

Object Oriented Programming Concepts

Chapter 1



What is Covered?

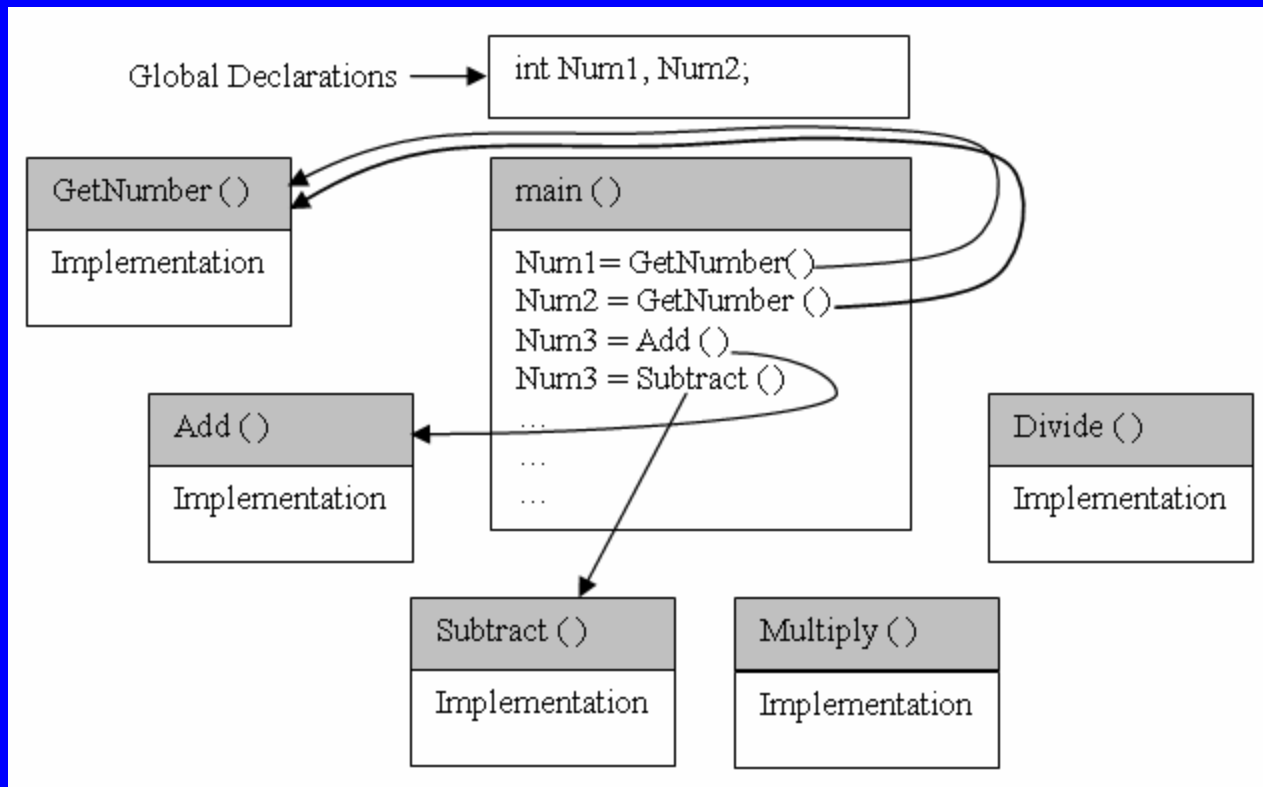
- Software Evolution – a brief history
- What is Procedure-Oriented programming?
- What is Object-Oriented programming?
- Features of Object-Oriented Programming
 - Encapsulation
 - Inheritance
 - Polymorphism
- Object Oriented Languages
- Introduction to C++



Software Evolution

- Assembly Language
- C Language
 - Procedure Oriented
- C++
 - Object Oriented
- Java
 - Object Oriented

Procedure-Oriented Programming





Drawbacks

- Data and Code that operates on this data are not tightly coupled
- Data is generally made globally accessible to all functions
 - Inadvertent changes to data may occur



Object-Oriented Programming

- Nature exhibits several objects such as birds, animals, plants
- Every object exhibits a unique behavior
- OOP (Object Oriented Programming) is based on Objects
 - Ex: Employee object
- OOP provides
 - Data Hiding
 - Data Encapsulation



OOP Features

- Encapsulation
- Inheritance
- Polymorphism

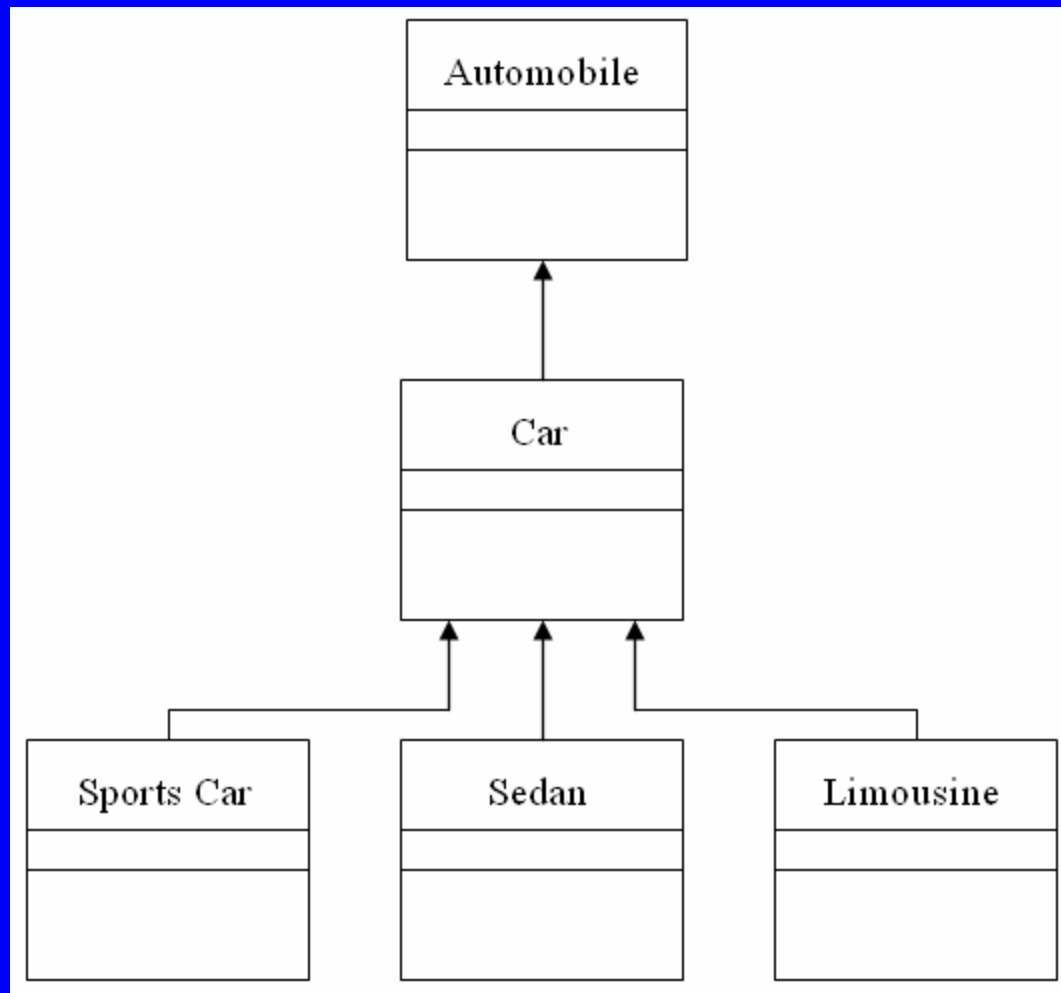


Encapsulation

- Process by which following is achieved
 - Data hiding
 - Combining data and methods in a single logical unit
- Encapsulation implemented by “Classes”
- Class is
 - a template
 - Consists of data and methods



Inheritance





Polymorphism

- Greek Word Polymorph
 - meaning having different faces to the same object
- The function name remains same while its implementation varies across objects



OO Benefits

- Code Re-use
- Ease of Extending Program Code
- Reduced Maintenance Cost



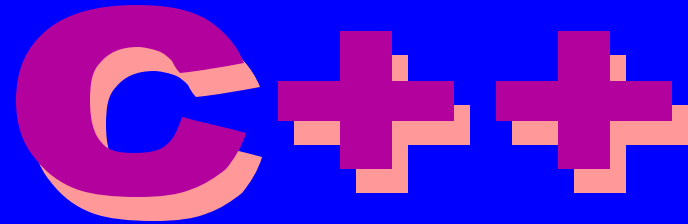
OO Languages

- ADA
- C++
 - Superset of C Language
- Java
- C# (pronounced C-Sharp)



Summary

- What you learned?
 - Brief history of software evolution
 - Procedure-Oriented programming
 - Object-Oriented Programming\
 - Encapsulation
 - Inheritance
 - Polymorphism
 - OO Languages



Conclusion