THE COMMAND PATTERN

PROGRAMMING PARADIGMS

IMPERATIVE PROGRAMMING

VARIABLES, LISTS, DICTIONARIES, FOR-LOOPS

OLD-SCHOOL LANGUAGES LIKE C

FUNCTIONAL PROGRAMMING

FUNCTIONS CALLING FUNCTIONS CALLING FUNCTIONS

EXCEL (YEP IN MANY WAYS EXCEL IS A PROGRAMMING LANGUAGE TOO! JUST NO FOR LOOPS)

OBJECT-ORIENTED PROGRAMMING

CLASSES DEFINE INTERFACES; OBJECTS INSTANTIATE CLASSES; OBJECTS HAVE STATE (MEMBERS) AND BEHAVIOUR (METHODS)

JAVA, C++, C#

THE LINES BETWEEN THESE PROGRAMMING PARADIGMS CAN SOMETIMES GET A BIT BLURRY

CONSIDER A CLASS THAT HAS JUST 1 METHOD

IT ENCAPSULATES ALL THE STATE NEEDED FOR THAT ONE METHOD TO DO ITS THING

PROGRAMMING PARADIGMS

IMPERATIVE PROGRAMMING

VARIABLES, LISTS, DICTIONARIES, FOR-LOOPS

OLD-SCHOOL LANGUAGES LIKE C

FUNCTIONAL PROGRAMMING

FUNCTIONS CALLING FUNCTIONS CALLING FUNCTIONS

EXCEL (YEP IN MANY WAYS EXCEL IS A PROGRAMMING LANGUAGE TOO! JUST NO FOR LOOPS)

OBJECT-ORIENTED PROGRAMMING

CLASSES DEFINE INTERFACES; OBJECTS INSTANTIATE CLASSES; OBJECTS HAVE STATE (MEMBERS) AND BEHAVIOUR (METHODS)

JAVA, C++, C#

THE LINES BETWEEN THESE PROGRAMMING PARADIGMS CAN SOMETIMES GET A BIT BLURRY

CONSIDER A CLASS THAT HAS JUST 1 METHOD

IT ENCAPSULATES ALL THE STATE NEEDED FOR THAT ONE METHOD TO DO ITS THING

IS SUCH A CLASS REALLY A CLASS, OR IS IT REALLY A FUNCTION?

COMMAND OBJECTS

LIE AT THE HEART OF THE COMMAND PATTERN

A COMMAND OBJECT HAS A SINGLE METHOD, AND WHATEVER STATE IS NEEDED FOR THAT METHOD TO DO ITS THING

YOU CAN THINK OF THE COMMAND OBJECT AS A METHOD THAT CAN BE PASSED AROUND LIKE AN OBJECT

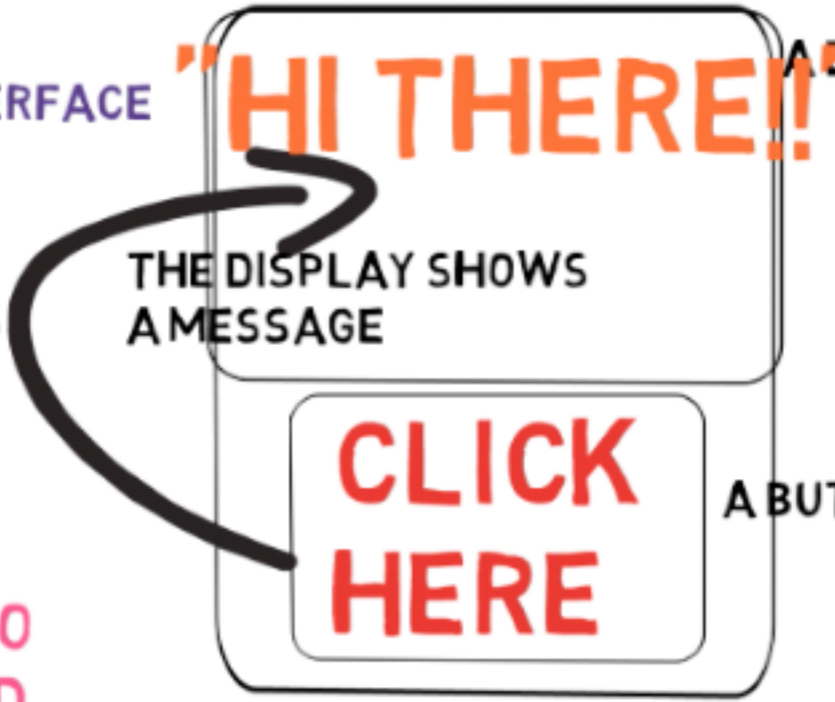
A COMMAND OBJECT SEPARATES AN ACTION FROM THE EXECUTION OF THAT ACTION

FOR THAT REASON, COMMAND OBJECTS ARE ALSO OFTEN CALLED ACTION OBJECTS

A COMMAND OBJECT SEPARATES THE EXECUTION OF AN ACTION FROM THE ACTION ITSELF

THIS IDEA IS A CRUCIAL ONE

CONSIDER A SIMPLE USER INTERFACE



A DISPLAY

THE DISPLAY SHOWS A MESSAGE

WHEN A USER CLICKS THE BUTTON..

A BUTTON

WE DON'T KNOW WHEN THE USER WILL CLICK THE BUTTON, BUT WE DO KNOW THE ACTION THAT WE WOULD LIKE TO TAKE WHEN THE BUTTON IS CLICKED

A COMMAND OBJECT IS JUST WHAT WE NEED

HAS AN OFFICIAL NAME IN THE COMMAND PATTERN

THE CLIENT

THE USER WHO TRIGGERS THE EXECUTION OF THE ACTION

THE INVOKER

THE BUTTON WHICH IS CLICKED BY THE CLIENT TO TRIGGER EXECUTION OF THE ACTION

THE RECEIVER

THE DISPLAY AREA WHICH IS ACTED UPON BY THE ACTION

THE TRIGGER THAT CAUSES THE ACTION TO BE EXECUTED IS CALLED

AN EVENT

UI ELEMENTS "PUBLISH" A WIDE RANGE OF EVENTS, AND OUR CODE CAN "SUBSCRIBE" TO THOSE EVENTS

THIS IS PRECISELY THE OBSERVER DESIGN PATTERN

THE TRIGGER THAT CAUSES THE ACTION
TO BE EXECUTED IS CALLED

AN EVENT

UI ELEMENTS "PUBLISH" A WIDE RANGE OF EVENTS, AND OUR CODE CAN "SUBSCRIBE" TO THOSE EVENTS

THIS IS PRECISELY THE OBSERVER DESIGN PATTERN

THIS INTERPLAY OF THE OBSERVER AND COMMAND PATTERNS IS THE BEDROCK OF MOST UI PROGRAMMING