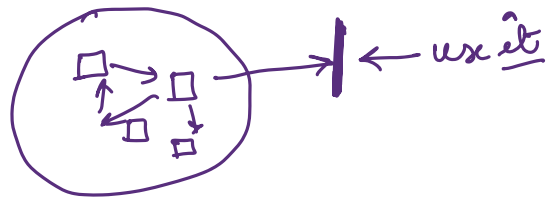Agenda → [Decorator
           Flyweight]

decorates }

Wrap more functionally
          a
on the existing
ones.

Integer

int

← uxit
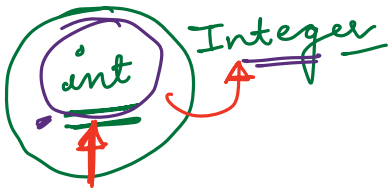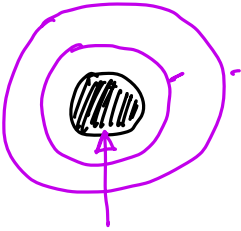
Starbuzz

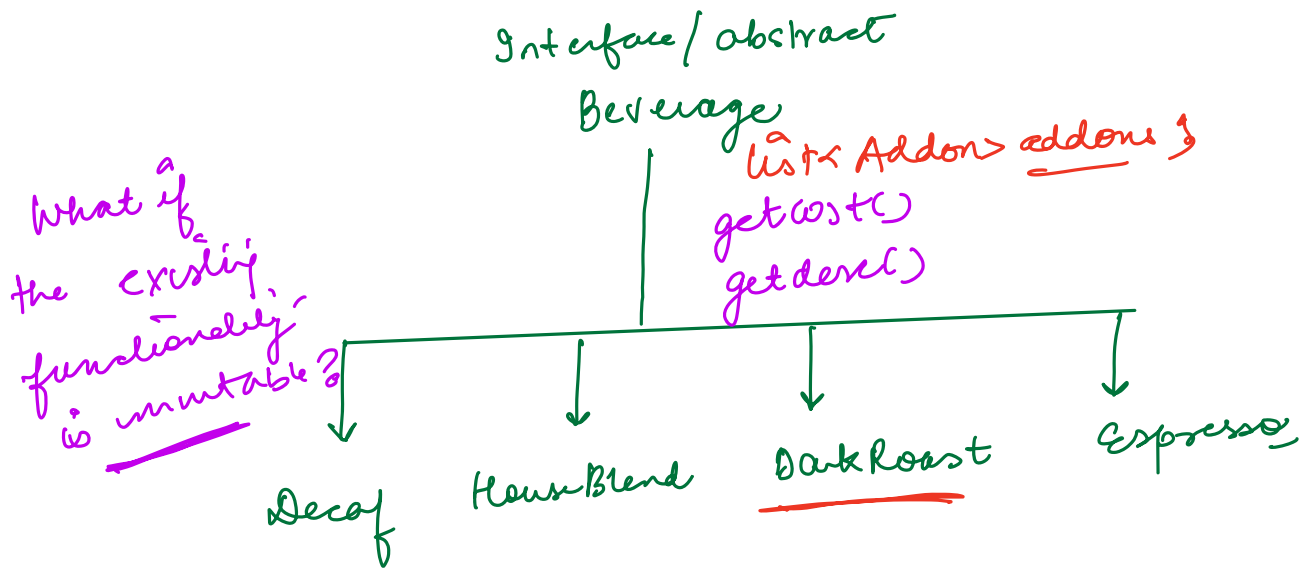{ - build the beverage
  - get cost()
  - get desc()

Beverage

cost
desc

getcost()

get desc()

Interface / abstract
Beverage
List< Addon> addons ;
get cost()
get desc()

What if
the existing
functionality
is immutable?

Decaf   House Blend   Dark Roast   Espresso
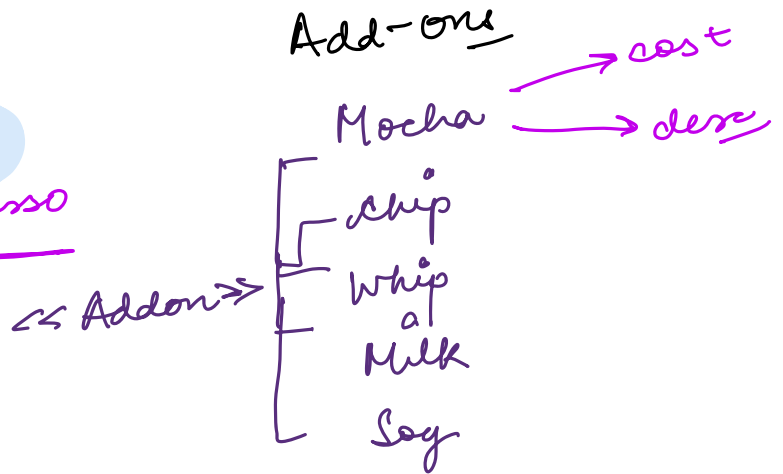
Decaf Milk
Decaf Mocha
Decaf Chips
⋮
class
explosion

Double
mocha
espresso

<< Addon >>

Add-ons   → cost
Mocha ───→ desc
       ┌─ chip
       ├─ Whip
       ├─ Milk
       └─ Soy

Inheritance

Beverage ←   extends

          new BeverageN()

new decaf ✗

BeverageN

List < AddOn >
addons ;

<< Addon >>
     |
  ↓ ↓ ↓ ↓ ↓

class obj $f^n 1 \quad + f^n 2 + f^n 3$]   eventene

ref_obj

Abc abc $+ \quad f^{n'} + f^{n^2} + f^{n^3}$

Def

Yift

Base layer $f1$

espresso

Beverage
get cost()
get desc()

Addon

Milk {

Beverage beverage;

Milk (Beverage beverage)
{ — }
getcost(){
return 10 + beverage.getcost();
}
}

Beverage b = new decaf();

~~Milk milk~~ = new Milk (b);
Beverage   b1

APIRequest

Authentication ✓
logger
Cache ✓
:

b = whip   getCost( ) 15 + b.getCost( ) :

125

b = Milk   getCost( ) 10 + b.getCost   110

b = new decaf( ) ;   100
getCost( ) 100

b.getCost( ) ; = 125

find (Beverage b) {

=

}

Order {

Beverage b = ____ ;

List < AddOn > addons ;

getCost( ){ ____ }

}

Input Stream

File Input Stream   Buffered

FileInput = new Buffered (   ) ;
DataInput (   ) ;

Flyweight design Pattern

BookMy show $\longrightarrow$ booking Tickets

Seat {
    int row;
    int col;
    SeatType seatType;
}

SeatType {
    string value;
}

ShowSeat {
  8 show show;
  8 Seat seat;
  4 int (price);
  4 Status status;
}

500 objects

show
500 seats

24 bytes

$24 \times 5000 = 1,20,000 \text{ bytes}$
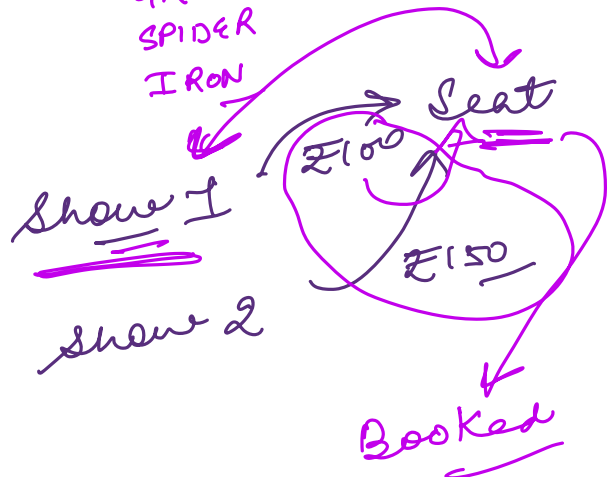
Seat
Gold plat silver

SeatType {
  GOLD,
  SILVER,
  PLATINUM
}

→ Theatre

BASIC
CLASSIC

MAHARAJA
NORMAL

GROOT
SPIDER
IRON

Show 1

Show 2

Seat
₹100
₹150

Booked

Price is different for
every SeatType &
not Seat.

3 types

Show SeatType &

show ;
SeatType ;
puci ;

}

8
8   → 20 bytes
4   ↓ *3
                  60 bytes

2000 byte ⟶ 60 bytes

Seat
↓
SeatType

Show Seat
Status

Show SeatType
puci

class {

IOtype

3 $\longrightarrow$ 24B

attributes $\longrightarrow$ do not change with every obj $\longrightarrow$ Intrinsic

3 $\longrightarrow$ 24

$\longrightarrow$ diff fr diff obj $\longrightarrow$ extrinsic

}

10^6 objects

$(24 + 24) * 10^6$

$24 * 10^6$

$24 * 10 = 240$ bytes

prolog

Bullet

size
radius
weight
image

8
8
8
1KB

target cor
start cor
speed

5.56 — green
7.72 — bro
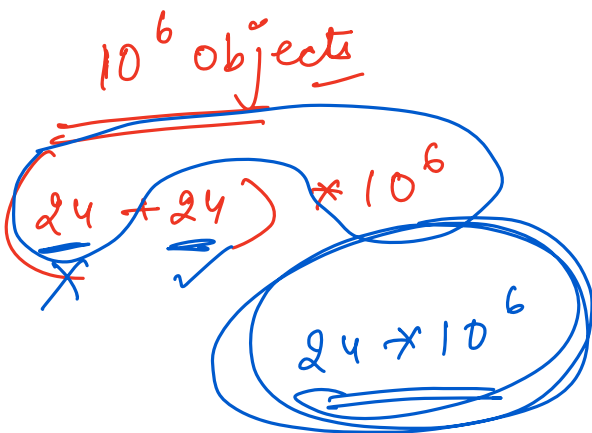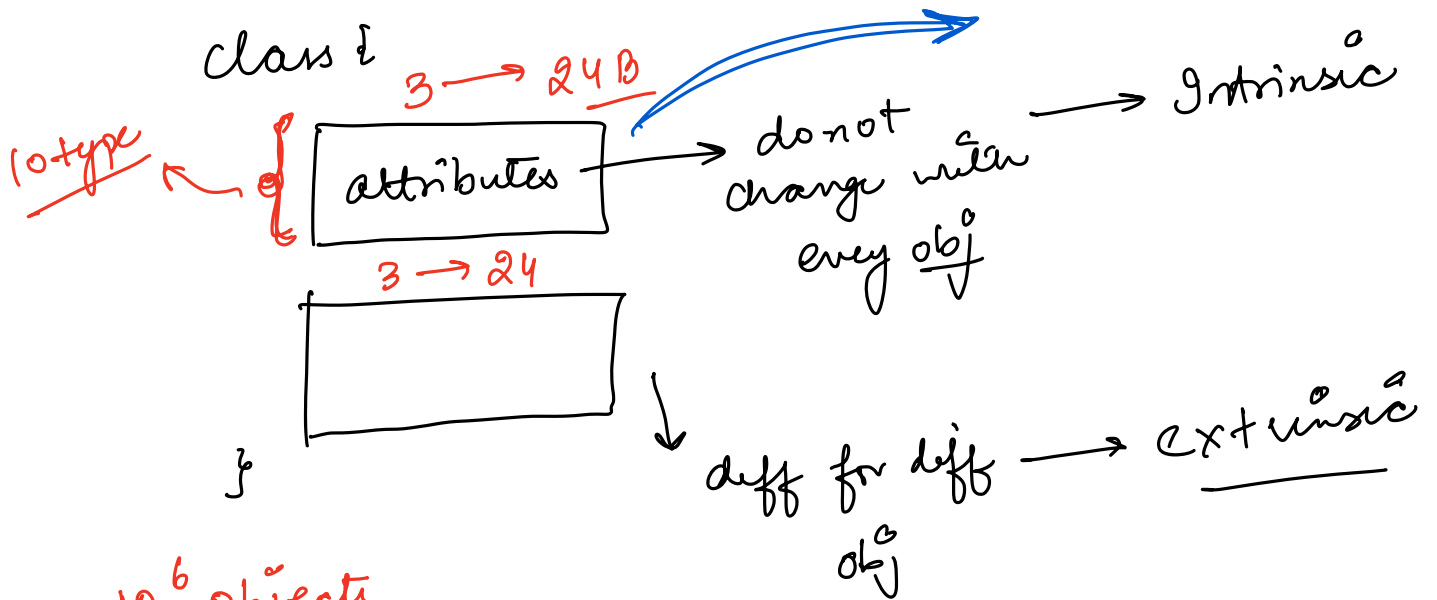
1024 bytes

$\leq$ 1KB

$300 * 100$

30,000

1,00,000

3-11
5.56
7.72
9.21
5.00

$1 KB * 10^5$

$\approx 100 MB$

Bullet &

size
radius
weight
image

S objects of Bullet $1 KB

S KB
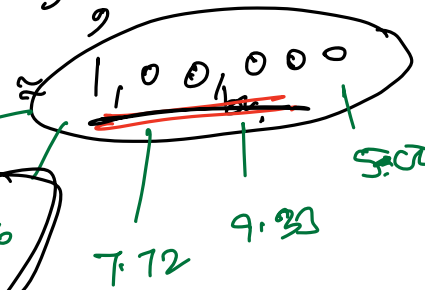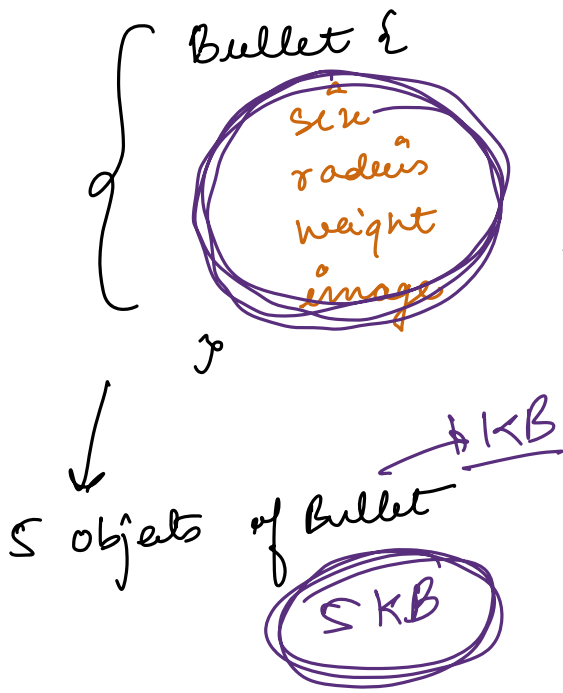
Flying Bullet &
target cor
start cor
speed
Bullet bullet = 8 by

Flyweight