

CS8382

Object Oriented Programming

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Course Overview

Unit 1	INTRODUCTION TO OOP AND JAVA FUNDAMENTALS
Unit 2	INHERITANCE AND INTERFACES
Unit 3	EXCEPTION HANDLING AND I/O
Unit 4	MULTITHREADING AND GENERIC PROGRAMMING
Unit 5	EVENT DRIVEN PROGRAMMING

What you need?

- ♦ A computer with java installed.
- ♦ A decent internet connection for your reference.
- ♦ Text editor of your choice.
- ♦ IDE eclipse preferred.
- ♦ A book that help's you when you are in offline.

Object Oriented Programming

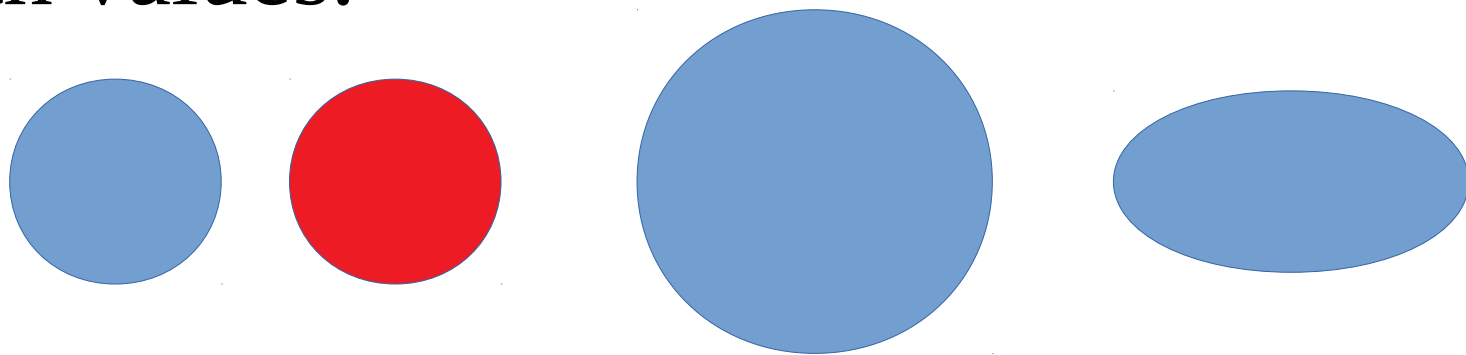
- ♦ It is a software design methodology.
- ♦ It is a software programming model that constructed based on objects.
- ♦ It aims to implement real world entities in programming.

OOP Languages

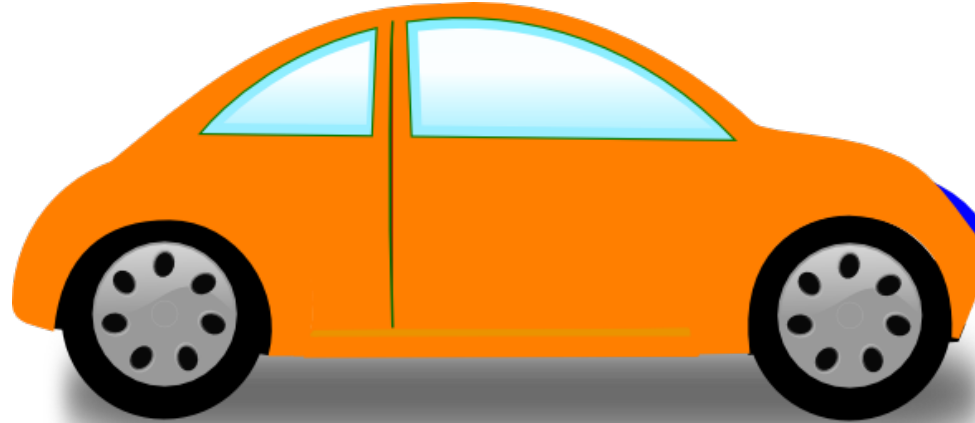
- ♦ The programming languages that follows the oops principles is known as object oriented programming languages.
- ♦ Keep in mind every programming language is created for a purpose.
- ♦ Java is on of the general purpose object oriented programming language.
- ♦ Languages that follows oops principles other than java.
 - ♦ Simula, C++, Python ... etc

OBJECT

- ♦ Object is specific instance of a class.
- ♦ It is often referred as a “Real world Entity”.
- ♦ It lives in computer memory.
- ♦ It has real values.
- ♦ Objects of the same class need not be a same.
- ♦ Shares similarity with attributes but differs with values.



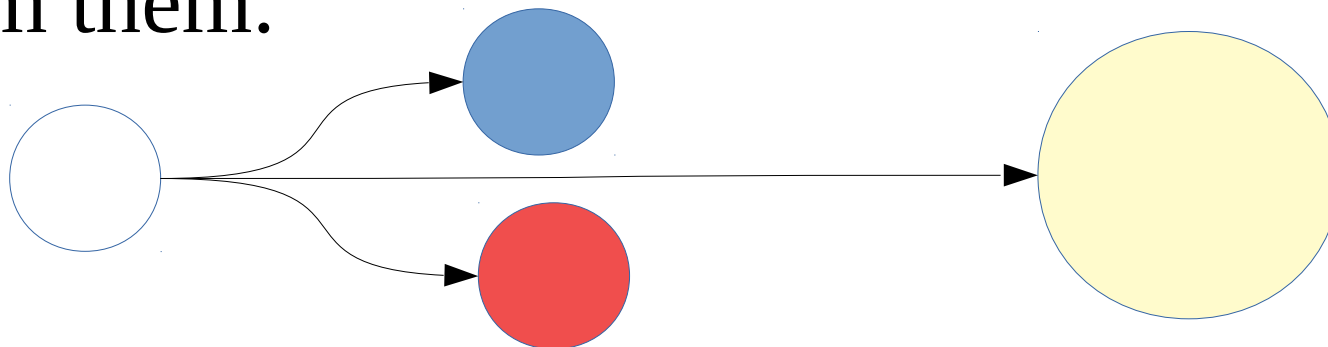
Example of an Object



Properties	Methods
Colour	Start, Stop
Transmission Type	Accelerate
Max Speed	Change Transmission

CLASS

- ♦ It is template definitions of methods and variable.
- ♦ Class is blue print of Object.
- ♦ Class should be instantiated before using.
- ♦ It is used to describe more than one object.
- ♦ A class is an extensible program-code-template for creating objects.
- ♦ Classes are help us to create multiple objects from them.

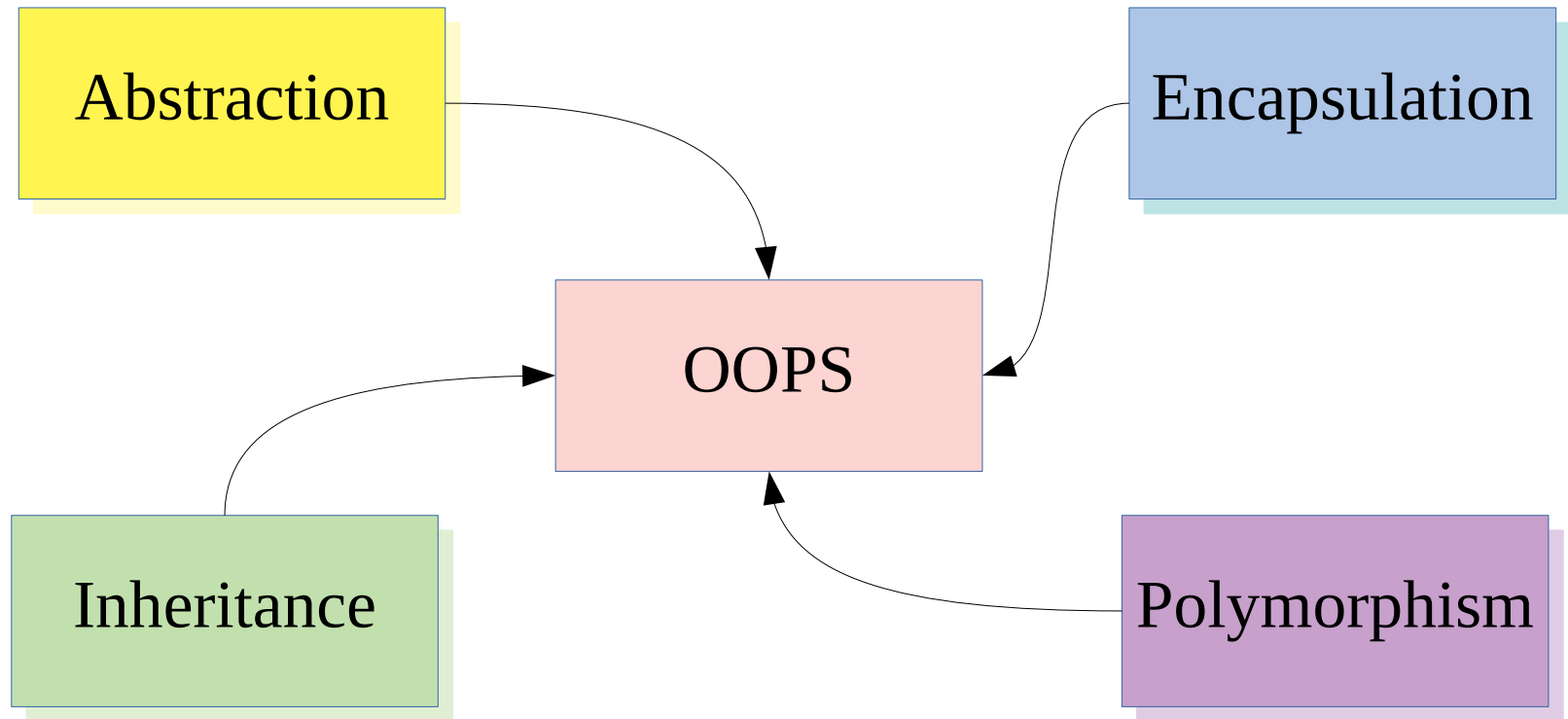


Car Class



- ◆ List the differences between above cars.

4 Principles of OOP



ABSTRACTION

- ♦ It is used to manage the complexity of the program.
- ♦ Hiding unwanted information from users.
- ♦ Hiding internal working mechanism from user.

Abstract Car



- ♦ How much user must know about the car for safe operations?

ENCAPSULATION

- ◆ It is containment of code and data together.
- ◆ It is used to protect the unnecessary external access of code and data from other source.
- ◆ Parts of the program wrapped individually without affecting each other.

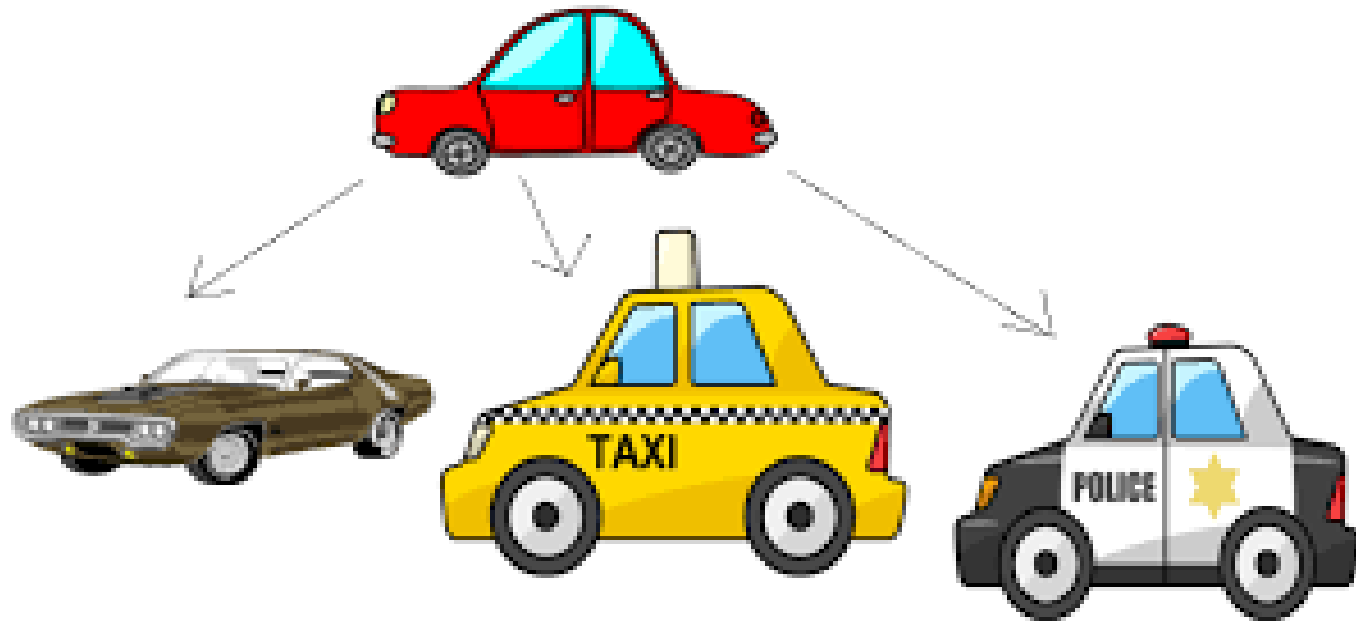
Encapsulated Car

- ♦ Ex : Individual System's in a typical car.
- ♦ The Transmission System and Music System is independent to each other.
 - ♦ Transmission System.
 - ♦ Engine Speed
 - ♦ Gear Ratio Change.
 - ♦ Clutch On/Off.
 - ♦ Music System.
 - ♦ Play/Stop
 - ♦ Album Change
 - ♦ Source Change [AUX/CD/USB]

INHERITANCE

- ◆ Reuse the code.
- ◆ Sharing the characteristics or properties among the objects.
- ◆ Parent and Child Relation
- ◆ Support the Hierarchical classification

Inherited Car



- ♦ Think about similarities and differences.

POLYMORPHISM

- ◆ Taking more than one form.
- ◆ it describes the concept that objects of different types can be accessed through the same interface.
- ◆ Same object act's differently according to the situation.

Polymorphic Steer Wheel *[Car vs Aircraft]*



Thank You !!!

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