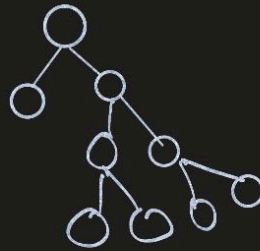(18) Composite Design Pattern (Structural Design Pattern)
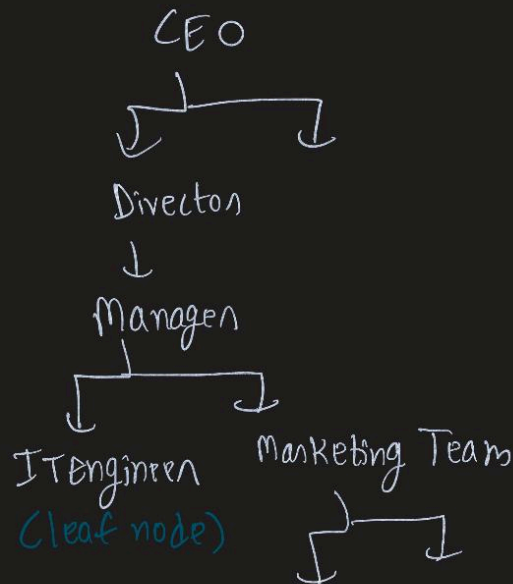
object inside object then Composite DP

exemple:
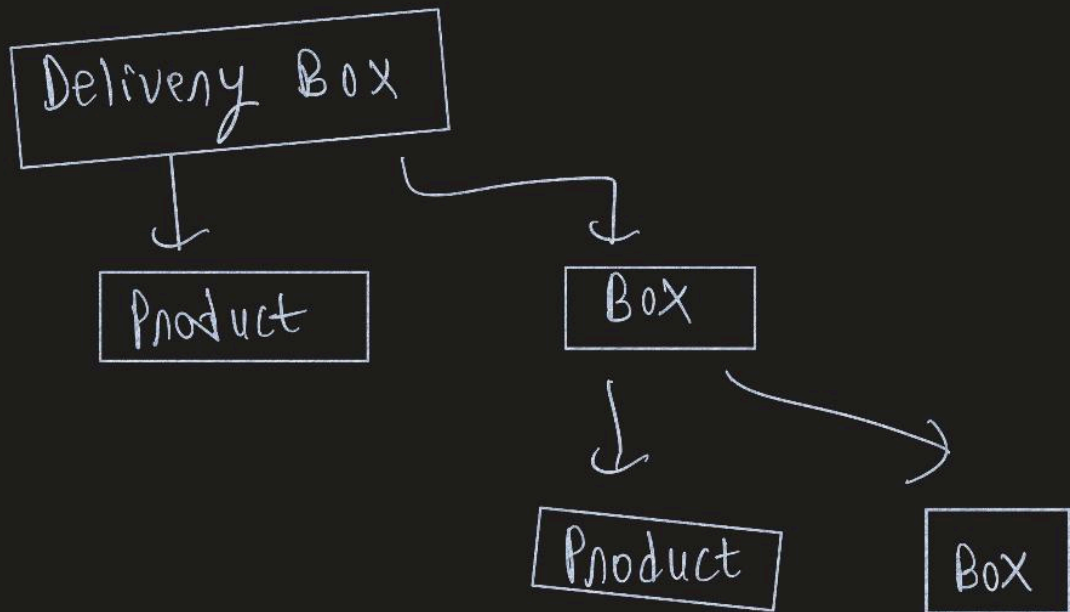
(Any Problem, which Can be Designed like tree falls under Composite Design Pattern)

employee:

CEO

Director

↓

Manager

IT Enginner
(leaf node)

Marketing Team

Minimum

example 2

Delivery Box

Product   Box

Product   Box

Minimum

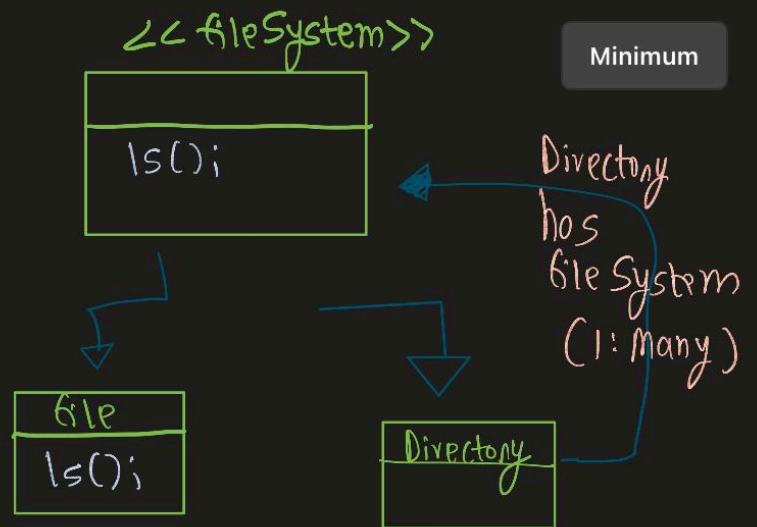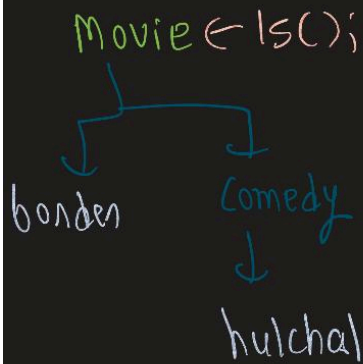Problem
& How Composite DP solves this:

Design file System:

file or Directory
                Contains
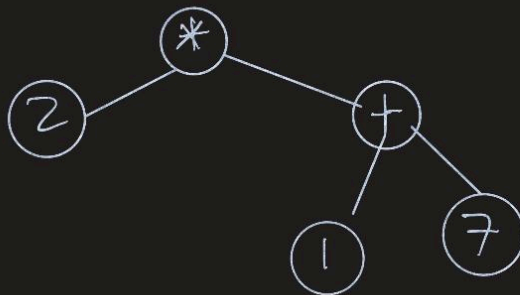file or Another Directory

Design file System:

file or Directory
  ↓ Contains
file or Another Directory

Directory ──────→ **file**
```
┌──────────────┐              ┌──────────────┐
│              │              │ Name         │
│              │              │              │
└──────────────┘              └──────────────┘
```

Movie ← ls();
  ↓   ↓
border   Comedy
           ↓
         hulchal

<<fileSystem>>
```
┌──────────────┐
│ ls();        │
│              │
└──────────────┘
```
     ↓   ↓

```
┌──────────┐    ┌──────────────┐
│ file     │    │ Directory    │
│ ls();    │    │              │
└──────────┘    └──────────────┘
```

Directory
has
file System
(1: Many)

Minimum

* **Calculaton (arithmetic expression)**

$2 * (1 + 7)$

(tree like structure
so fall into
Composite DP)

Minimum

Arithemetic expression
(interface)

```
evaluate ();
```

expression
has
arithmetic
expression

Number
evaluate();

expression
evaluate(),