Programmation Orientée Objet (OBJET)

Modèle mémoire en Java



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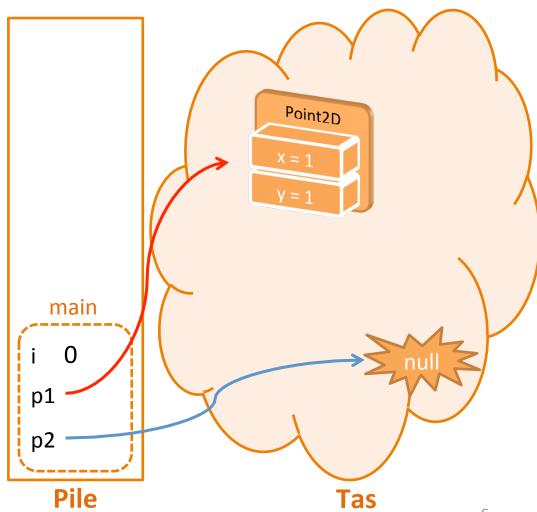
```
public static void m(int var) {
   var += 2;
   Point2D p1 = new Point2D(5,5);
public static void main(String[] args) {
    int i = 0:
   Point2D p1 = new Point2D(1,1);
   Point2D p2;
    i += 4:
   p2 = p1;
   System.out.println("i vaut: "+i);
   m(i);
   System.out.println("i vaut: "+i);
  Affichage console
                                              Pile
                                                                           Tas
```

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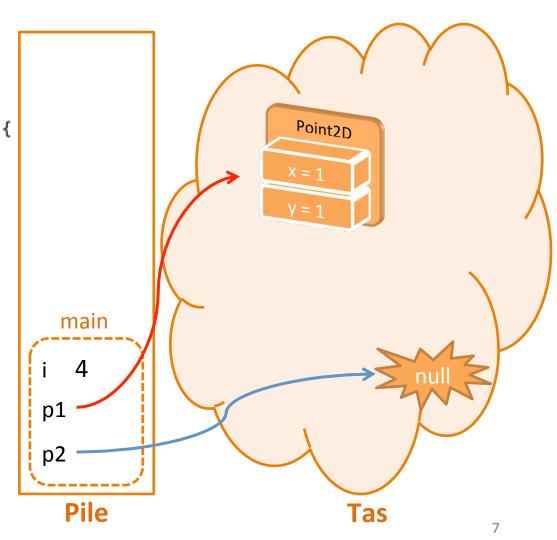
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                                                                      Point2D
public static void main(String[] args) {
    int i = 0:
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                                                                     X = 1
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                                            p1
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                                              main
  Affichage console
                                               0
                                            p1
                                            p2
                                              Pile
                                                                           Tas
```

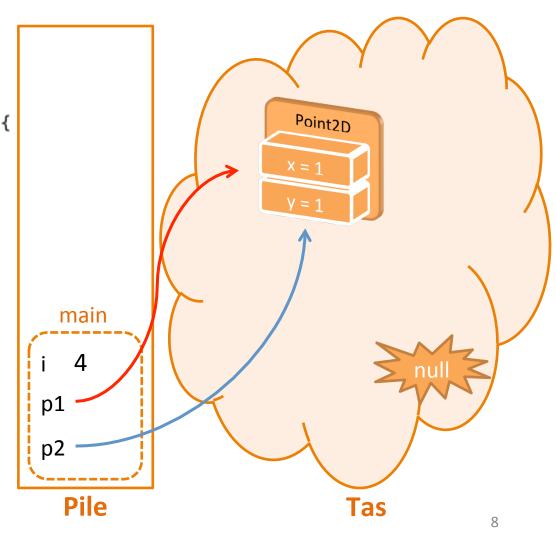
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                                             main
  Affichage console
                                               0
                                            p1
                                            p2
                                              Pile
```



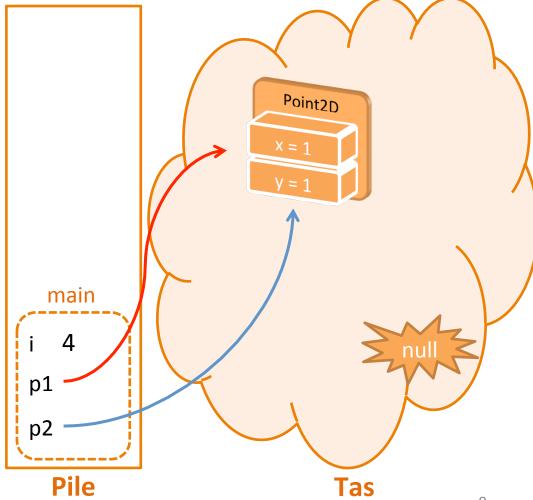
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   m(i);
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                                             main
  Affichage console
   i vaut: 4
                                            p1
                                            p2
                                              Pile
```



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                                            var 4
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                                              main
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   i vaut: 4
                                            p1
                                            p2
                                              Pile
                                                                           Tas
                                                                                         10
```

```
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                                              main
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   i vaut: 4
                                            p1
                                            p2
                                               Pile
                                                                            Tas
                                                                                          11
```

```
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                                                                      Point2D
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    int i = 0:
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                                                m
    Point2D p2;
    i += 4:
                                            var 6
    p2 = p1;
    System.out.println("i vaut: "+i);
                                            p1
                                                                    Point2D
    m(i);
    System.out.println("i vaut: "+i);
                                              main
  Affichage console
                                                4
   i vaut: 4
                                            p1
                                            p2
                                               Pile
                                                                            Tas
                                                                                          12
```

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                                                                      Point2D
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                                               m
    Point2D p2;
    i += 4:
                                            var 6
    p2 = p1;
    System.out.println("i vaut: "+i);
                                            p1
                                                                   Point2D
   m(i);
    System.out.println("i vaut: "+i);
                                              main
  Affichage console
                                               4
   i vaut: 4
                                            p1
                                            p2
                                              Pile
                                                                            Tas
```

13

```
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                                                                   Point2D
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                                              main
  Affichage console
   i vaut: 4
                                            p1
                                            p2
                                              Pile
                                                                            Tas
                                                                                          14
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                                              main
  Affichage console
                                               4
   i vaut: 4
                                            p1
                                            p2
                                              Pile
                                                                            Tas
                                                                                          15
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                                                              NV
    System.out.println("i vaut: "+i);
                                                                   Point2D
   m(i);
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                                              main
  Affichage console
                                               4
   i vaut: 4
                                            p1
                                            p2
   i vaut: 4
                                              Pile
                                                                            Tas
                                                                                          16
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                                              main
  Affichage console
   i vaut: 4
                                            p1
                                            p2
   i vaut: 4
                                              Pile
                                                                            Tas
                                                                                         17
```

Résumé

- 2 types de zones mémoire :
 - Tas : partagée
 - Pile: stocke des contextes locaux créés pour chaque méthode; unique par un thread/programme
- Seules des données de type primitifs et des références à des objets peuvent être stockées dans la Pile
- Tous les objets sont forcément créés dans le Tas et donc partagés.
- Java propose un mécanisme de gestion de la mémoire (Garbage Collection) → lorsqu'un objet n'est plus accessible par personne il est détruit!