Saturday, November 13, 2021 10:32 AM

When to use "super" keyword instead of "this" ?

Add a public void display in person and in student class !!

Super is used to

1. To call super class constructor from subclass constructor
2. Distinguish super class method from subclass method
   super is uses as a "this" of super class IN the subclass

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default package = java.lang

Object class ?
java.lang.Object

Since Jdk1.0
This Object class is the SUPER class of each and every class that you write in Java.
The Object class is the ROOT of the Java class HIERARCHY !!!

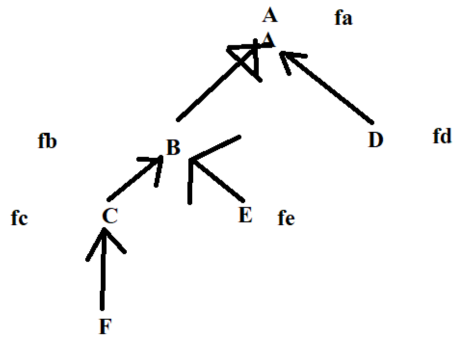
Upcasting and Down casting---------------

```
UP   ---- SUPER CLASS
              |
              |
              |
DOWN  ---SUB CLASS
```

Write a hierarchy

```
      A   super class
      |
      B  is a  A
      |
      C  isa  B
```

D isA A
E is a B
F is a C



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A obj = new A() ;

obj.fa();
obj.fb();
obj.fc();
obj.fd();
obj.fe();
onj.ff();

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UPCASTING ---- Super class reference is having object of subclass !!
A obj = new B() ; //if RHS isa LHS then the equation is VALID !!!

A obj = new C() ;
A obj = new F();
A obj = new D();

B obj = new F() ;

E obj = new A(); //INVALID

A obj = new C() ;

obj has TWO data types

1. The data type used while compiling = static data type = compile time data type

   A is the data type used by compiler

1. The data type used while running = dynamic data type = run time data type

   C is the run time data type

Operator

+ - == != && || / * < >

instanceof

____

UPCASTING   A obj = new B() // obj is a reference of super class A and it is having object of subclass B

DOWNCASTING

```
        Public static void method(B obj ){
        F temp =(F)obj;
        }
```

temp is a reference of subclass F and obj is an reference of super class B, we are casting superclass reference to sub class reference

instanceof operator checks the runtime type of a reference and returns true false as result !!!

One reference can have compile time type and run time type

While compiling the compile time type is used to decide which methods can be called using that reference

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HW 1 - practice of UPCASTING And DOWNCASTING

Create a Hierarchy A B C D E F   as **discussed in class**

write following methods in the TestUpCastingDowncasting class along with main

Public static void show(A obj)   // call this method in all possible ways

Call methods fa to ff // use direct call or downcasting as required

SIMILARLY   write show1(B obj)   , show2(C obj) , show3(D obj) , show4(E obj)   show5(F obj)

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HW2 --- practice for DOWNCASTING and instanceof

Modify ObjectExample ---- the signature of func1 is **public static void func1(Object obj)**

Pass different objects to func1()

Try calling the methods of these classes using downcasting

At least pass 4 different class objects to func1()

1. Pass a String object to func1
   1) Print the string in uppercase inside func1()
2. Pass Scanner object to func1
   1) Call the nextLine method of scanner inside func1

3. Pass the Circle object to func1()

   Show the radius of the circle inside func1

4. Pass the Employee object to func1()

   Show the salary of empolyee inside func1()

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