

Polymorphism

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<http://spoken-tutorial.org>

National Mission on Education through ICT

<http://sakshat.ac.in>

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Learning Objectives



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Learning Objectives

We will learn

- **What is Polymorphism in Java?**



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Learning Objectives

We will learn

- What is **Polymorphism** in Java?
- **Run-time polymorphism**



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Learning Objectives

We will learn

- What is **Polymorphism** in Java?
- Run-time polymorphism
- **Virtual Method Invocation**



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Learning Objectives

We will learn

- What is **Polymorphism** in Java?
- Run-time polymorphism
- Virtual Method Invocation
- **Compile-time polymorphism**



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Software Requirements



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Software Requirements

- **Ubuntu 12.04**



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Software Requirements

- Ubuntu 12.04
- **JDK 1.7**



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Software Requirements

- Ubuntu 12.04
- JDK 1.7
- Eclipse 4.3.1



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Prerequisite



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Prerequisite

- **Basic knowledge of Java and Eclipse IDE**



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Prerequisite

- **Basic knowledge of Java and Eclipse IDE**
- **Knowledge of Subclassing and Method overriding & overloading**



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Prerequisite

- Basic knowledge of Java and Eclipse IDE
- Knowledge of **Subclassing** and **Method overriding & overloading**
- **For relevant tutorials, please visit our website**

<http://www.spoken-tutorial.org>



What is Polymorphism?



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What is Polymorphism?

- **Polymorphism** is an ability of an object to take on many forms



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Advantages of Polymorphism



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Advantages of Polymorphism

- **Reduction of complexity**



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Advantages of Polymorphism

- Reduction of complexity
- **Code re-usability**



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Types of Polymorphism



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Types of Polymorphism

- **Compile-time or Method Overloading or Static Binding**



Types of Polymorphism

- **Compile-time or Method Overloading or Static Binding**
- **Run-time polymorphism or Method Overriding or Dynamic Binding**



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Run-time Polymorphism



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Run-time Polymorphism

- **Method invocation is determined by the JVM, not compiler**



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Run-time Polymorphism

- Method invocation is determined by the JVM, not compiler
- It is known as Run-time polymorphism or method overriding



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IS-A Test



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IS-A Test

- All objects are polymorphic



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IS-A Test

- All objects are polymorphic
- A Manager IS-A Employee
A Manager IS-A Manager
A Manager IS-A Object



Compile-time Polymorphism



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Compile-time Polymorphism

- **Class can have more than one method**



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Compile-time Polymorphism

- **Class can have more than one method**
- **The methods have same name but with different number of arguments**



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Compile-time Polymorphism

- Class can have more than one method
- The methods have same name but with different number of arguments
- **Compiler is able to figure out the method call at compile-time**



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Summary

- What is **Polymorphism** in Java?
- Run-time polymorphism
- Virtual Method Invocation
- Compile-time polymorphism



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Assignment

- Override methods for **Vehicle** and **Bike** class



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About the Spoken Tutorial Project

- Watch the video available at http://spoken-tutorial.org/What_is_a_Spoken_Tutorial
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Spoken Tutorial Workshops

The Spoken Tutorial Project Team

- Conducts workshops using spoken tutorials
- Gives certificates to those who pass an online test
- For more details, please write to contact@spoken-tutorial.org



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- More information on this Mission is available at <http://spoken-tutorial.org/NMEICT-Intro>

