POLYMORPHISM

When one task is performed in different ways

Polymorphism is a Greek word that means "many-shaped". Generally, polymorphism refers to the ability to appear in many forms.

Example shows the speech functionality which depends on the different animal. Here sound is not same; it changes according to the variety of animal.

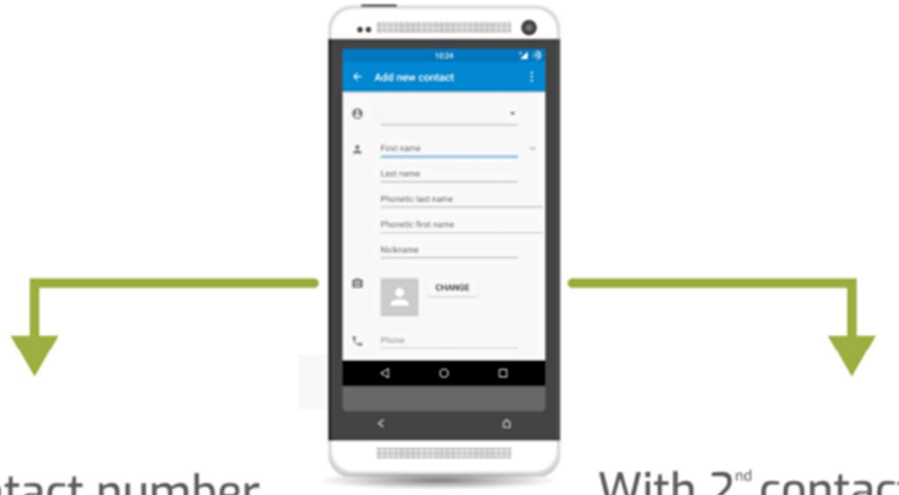
Advantages of Polymorphism

1. Simplicity
2. Extensibility

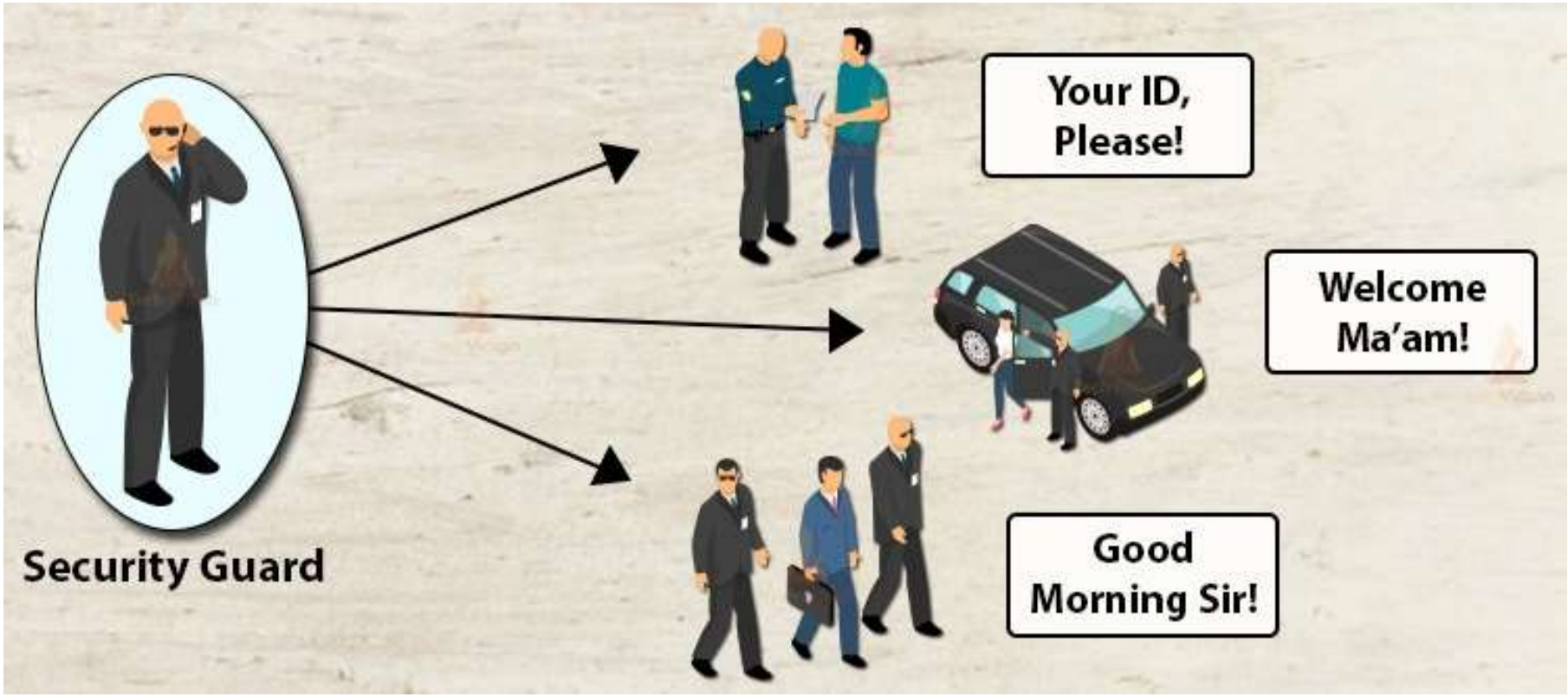
- **It refers to the ability of an object (or a reference to an object) to take different forms of objects.**
- **It allows a common data-gathering message to be sent to each class.**
- **Polymorphism encourages 'extendibility' which means an object or a class can have its uses extended.**

Man is only one, but he takes multiple roles

Save a new Contact

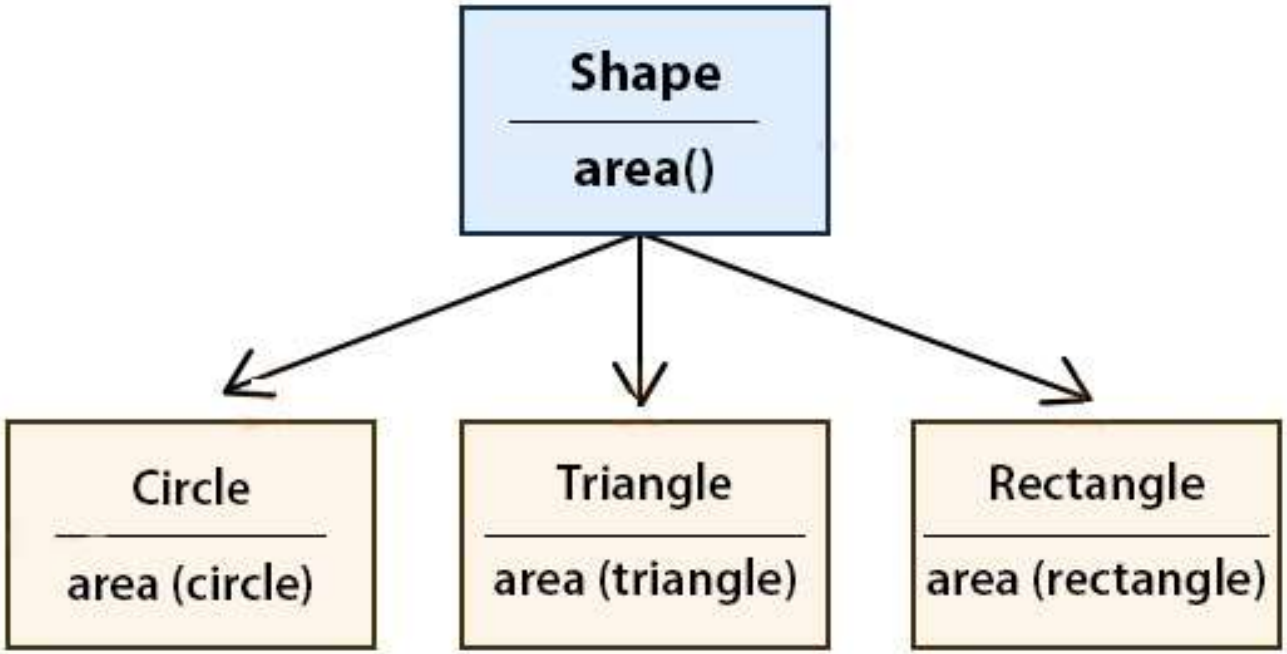


Suppose a person has two contact numbers. For the ease of accessibility, your cell phone provides you the functionality where you can save two numbers under the same name.



A security guard outside an organization behaves differently with different people entering the organization.

Example of Polymorphism in Java



Two types of Polymorphism

1. Static/Compile-Time Polymorphism
2. Dynamic/ Run-Time Polymorphism

Static Polymorphism

The compiler resolves the polymorphism during the compilation of the program. Also, called static binding.

In Java, it can be achieved with the help of Method Overloading.

Dynamic Polymorphism

Resolves dynamically at the runtime rather than compile-time is called. Also, call it as dynamic binding or Dynamic Method Dispatch.

Achieve dynamic polymorphism in Java with the help of Method Overriding.

Summary of Polymorphism

- **Polymorphism is one of the most essential features of Object-Oriented Programming.**

- **The two types of polymorphism – static or compile-time (method overloading) and dynamic or runtime (method overriding) polymorphism. Both differ with each other in the manner of method binding and method invocation.**

NEXT LECTURE: JVM & Virtual Machine