CS11600: Introduction to Computer Programming (C++)

Lecture 16

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Outline

- Multiple inheritance
- Distinct base classes
- Multiple inclusion
- Virtual base classes

Multiple Inheritance

- A derived class with **multiple** base classes.
- Example (Stroustrup'99):
  - Task, Displayed, Terminal, Line, Switch
- Controversial feature (or bug?)
- Three different scenarios (patterns):
  - Distinct base classes
  - Multiple inclusion
  - Virtual base classes

Distinct Base Classes

- A derived class inherits from several **unrelated** base classes.
- Polymorphism
- Ambiguities

Multiple Inclusion

- A derived class inherits from the same base class in multiple ways.
  - Contains more than one instance of the base class.
- Polymorphism
- Ambiguities

Virtual Base Classes

- Several derived classes share a common base class:
  - A class that inherits from the derived classes contains a single copy of the common base class.
- Polymorphism
- Base class intilization