CS 485
Advanced Object Oriented Design

Design Patterns

Command Pattern

Spring 2019

http://www.netobjectives.com/PatternRepository/index.php?title=PatternsByAlphabet
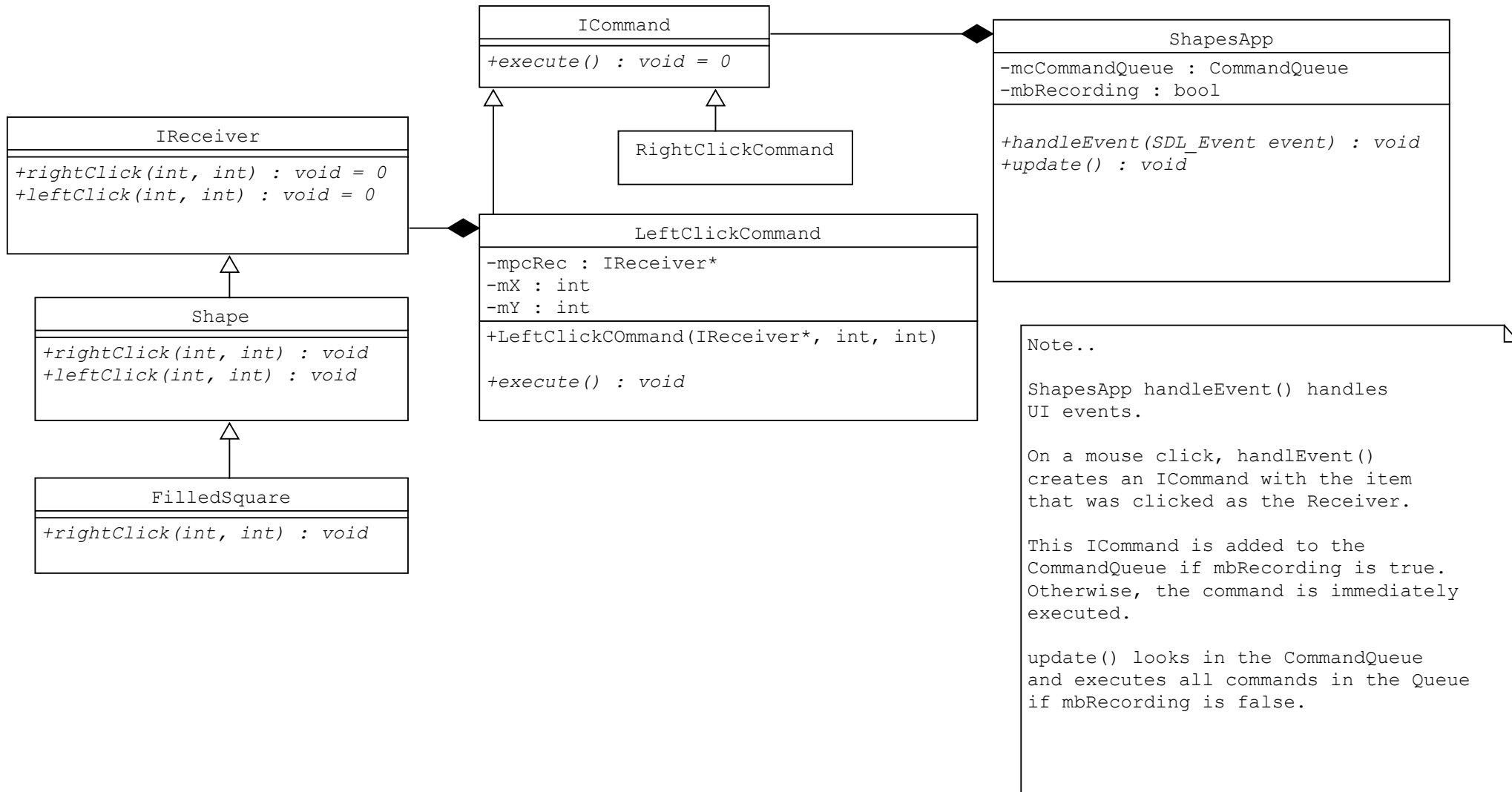
http://www.netobjectives.com/files/books/dpe/design-patterns-matrix.pdf

https://sourcemaking.com/design_patterns/command

Goals

Command Pattern

Caller

IReceiver
+rightClick(int, int) : void = 0
+leftClick(int, int) : void = 0

Shape
+rightClick(int, int) : void
+leftClick(int, int) : void

FilledSquare
+rightClick(int, int) : void

ICommand
+execute() : void = 0

RightClickCommand

LeftClickCommand
-mpcRec : IReceiver*
-mX : int
-mY : int

+LeftClickCOmmand(IReceiver*, int, int)

+execute() : void

ShapesApp
-mcCommandQueue : CommandQueue
-mbRecording : bool

+handleEvent(SDL_Event event) : void
+update() : void

Note..

ShapesApp handleEvent() handles
UI events.

On a mouse click, handlEvent()
creates an ICommand with the item
that was clicked as the Receiver.

This ICommand is added to the
CommandQueue if mbRecording is true.
Otherwise, the command is immediately
executed.

update() looks in the CommandQueue
and executes all commands in the Queue
if mbRecording is false.

Workflow

- Instantiate Concrete Command with Concrete Receiver

- Pass Command to Caller

- execute() Command

```
// Instantiate
pcCommand = new LeftClickCommand (pcClickedShape, x, y);

// Pass, Send, Save, etc.
mcCommandQueue.addCommand (pcCommand);


// Execute
pcComm = mcCommandQueue.getCommand ();
pcComm->Execute ();
delete pcComm;
```