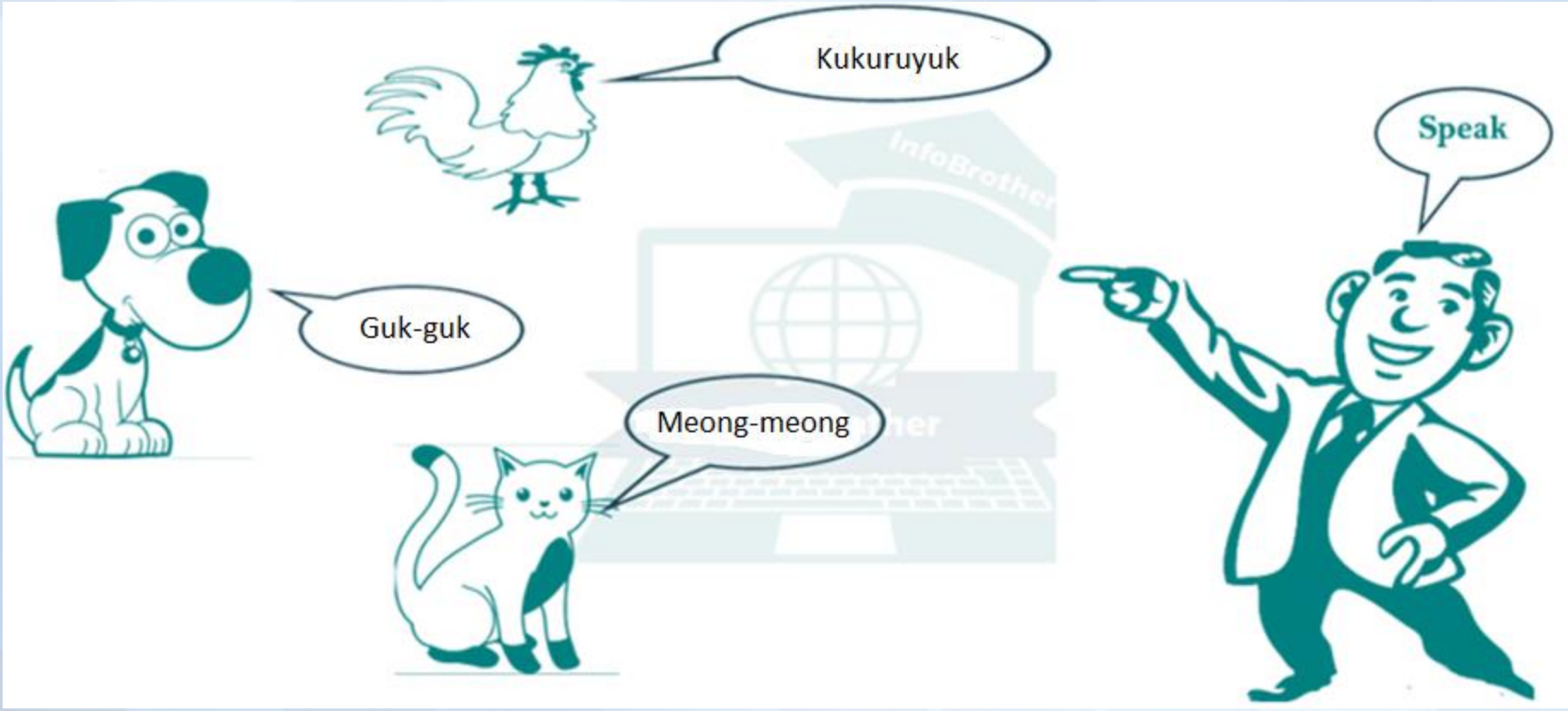
- Poly = banyak
- Morph = bentuk

Jadi Polymorphism adalah kemampuan sebuah objek untuk mengimplementasikan sesuatu hal yang berbeda dengan cara sama.

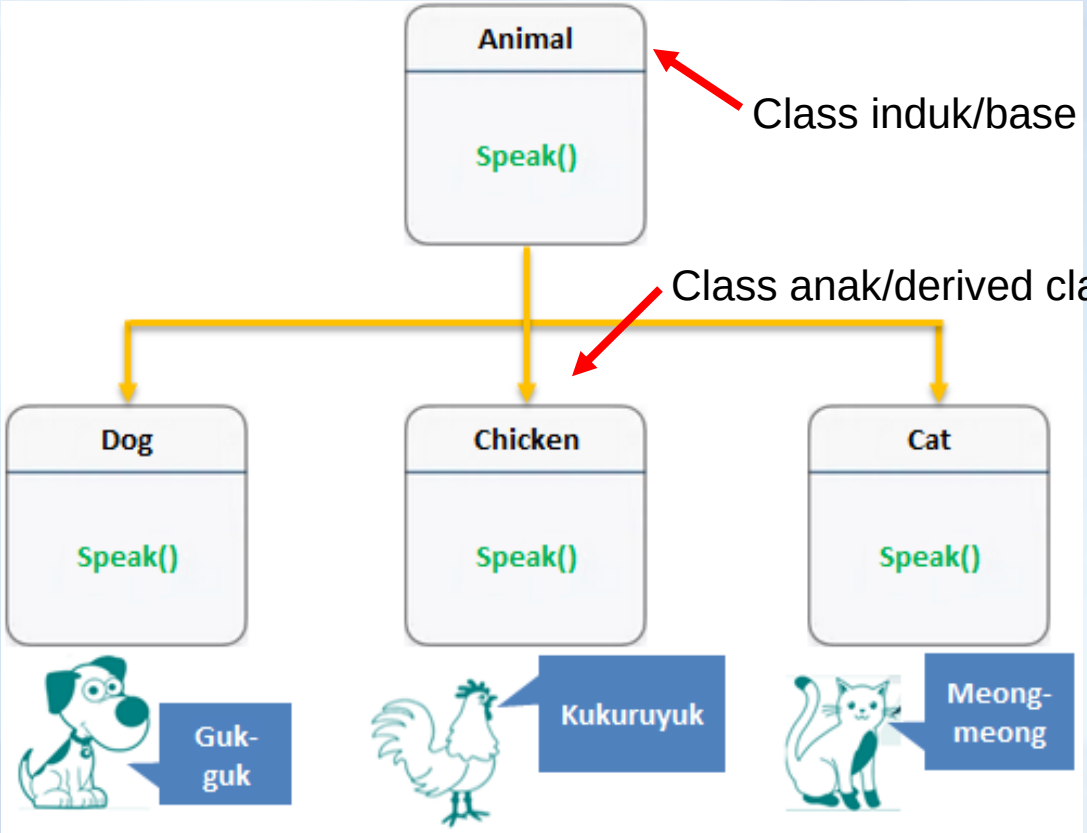
Polymorphism juga dapat dikatakan kemampuan sebuah objek untuk memutuskan method mana yang akan diterapkan padanya.

Polymorphism memungkinkan sebuah objek dari base class (induk) memanggil method dari derived class (turunan).

Ilustrasi Polymorphism



Polymorphism (Lanjutan)



- Dog is a Animal, Chicken is a Animal, and Cat is a Animal.
- Dengan Polymorphism kita dapat memperlakukan Dog, Chicken dan Cat secara ‘general’ sebagai Animal.

Polymorphism (Lanjutan)

```
public class Animal
{
    // properties
    public string Name { get; set; }

    // method
    public void Speak()
    {
        Console.WriteLine("The animal speaks");
    }
}

public class Dog : Animal
{

}

public class Cat : Animal
{

}
```

```
Animal animal = new Animal();
animal.Name = "Animal";
animal.Speak();

Dog dog = new Dog();
dog.Name = "Spike";
dog.Speak();

Cat cat = new Cat();
cat.Name = "Tom";
cat.Speak();
```

Demo Polymorphism

```
The animal speaks
The animal speaks
The animal speaks
```

Virtual dan Override

- Keyword “virtual” digunakan untuk memberi tanda bahwa method pada base class bisa di override pada sub class-nya
- Method pada sub class yang mengoverride menggunakan keyword ‘override’

Virtual dan Override (Lanjutan)

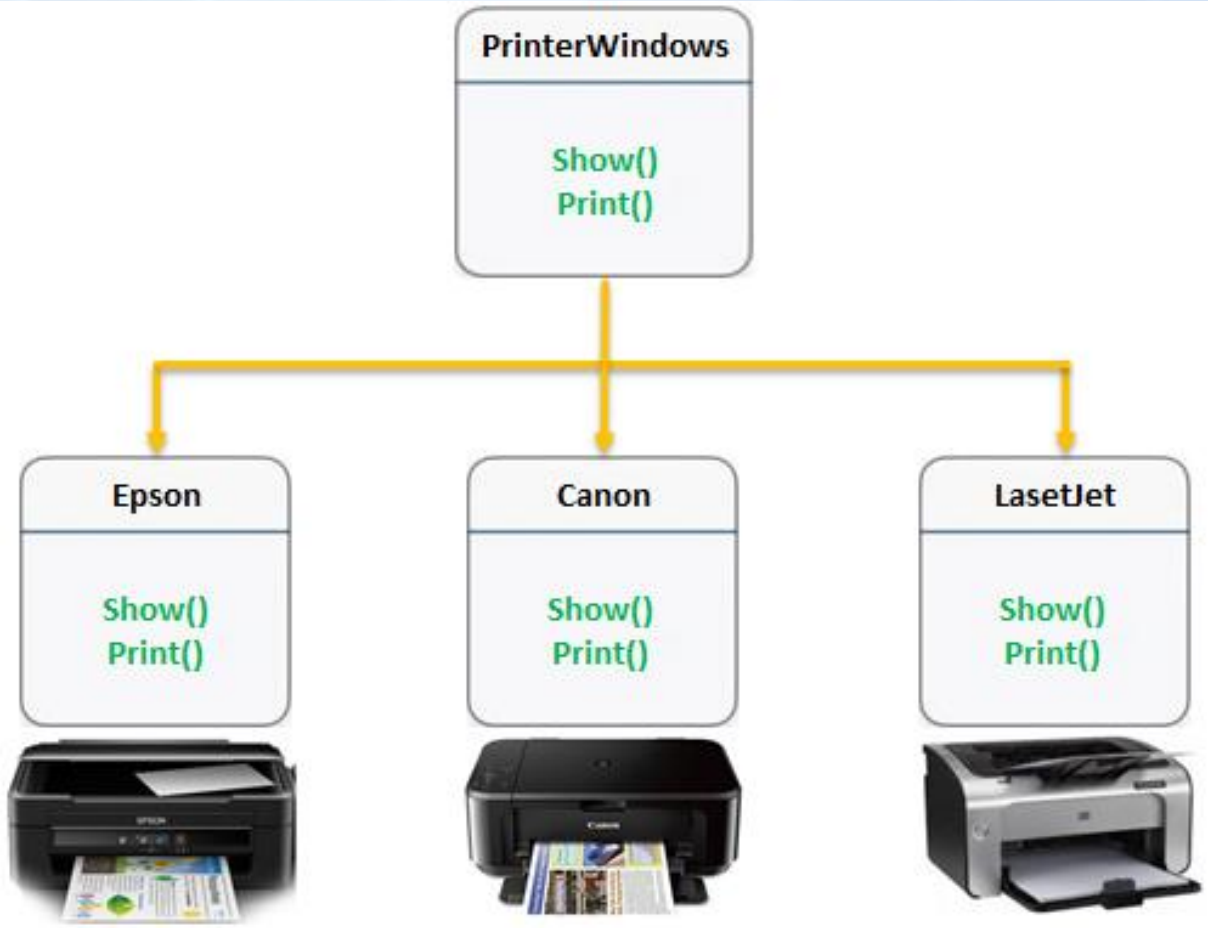
```
public class Animal
{
    // properties
    public string Name { get; set; }

    // method
    public virtual void Speak()
    {
        Console.WriteLine("The animal speaks");
    }
}

public class Dog : Animal
{
    public override void Speak()
    {
        Console.WriteLine("Dog says: Guk-guk");
    }
}

public class Cat : Animal
{
    public override void Speak()
    {
        Console.WriteLine("Cat says: Meong-meong");
    }
}
```

```
Animal animal = new Animal();
animal.Name = "Animal";
animal.Speak();

Dog dog = new Dog();
dog.Name = "Spike";
dog.Speak();

Cat cat = new Cat();
cat.Name = "Tom";
cat.Speak();
```

Polymorphism

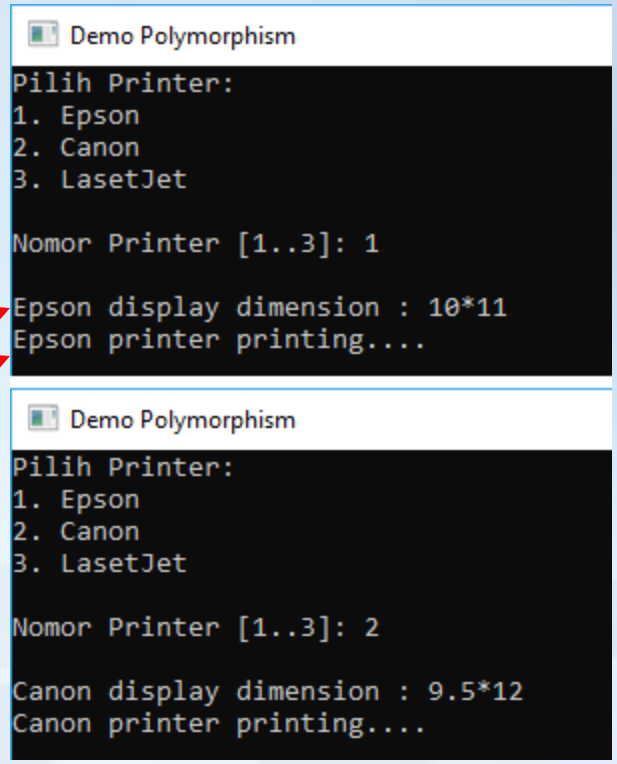
```
animal = dog;
animal.Speak();

animal = cat;
animal.Speak();
```

Contoh Penerapan Polymorphism



Contoh Penerapan Polymorphism

```
1   static void Main(string[] args)
2   {
3       PrinterWindows printer;
4
5       Console.WriteLine("Pilih Printer:");
6       Console.WriteLine("1. Epson");
7       Console.WriteLine("2. Canon");
8       Console.WriteLine("3. LasetJet\n");
9
10      Console.Write("Nomor Printer [1..3]: ");
11      int nomorPrinter = Convert.ToInt32(Console.ReadLine());
12
13      if (nomorPrinter == 1)
14          printer = new Epson();
15      else if (nomorPrinter == 2)
16          printer = new Canon();
17      else
18          printer = new LaserJet();
19
20      printer.Show();
21      printer.Print();
22
23      Console.ReadKey();
24  }
```



Latihan ☺