

non primitive type casting:- process of converting one non primitive type into another non primitive type

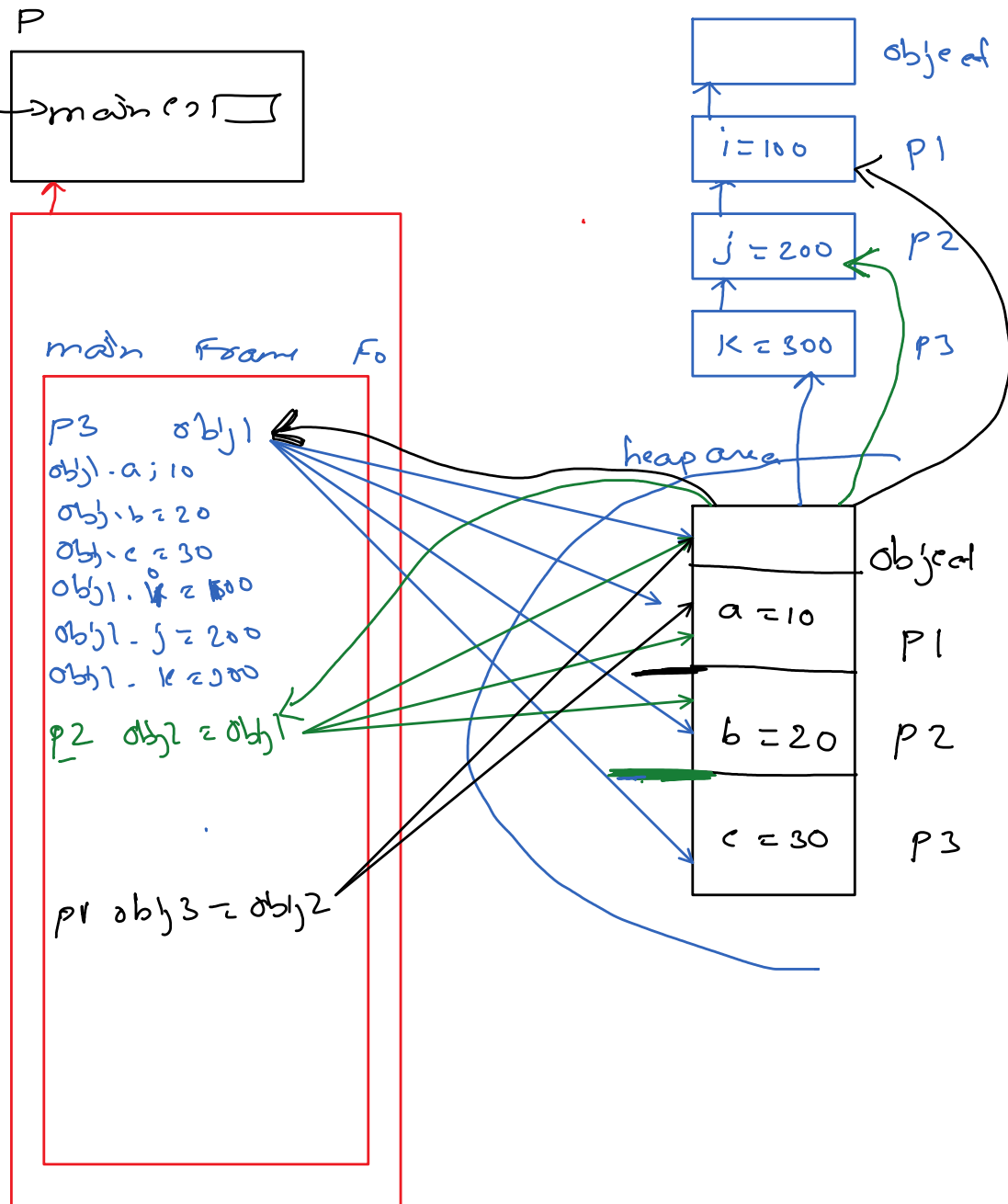
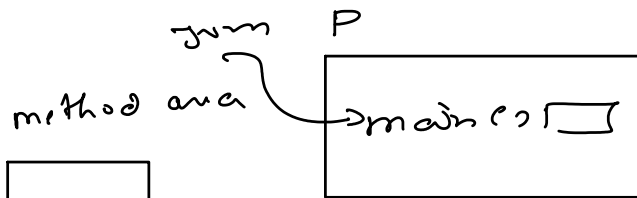
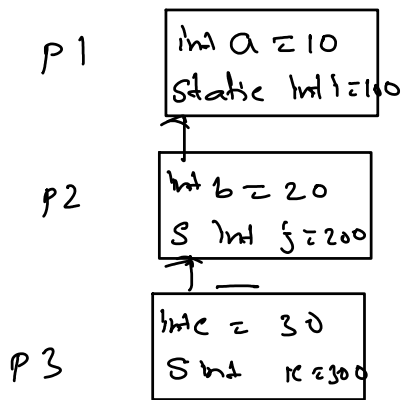
NOTE: classes should follow inheritance (is-a relationship)

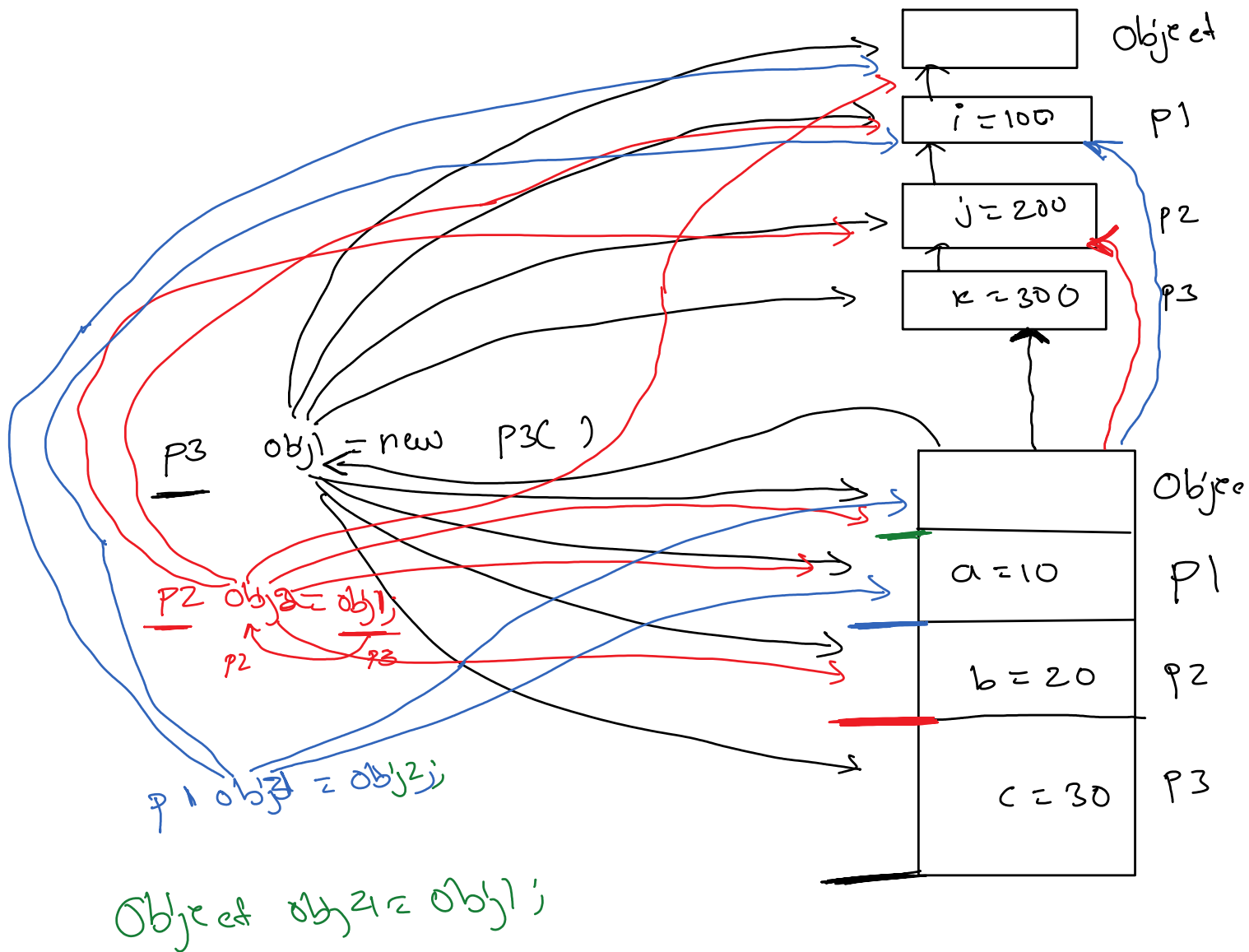
two types :

UP casting

DOWN casting

UP casting :process of converting a sub class object ref into super class type





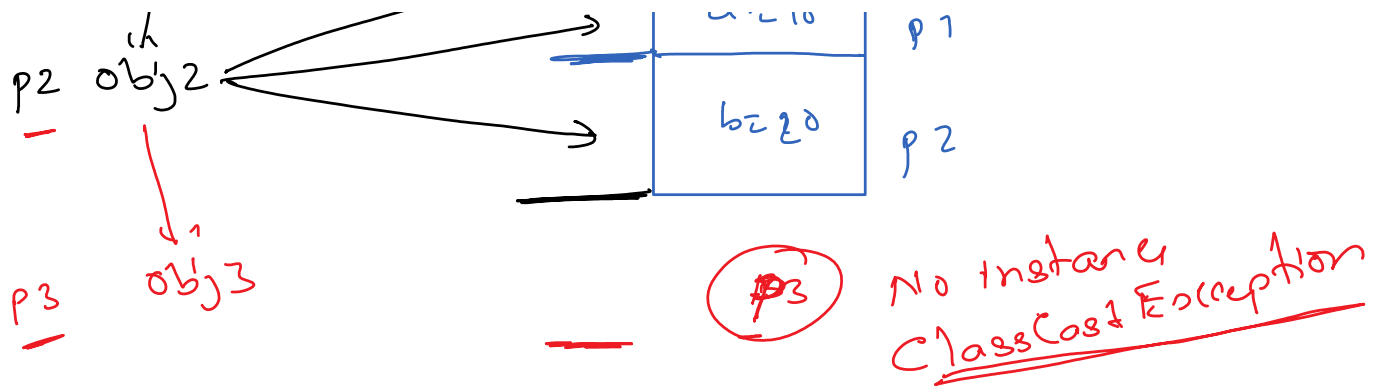
by upcasting a ref we can restrict non static members as well as static members till that super class

**Down casting:-**process of converting a super class ref type to sub class type

downcasting is not automatic we have to use external operator called as cast operator

Note: to downcast the classes should be upcasted first  
to downcast the object should contain an instance





We can avoid ClassCastException by checking the instance of particular class inside an object before downcasting

`instanceof` :- is keyword which is used to check the instance of given class in a given object

syntax

**object ref instanceof Class**

1 if instance is present --> true

2 if it is not present --> false

```
if(object_ref instanceof class)
{
    downcast
}
```

### questions

- 1) what is upcasting ? explain with an example
- 2) what is downcasting ? explain with an example
- 3) explain the ClassCastException? vvvvimp ABimp
- 4) explain the instanceof keyword with a syntax and example