LAB 03 REPORT

Question: Is Java a pass-by-value language or a pass-by-reference language?

Java is a pass-by-value language.

Question: After calling swap(jungleDVD, cinderellaDVD) why does the title of these two objects remain?

After calling swap(jungleDVD, cinderellaDVD), value of o2 will get a copy of cinderellaDVD. The method will make of value of o1 and o2 only, rather than the original objects jungleDVD and cinderellaDVD.

Question: After calling changeTitle(jungleDVD, cinderellaDVD.getTitle()), why is the title of the jungleDVD changed?

The value is a reference to the original jungleDVD object, so the attributes can be changed through this reference.

RUN IN DEBUG MODE

```java
1   package test.disc;
2   import main.disc.DigitalVideoDisc;
3
4   public class TestPassingParameter {
5
    Run main | Debug main | Run | Debug
6       public static void main (String[] args) { args = String[0]@9
7           DigitalVideoDisc jungleDVD = new DigitalVideoDisc(title:"Jungle"); jungleDVD = DigitalVid
8           DigitalVideoDisc cinderellaDVD = new DigitalVideoDisc(title:"Cinderella"); cinderellaDVD
9
10          swap(jungleDVD, cinderellaDVD); jungleDVD = DigitalVideoDisc@10 "Title: Jungle - Category
11          System.out.println("Jungle dvd title: " + jungleDVD.getTitle());
12          System.out.println("Cinderella dvd title: " + cinderellaDVD.getTitle());
13
14          changeTitle(jungleDVD, cinderellaDVD.getTitle());
15          System.out.println("jungle dvd title: " + jungleDVD.getTitle());
16      }
17
18      public static void swap(Object o1, Object o2) {
19          Object tmp = o1;
20          o1 = o2;
21          o2 = tmp;
22      }
23
24      public static void changeTitle(DigitalVideoDisc dvd, String title) {
25          String oldTitle = dvd.getTitle();
26          dvd.setTitle(title);
27          dvd = new DigitalVideoDisc(oldTitle);
```

VARIABLES

- Local
  - args = String[0]@9
  - ∨ jungleDVD = DigitalVideoDisc@10 "Title: J..
    - category = null
    - cost = 0.000000
    - director = null
    - id = 1
    - length = 0
    - › title = "Jungle"
  - ∨ cinderellaDVD = DigitalVideoDisc@11 "Tit...
    - category = null
    - cost = 0.000000
    - director = null
    - id = 2
    - length = 0
    - › title = "Cinderella"

› WATCH

∨ CALL STACK

∨ Thread [main]   PAUSED ON BREAKPOINT

TestPassingParameter.main(String[]) T..

Thread [Reference Handler]   RUNNING

```java
1   package test.disc;
2   import main.disc.DigitalVideoDisc;
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4   public class TestPassingParameter {
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6       public static void main (String[] args) { args = String[0]@9
7           DigitalVideoDisc jungleDVD = new DigitalVideoDisc(title:"Jungle"); jungleDVD = DigitalVid
8           DigitalVideoDisc cinderellaDVD = new DigitalVideoDisc(title:"Cinderella"); cinderellaDVD
9
10          swap(jungleDVD, cinderellaDVD); jungleDVD = DigitalVideoDisc@10 "Title: Cinderella - Cate
11          System.out.println("Jungle dvd title: " + jungleDVD.getTitle()); jungleDVD = DigitalVideo
12          System.out.println("Cinderella dvd title: " + cinderellaDVD.getTitle()); cinderellaDVD =
13
14          changeTitle(jungleDVD, cinderellaDVD.getTitle()); jungleDVD = DigitalVideoDisc@10 "Title:
15          System.out.println("jungle dvd title: " + jungleDVD.getTitle()); jungleDVD = DigitalVideo
16      }
17
18      public static void swap(Object o1, Object o2) {
19          Object tmp = o1;
20          o1 = o2;
21          o2 = tmp;
22      }
23
24      public static void changeTitle(DigitalVideoDisc dvd, String title) {
25          String oldTitle = dvd.getTitle();
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VARIABLES

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    - category = null
    - cost = 0.000000
    - director = null
    - id = 2
    - length = 0
    - › title = "Cinderella"

› WATCH

∨ CALL STACK

∨ Thread [main]   PAUSED ON STEP

TestPassingParameter.main(String[]) T...

Thread [Reference Handler]   RUNNING

REORGANISE YOUR PROJECTS

∨ AimsProject
  > .vscode
  > bin
  > Design
  > lib
  > Requirement
  ∨ src\hust\soict\cybersec\aims
    ∨ main
      > cart
      > disc
      > store
    ∨ test
      > cart
      > disc
      > store
    J Aims.java
∨ OtherProjects
  > .vscode
  > bin
  > lab01
  > lib
  ∨ src
    > hust
    > hust.soict.cybersec.garbage
    > lab01
  > ReadingAssignment