CMSC 132: OBJECT-ORIENTED PROGRAMMING II

Callbacks

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Callback

• Definition
  • Executable code passed as argument to other code
  • Examples:
    • Timer
    • Function that prints table and has as parameters a number of rows and a second function that defines the data to print (e.g., square roots, factorials, etc.)

• Approach
  • Higher-level code passes function as argument to lower-level code
    • In Java, pass object implementing interface
    • In C/C++, pass pointer to function
  • Lower-level code invokes callback function to perform desired task
Callback

- Motivation
  - Keeps code separate
    - Clean division between higher & lower-level code
  - Promotes code reuse
    - Lower-level code supports different callbacks
  - Supports event-driven programming
    - Lower-level code registers function as handler

- Other Examples
  - Observer pattern → Observer.update( )
  - Visitor pattern → Visitor.visit( )
  - A function that prints a formatted table for values computed with different functions