

Inheritance Part 1

PIE

- Polymorphism
- Inheritance
- Encapsulation

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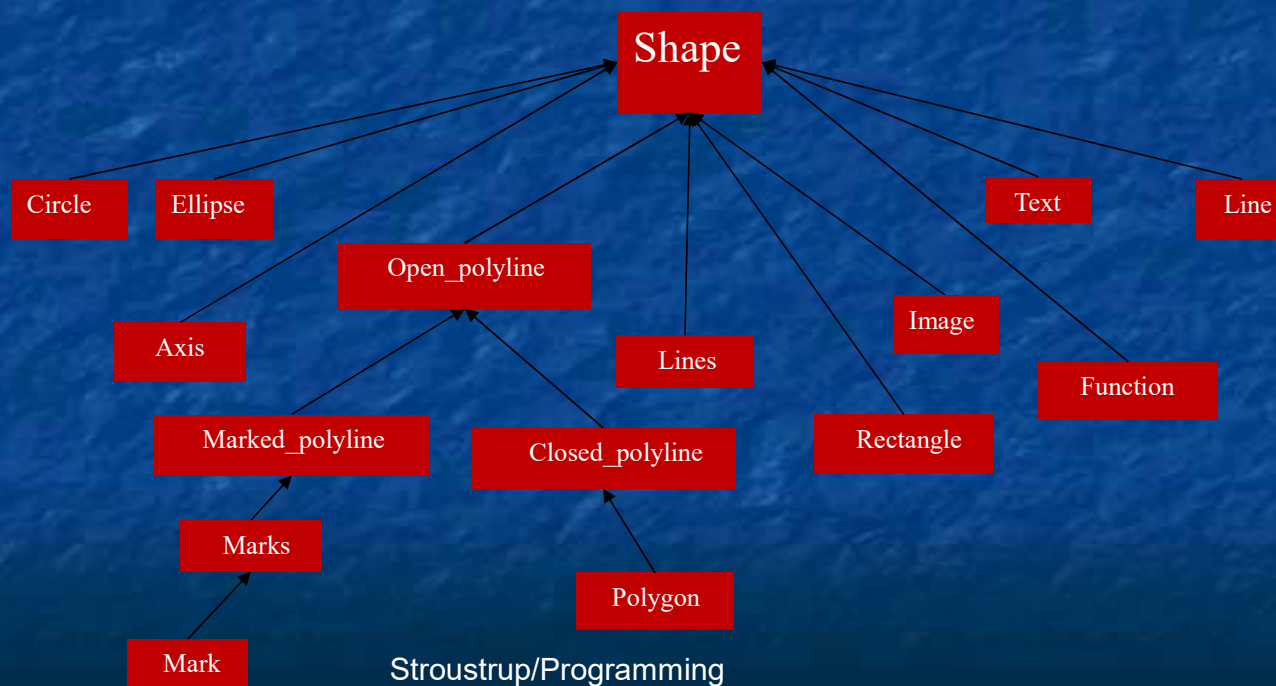
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Defininations

- Inheritance
- Dictionary Definitions
 - something, as a quality, characteristic, or other immaterial possession, received from progenitors or predecessors as if by succession
 - something that is or may be inherited; property passing at the owner's death to the heir or those entitled to succeed; legacy.
 - the genetic characters transmitted from parent to offspring, taken collectively.
- My definition as it pertains to CSE 1325
 - A class that obtains characteristics (variables, functions, etc.) from another class

A simple class hierarchy

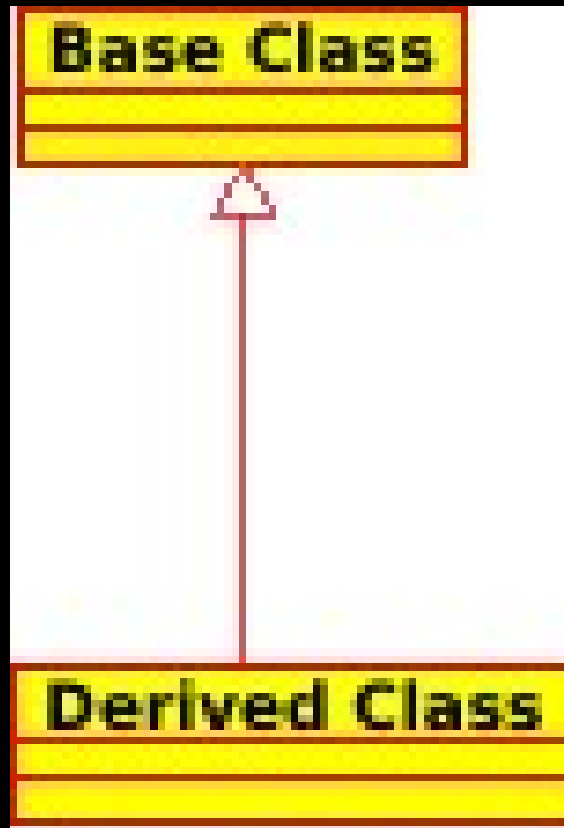
- We chose to use a simple (and mostly shallow) class hierarchy
 - Based on Shape



Defininations

- Base class
 - The class that is providing functions and variables to other classes.
 - Also known as Parent Class, or Superclass
- Derived class
 - The class that inherits functions and variables
 - Also known as Child class, or subclass

Base class vs Derived class



Lets make an example

- We're done with Planner example
- So time to build something new
- Build out new UML on board
- Look at variables, constructors, functions and how it translates to code

Public vs Private Inheritance

- Public Inheritance

- If it is **public in the Base Class**, it is **public in the Derived class**
- If it is private in the Base Class, it is private in the Derived class

- Private Inheritance

- If it is **public in the Base Class**, it is **private in the Derived Class**
- If it is private in the Base Class, it is private in the Derived Class

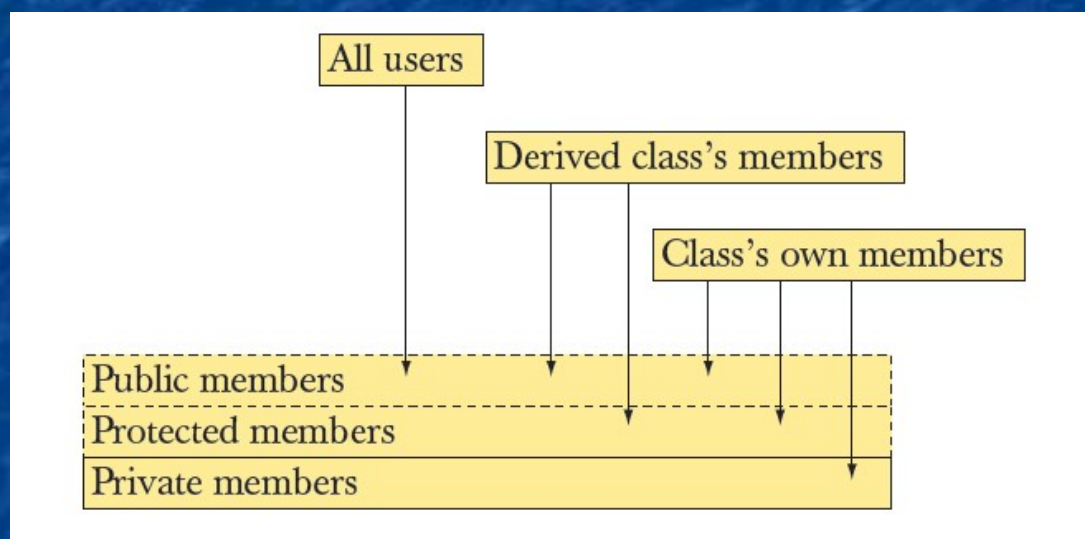
Ummmmmmmm

- Why can't I inherit private variables?
- Private variables are private
- No one outside the class can access them
- What's the solution?

Protected

- Middle ground between public and private
- Still not accessible outside the class, so it can't be changed without us know about it through a set method (like private)
- Allows us to pass it down to

Access model



- A member (data, function, or type member) or a base can be
 - Private, protected, or public

