Flyweight

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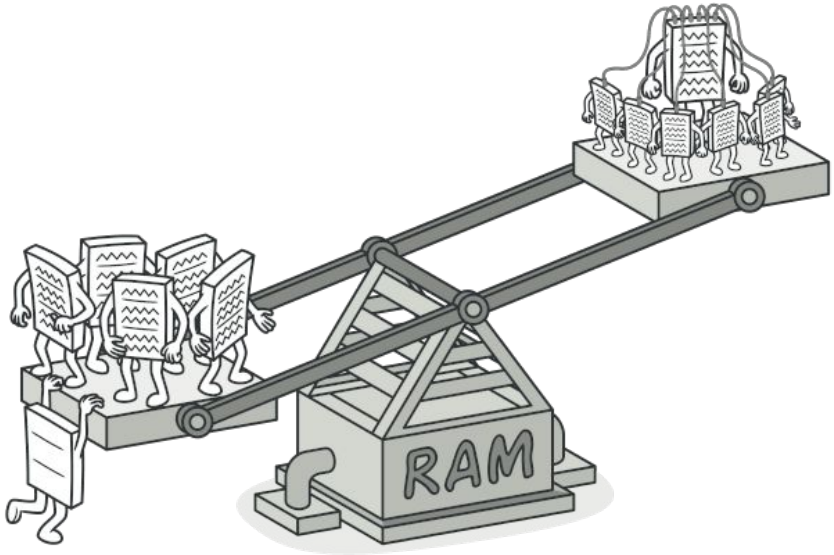
Flyweight

Definition...

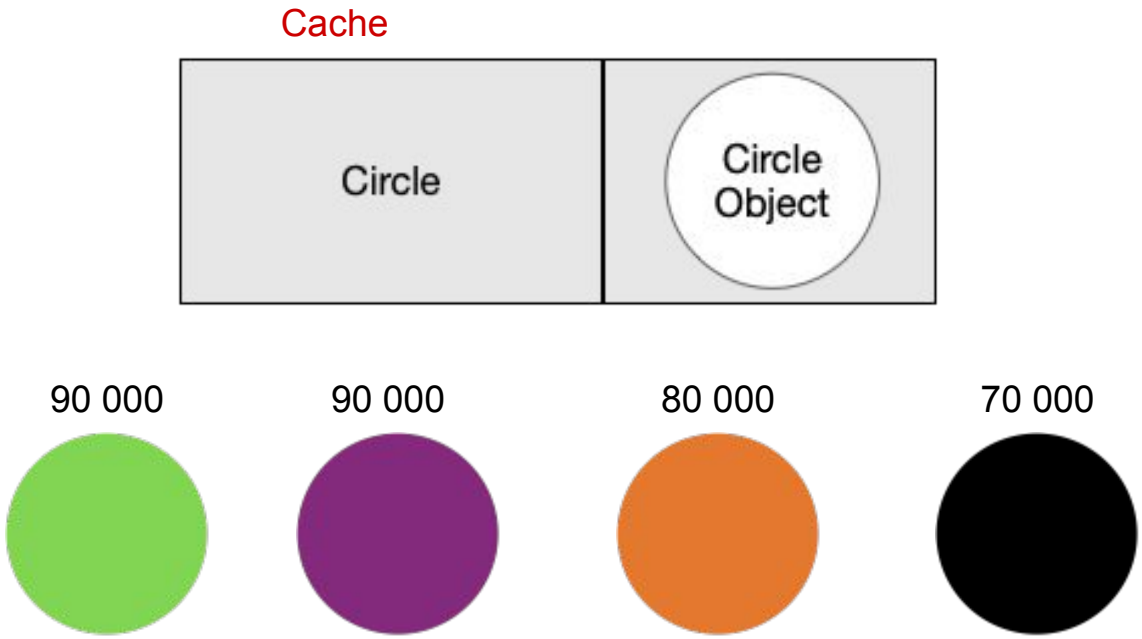


Poids-mouche

Le pattern poids mouche est utilisé pour optimiser le nombre d'objets présents dans la mémoire de votre application. Il peut-être utilisé dans des programmes utilisant un grand nombre d'objets et souhaitant en réduire le poids mémoire. Ce modèle est donc très utile aujourd'hui dans les périphériques mobiles ou les systèmes intégrés.

Structural pattern

Comprendre le concept...



États

Propriétés intrinsèques

Données internes qui rendent une classe unique.

Constantes et gardées dans la mémoire

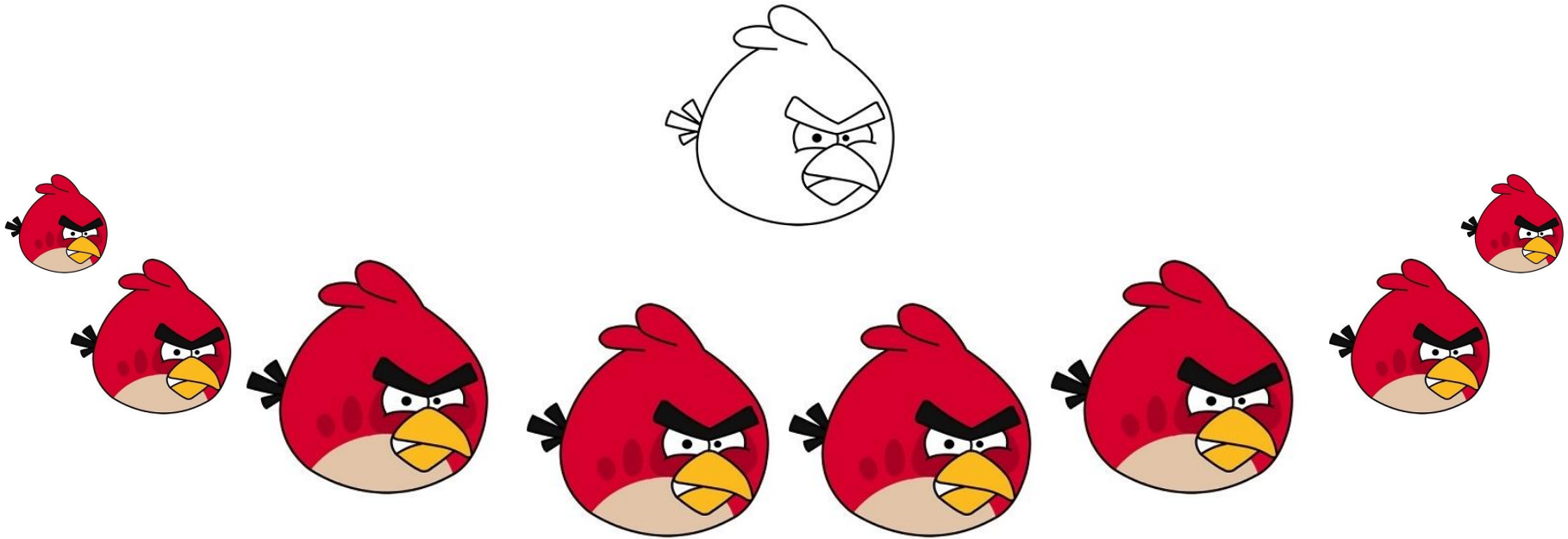
Propriétés extrinsèques

Données externes passées en tant qu'arguments.

Pas constantes, doivent être calculées, donc ne sont pas dans la mémoire

Exemple dans la vie réelle

L’utilisation du pattern peut être très utile dans le domaine des jeux vidéos…



exemple ...

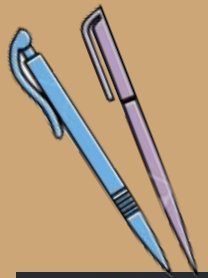
```
class People
{
    private PencilFactory pencilFactory;

    public void Borrow(final String[] colors)
    {
        for(final String c : colors)
        {
            Console.WriteLine("Intended color : " + c);
            Console.WriteLine(("Received pencil instance : " +
            this.pencilFactory.BorrowPencil(c));
        }
    }
    public void setPencilFactory(final PencilFactory pencilFactory)
    {
        this.pencilFactory = pencilFactory;
    }
}
```

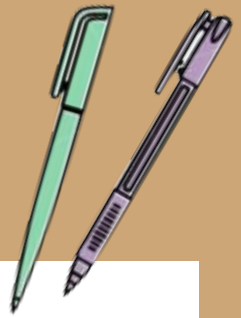
```
interface WritingObject
{
}

class Pencil : WritingObject
{
    private final String color;
    private final int id;

    public Pencil(final String color){
        this.color = color;
        this.id = new Random().Next();
    }

    public String ToString()
    {
        return "Pencil's instance for color : " +
        this.color +
        ", id "+this.id;
    }
}
```

exemple (suite) ...

```
42  class PencilFactory
43  {
44      private final Map<String, Pencil> pencils = new HashMap<String, Pencil>();
45
46      public Pencil BorrowPencil(final String color)
47      {
48          if(!this.pencils.containsKey(color))
49          {
50              this.pencils.put(color, new Pencil(color));
51          }
52          return this.pencils.get(color);
53      }
54      public int getPencilsSize()
55      {
56          return this.pencils.size();
57      }
58  }
```

exemple (suite) ...





```
60  final PencilFactory pencilFactory = new PencilFactory();
61  final People sylvester = new People();
62  sylvester.SetPencilFactory(pencilFactory);
63
64  final People anne = new People();
65  anne.SetPencilFactory(pencilFactory);
66
67  Console.WriteLine"Sylvester's pencils :");
68  sylvester.Borrow(new String[] {"black", "white", "green",
69                   "blue", "blue", "black", "green", "white"});
70  Console.WriteLine("");
71  Console.WriteLine("Anne's pencils :");
72  anne.Borrow(new String[] { "black", "white", "red" });
```

```
Sylvester's pencils :

Intended color : black
Received pencil instance : Pencil's instance for color : black, id -565839267

Intended color : white
Received pencil instance : Pencil's instance for color : white, id 2014564860

Intended color : green
Received pencil instance : Pencil's instance for color : green, id -43949025

Intended color : blue
Received pencil instance : Pencil's instance for color : blue, id -899737848

Intended color : blue
Received pencil instance : Pencil's instance for color : blue, id -899737848

Intended color : black
Received pencil instance : Pencil's instance for color : black, id -565839267

Intended color : green
Received pencil instance : Pencil's instance for color : green, id -43949025

Intended color : white
Received pencil instance : Pencil's instance for color : white, id 2014564860


Anne's pencils :

Intended color : black
Received pencil instance : Pencil's instance for color : black, id -565839267

Intended color : white
Received pencil instance : Pencil's instance for color : white, id 2014564860

Intended color : red
Received pencil instance : Pencil's instance for color : red, id -1259127258
```

Merci ! :)

https://refactoring.guru/design-patterns/flyweight
https://sourcemaking.com/design_patterns/flyweight
https://medium.com/elp-2018/comment-utiliser-le-flyweight-design-pattern-aa2bb36423f7