

C++ Programming

Inheritance in Practice

Mostafa S. Ibrahim

Teaching, Training and Coaching since more than a decade!

Artificial Intelligence & Computer Vision Researcher

PhD from Simon Fraser University - Canada

Bachelor / Msc from Cairo University - Egypt

Ex-(Software Engineer / ICPC World Finalist)



Inheritance in practice

- In past = major technique for reusability and extensions
- Now = A lot of careful before using it (E.g. as in homeworks)
 - ***Prefer composition over inheritance***
 - Avoid as **much** as possible inheritance. Use inheritance if you have **strong** justifications
 - It is really has-a relationship.
 - Parent class is superclass for all subclasses. Think deeper about future changes
 - But future is really hard to predict :(
 - You don't do it just to do some **code reuse**
 - Avoid multiple inheritance as **much much much** as possible .
 - Be aware of Diamond problem (Homework)
 - Make the inheritance hierarchy a tree style
 - Don't extend a base class that was not designed for extension (e.g. [vector](#))
- No support for inheritance from many languages such as Java and C#

“Acquire knowledge and impart it to the people.”

“Seek knowledge from the Cradle to the Grave.”