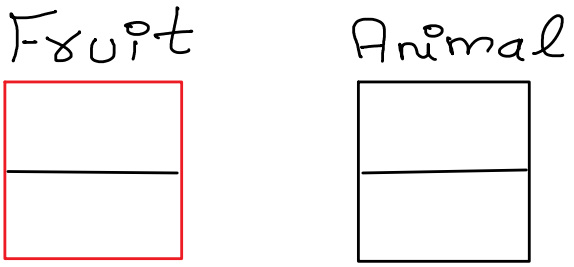
Friday, March 27, 2020 8:11 AM



1. Fruit f1 = null ; ✓
2. Fruit f2 = 10 ; X CTE
3. Fruit f3 = new Fruit() ; ✓
4. Fruit f4 = f3 ;
5. Animal a1 = null ; ✓
6. Animal a2 = "animal" ; X
7. Animal a3 = new Animal() ; ✓
8. Animal a4 = a3 ; ✓
9. Fruit f5 = a4 ; CTE

int a = 10.5 ;
int a = (int) 10.5 ;

Fruit f5 = a4 ;

Fruit Animal

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Derived Type Casting / Non-Primitive type casting

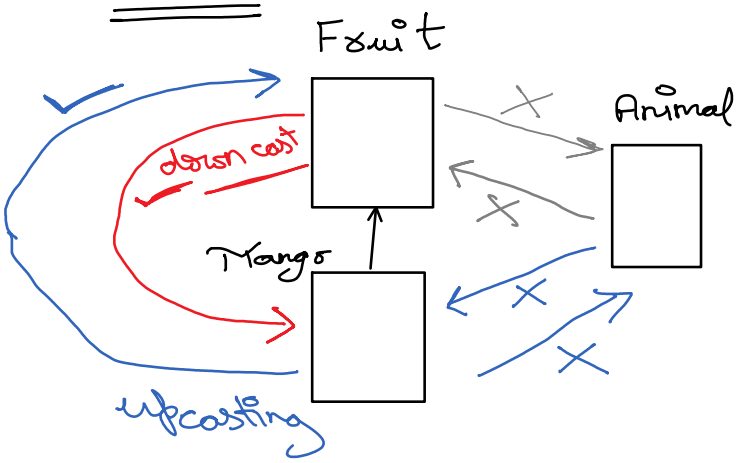
The process of converting one non-primitive type into another non-primitive type is known Derived type casting

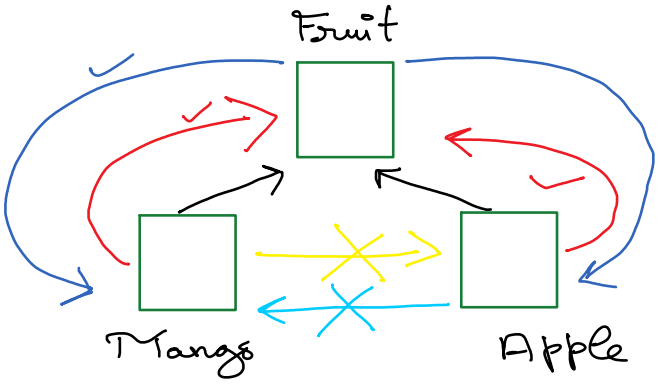
The process of converting one type of reference into another reference type is known as derived type casting.

Note : (We can perform Derived type casting only for the following scenarios :)

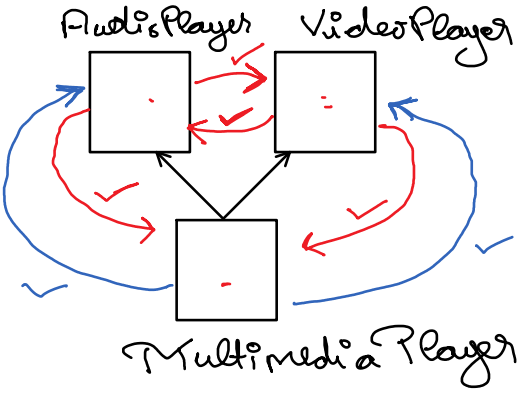
1. There should be Is-A relationship between both the types. (Case 1)
2. Both the parent(Super class) has a common child(Sub-class). (Case 2) → during interface

Case 1





Case 2



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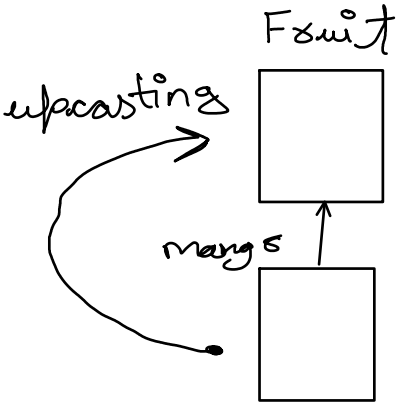
Types of Derived type Casting

- Upcasting
- Down casting

Upcasting:

The process of converting Sub-class reference type into Super-class reference type is known as upcasting.




```
Mango m1 = new Mango();
Fruit f1 = m1;
```

LHS RHS

fruit ← parent

mango → child

Upcasting implicitly by compiler

Note :
1. Upcasting can be done implicitly by the Compiler, hence it is also known as Auto-Upcasting.
2. Once a Reference is up-casted, we cannot use the members of subclass.

Assignment 5

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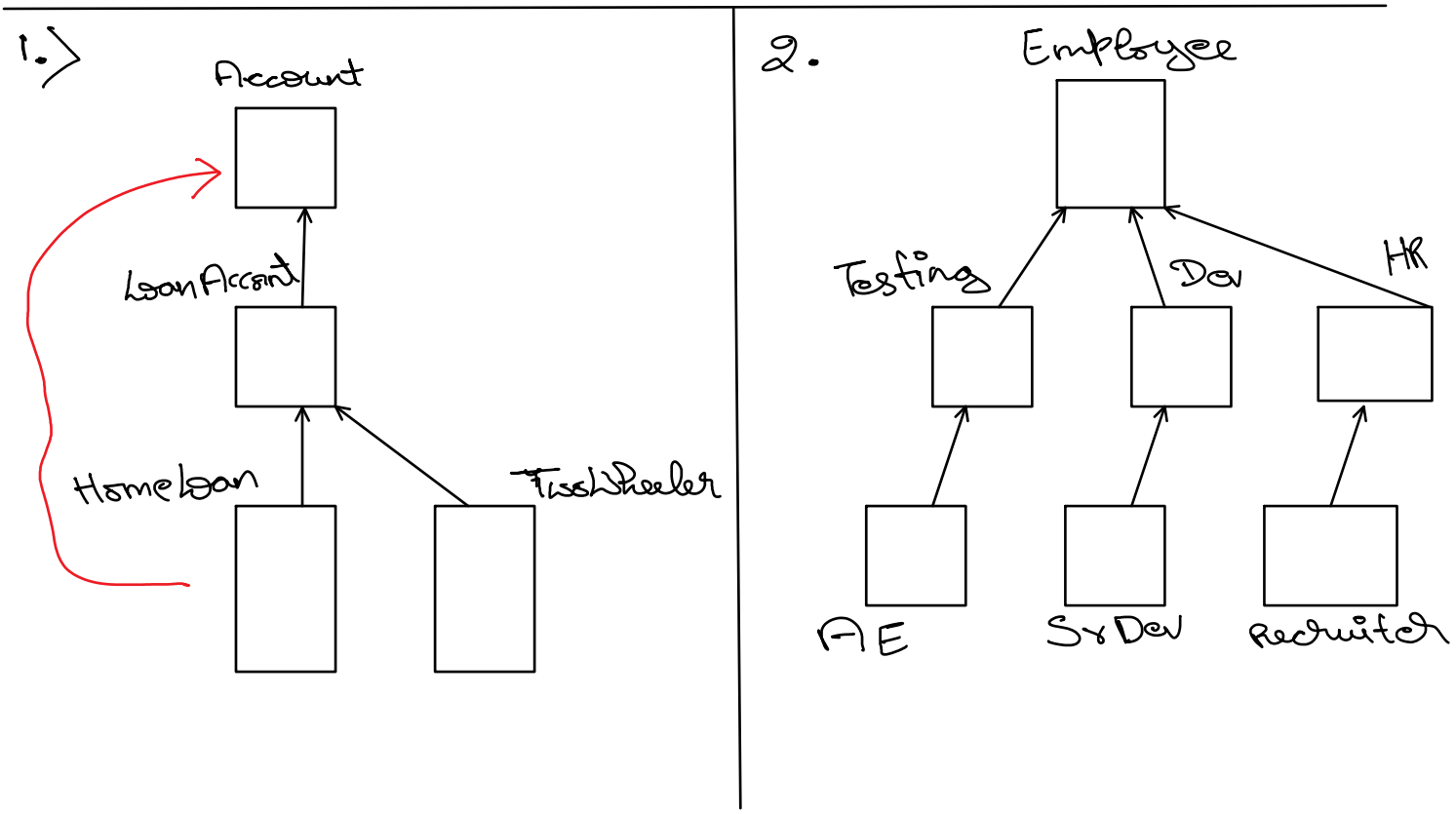

1. Create class for the above class-diagrams.
2. Try upcasting with each and every possible cases, for every case create one program

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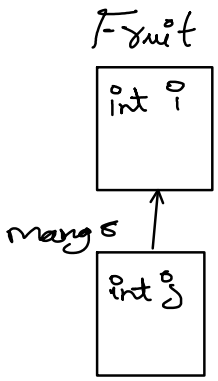



```
class Fruit {
    int I ;
}

class Mango extends Fruit {
    int j ;
}
```

Case 1 :-

Mango m1 = new Mango() ;

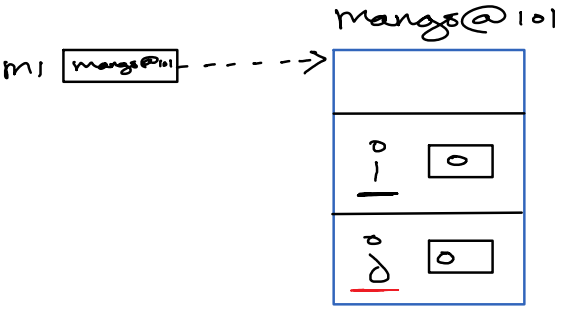
mango Mango

S.o.pln (m1.i) ; //0

CT RT

S.o.pln (m1.j) ; //0

CT RT



Note :

1. With the help of sub-class reference variable we can use members of sub-class as well as superclass.
2. Sub-class object will have instance subclass as well as super-class.

Case 2 :-

Fruit f1 = new Mango() ;

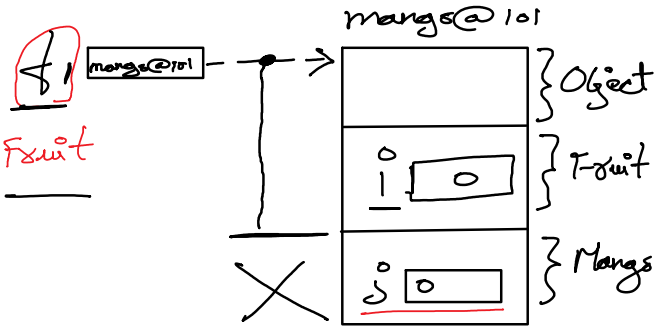
Fruit Mango

Parent child

Upcasting

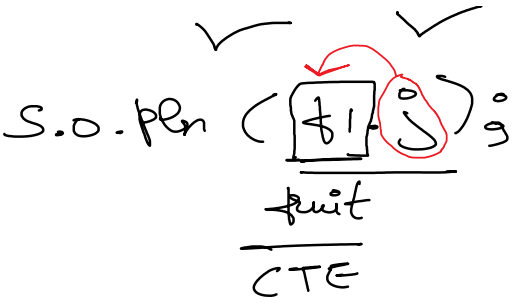
S.o.pln (f1.i) ; //0

CT RT

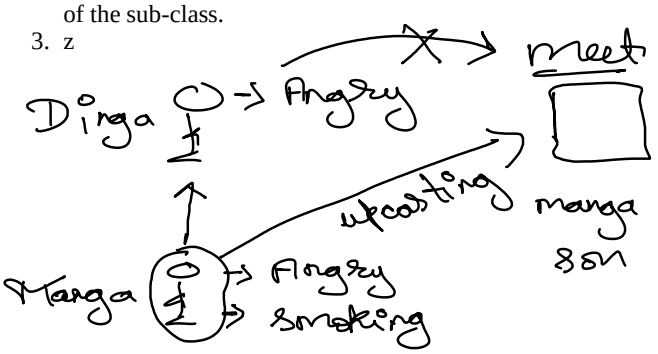


Note :

1. We cannot use the members of subclass with the help of super class reference type.
2. If the sub-class reference is upcasted, we cannot use the members of the sub-class.



1. We cannot use the members of subclass with the help of super class reference type.
2. If the sub-class reference is upcasted, we cannot use the members of the sub-class.
3. z



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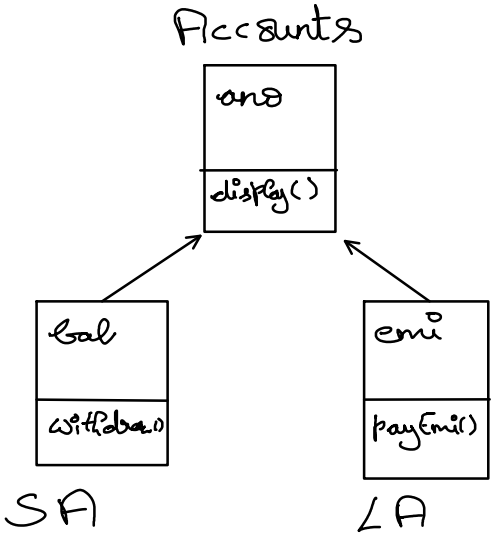

1. Accounts a1 = new SA();

sop (a1.ano); ✓

sop (a1.bal); ✗

a1.display(); ✓

a1.withdraw(); ✗

2. Accounts a2 = new LA();

sop (a2.ano); ✓

sop (a2.bal); ✗

sop (a2.emi); ✗

a2.display(); ✓

a2.withdraw(); ✗

a2.payEmi(); ✗

---

3. LA a3 = new SA(); ✗

---

4. LA a4 = new LA(); ✓

sop (a4.ano); ✓

sop (a4.emi); ✓

sop (a4.bal); ✗

a4.display(); ✓

a4.payEmi(); ✓