Inheritance

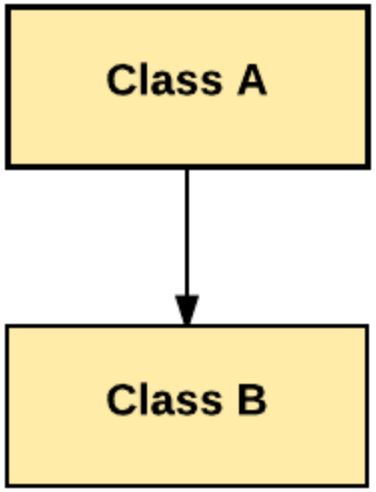
What is inheritance??

Inheritance

A new class is created by acquiring an existing class's members and possibly embellishing them with new or modified capabilities.

With inheritance, you can save time during program development by basing new classes on existing proven and debugged high-quality software. This also increases the likelihood that a system will be implemented and maintained effectively.

Diagrammatically



Super class

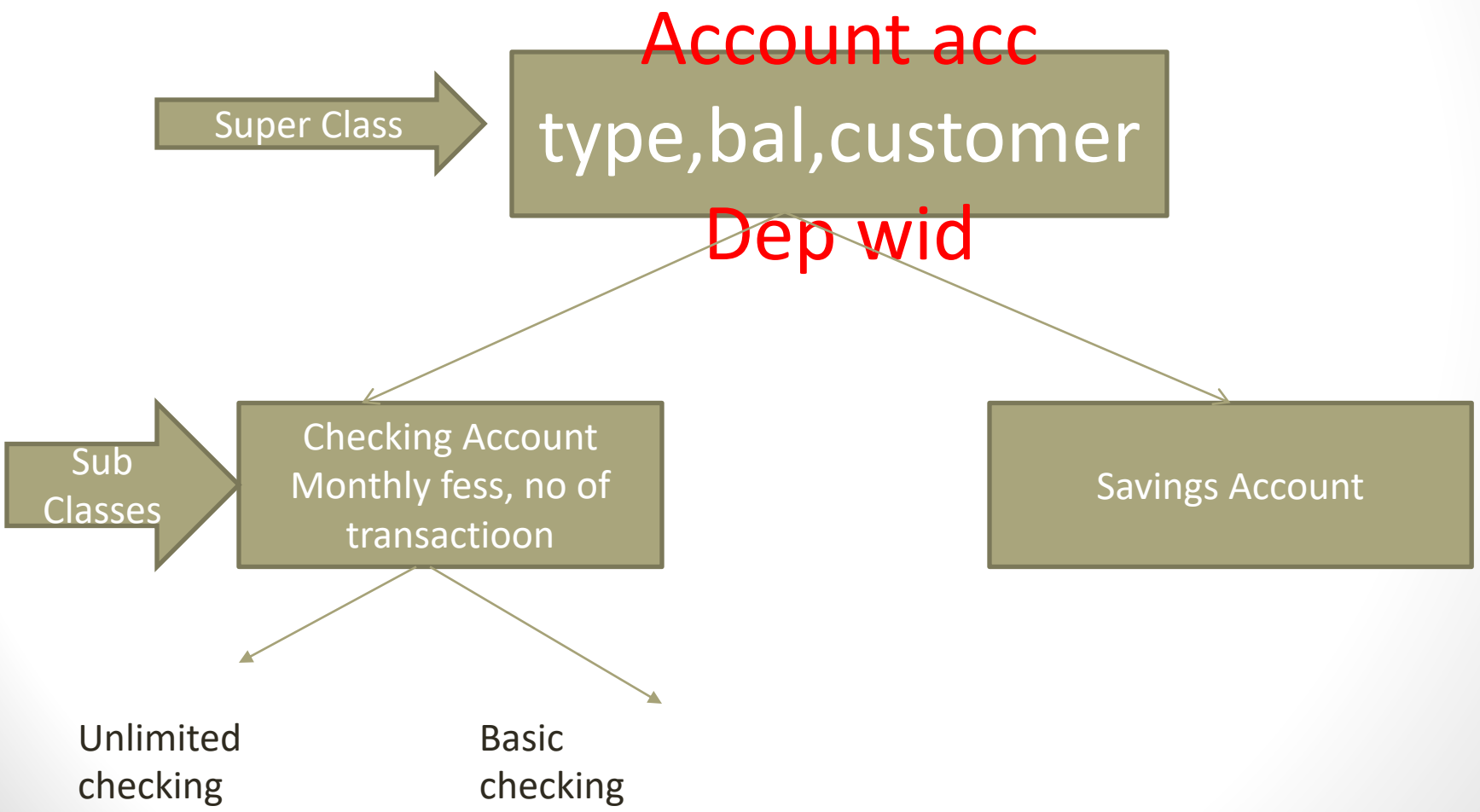
When creating a class, rather than declaring completely new members, you can designate that the new class should *inherit* the members of an existing class.

The existing class is called the **superclass**, and the new class is the **subclass.**

Sub Class

- A subclass can become a superclass for future subclasses.
- A subclass can add its own fields and methods. Therefore, a subclass is *more specific* than its superclass and represents a more specialized group of objects.
- The subclass exhibits the behaviors of its superclass and can modify those behaviors so that they operate appropriately for the subclass. This is why inheritance is sometimes referred to as **specialization**.

For Example:


Account acc
type,bal,customer
Dep wid
Super Class
Sub Classes
Checking Account
Monthly fess, no of transactioon
Savings Account
Unlimited checking
Basic checking

More Examples

Superclass	Subclasses
Student	GraduateStudent,UndergraduateStudent
Shape	Circle, Triangle, Rectangle, Sphere, Cube
Loan	CarLoan, StudyLoan, MortgageLoan
Employee	Faculty, Staff
BankAccount	CheckingAccount, SavingsAccount

extends Keyword

extends is the keyword used to inherit the properties of a class.

Syntax

```
class Super {
.....
.....
 }
class Sub extends Super {
.....
.....
}
```

Lab 2 due June 30,2020

- Create a Project name Banking which will have the following classes with the given instance variables and the methods
- Create a class Account with
- Withdrawal and deposit methods

Contd.,

- Create checking account class extending the account class,

Having additional instance variables

monthly fees, over draft limit(OD), over draft active, overdraft fees

Overriding the withdrawal and deposit methods

Withdrawal method should check the over draft active or not if yes then should check the balance with the withdrawal amount and then perform the withdrawal, if withdrawal request is within the balance simple withdrawal should be performed otherwise your method should check the over draft limit to perform the action of withdrawal by checking the requesting amount with the OD or OD plus balance.

Account class

- Deposit ()
- Bal 5000
- Dep 500
- New bal 5500

- Withdraw()
- Bal 5000
- w/d -500
- New Bal 4500

New bal 5500(no)

Checking Class

- Withdraw() withdraw options the Overdraft active
- Bal 5000 OD 1000
- W/d -4500
- Bal 500 OD 1000

- Bal 5000 OD 1000
- W/D - 5500
- Bal -500

Contd.,

- Withdraw() no OD
- Bal 5000
- W/d -4500
- Bal 500

- Bal 5000
- W/d -5500
- Message “ Requested amount is above the available bal”

Contd.,

- Deposit() with OD with limit 1000
- Bal 500
- Dep 4500
- Bal 5000

- Bal -500
- Dep 1000
- Bal 500