Programmable control panel

Operate household devices

Buttons can be programmed to do some *operation* on some *device*

Control panel must be *generic*

Design options?

All-knowing class?

Command

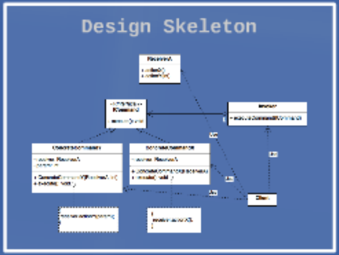
Command object encapsulates info to perform *action* on *receiver*

Invoker calls generic function on *given* command object to trigger action

Use of command *interface* can allow design with different types of commands

Can support *undo*/*redo* operations

Can *queue*/*log* requests



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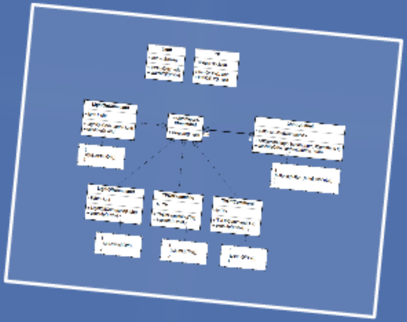
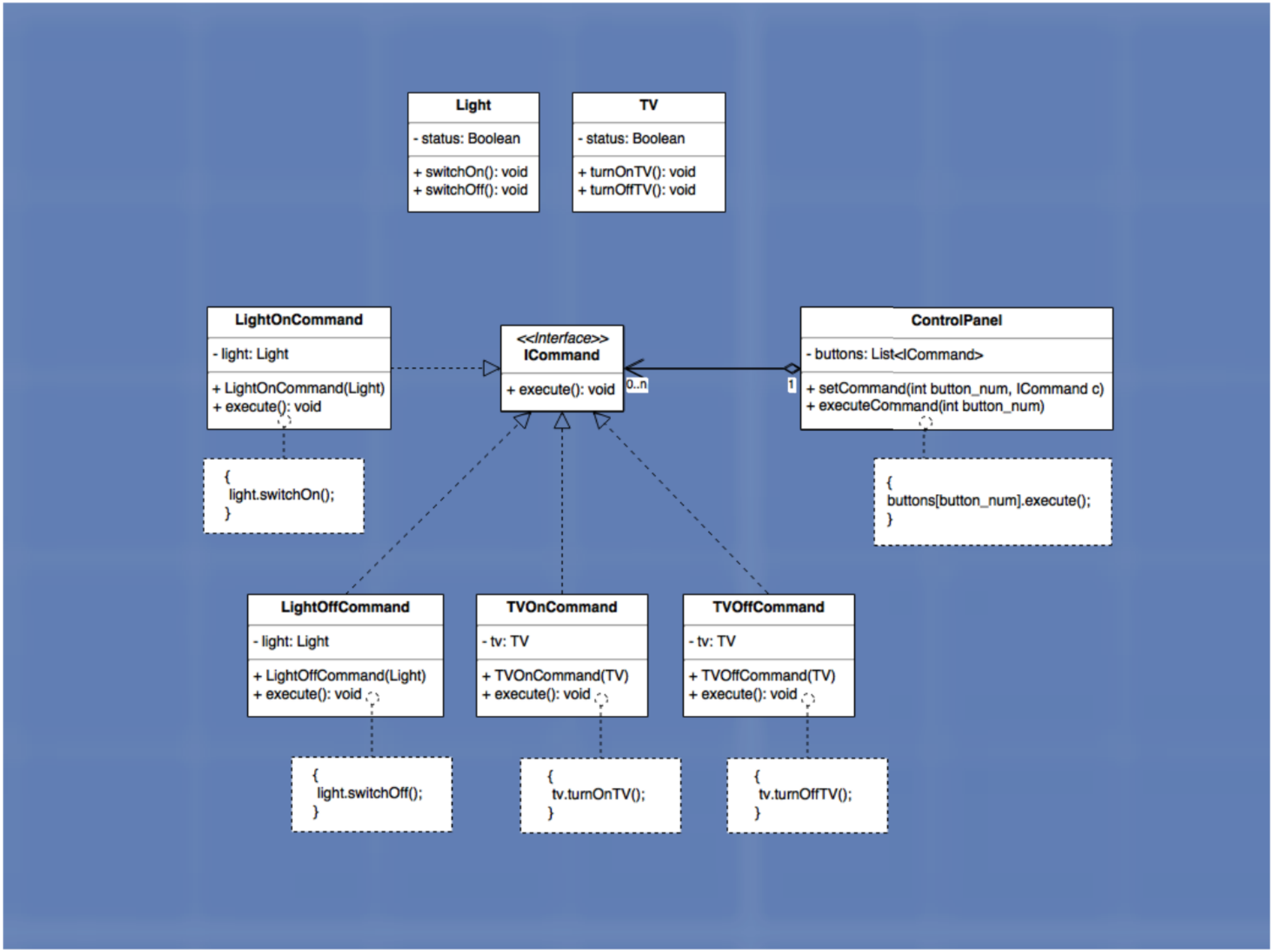
Usage

```
public class UseCommand {

    public static void main(String args[]) {
        Light light = new Light();
        TV tv = new TV();

        ICommand tv_on = new SwitchOnCommand(tv);
        ICommand tv_off = new SwitchOffCommand(tv);
        ICommand light_on = new SwitchOnCommand(light);
        ICommand light_off = new SwitchOffCommand(light);

        ControlPanel ctrl = new ControlPanel();
        ctrl.setCommand(1, tv_on);
        ctrl.setCommand(2, tv_off);
        ctrl.setCommand(3, light_on);
        ctrl.setCommand(4, light_off);

        // to switch on the tv
        ctrl.executeCommand(1);
    }
}
```




Light
- status: Boolean
+ switchOn(): void
+ switchOff(): void
TV
- status: Boolean
+ turnOnTV(): void
+ turnOffTV(): void
LightOnCommand
- light: Light
+ LightOnCommand(Light)
+ execute(): void
{ light.switchOn(); }
<<Interface>>
ICommand
+ execute(): void
0..n
1
ControlPanel
- buttons: List<ICommand>
+ setCommand(int button_num, ICommand c)
+ executeCommand(int button_num)
{ buttons[button_num].execute(); }
LightOffCommand
- light: Light
+ LightOffCommand(Light)
+ execute(): void
{ light.switchOff(); }
TVOnCommand
- tv: TV
+ TVOnCommand(TV)
+ execute(): void
{ tv.turnOnTV(); }
TVOffCommand
- tv: TV
+ TVOffCommand(TV)
+ execute(): void
{ tv.turnOffTV(); }

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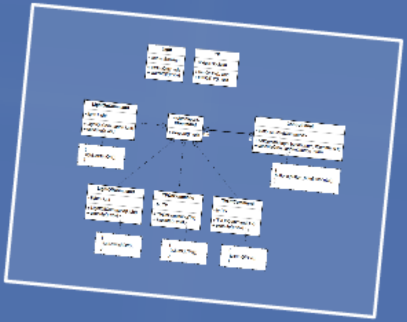

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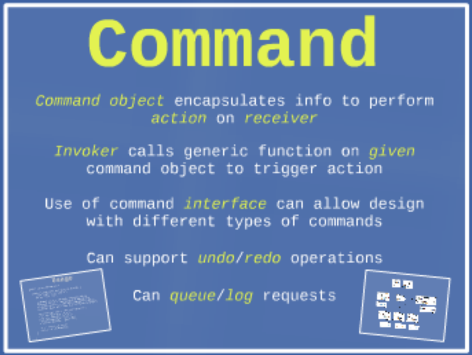

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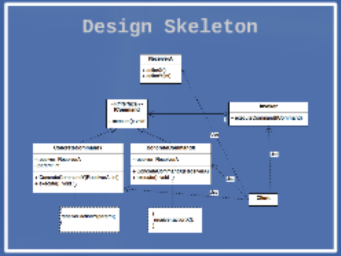
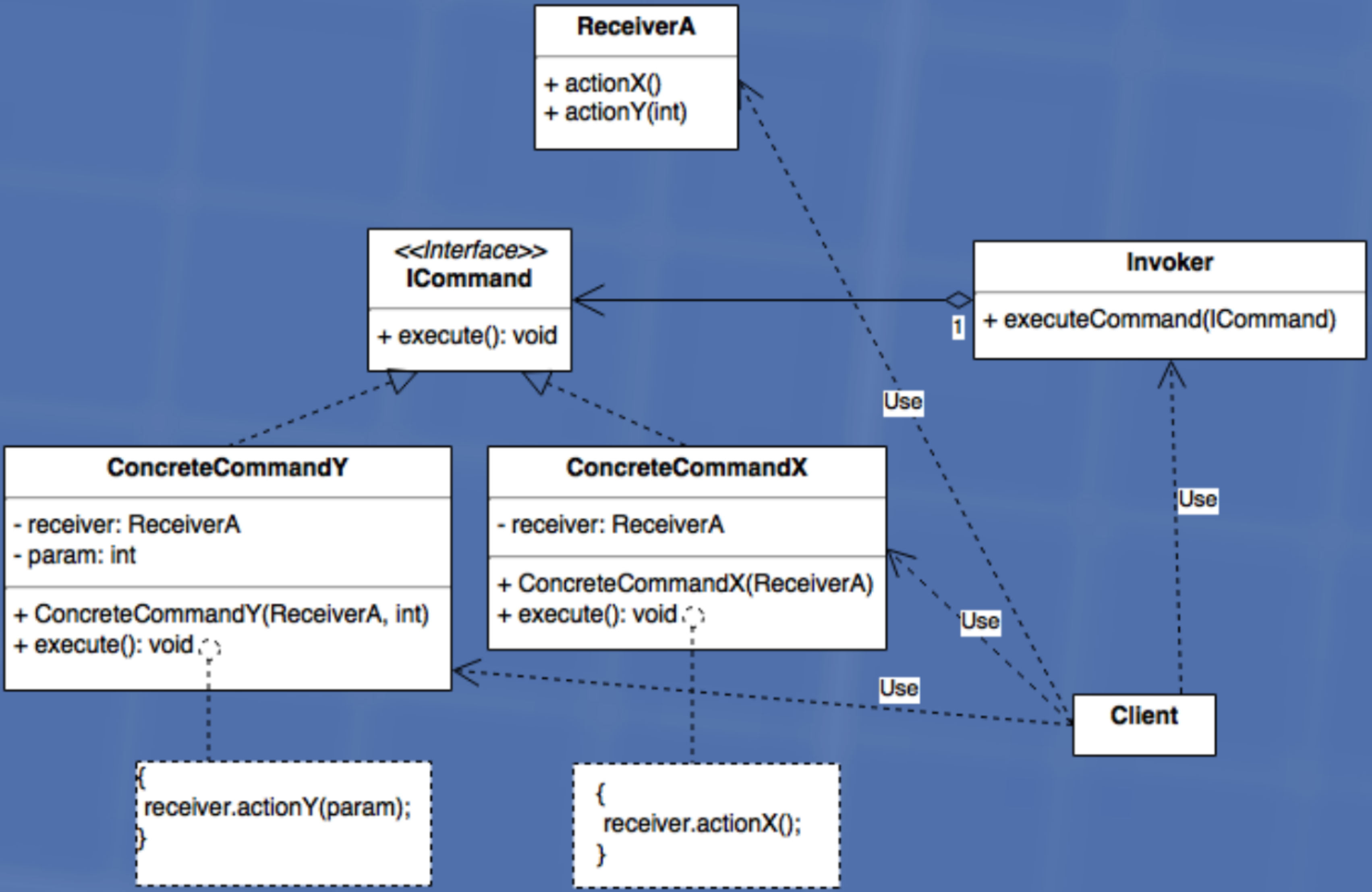


Design Skeleton



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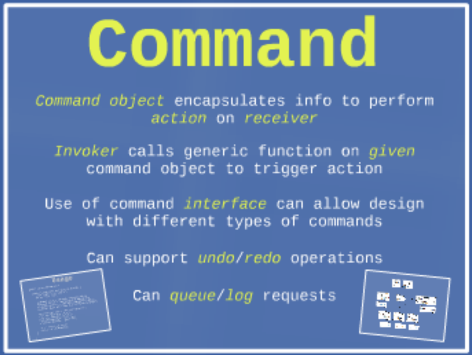

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