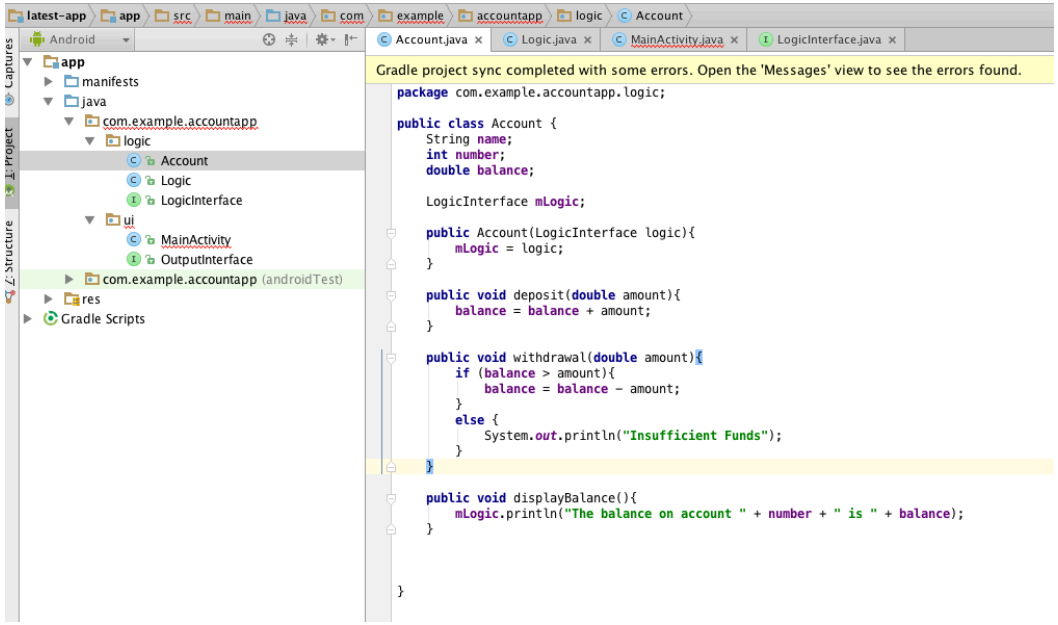
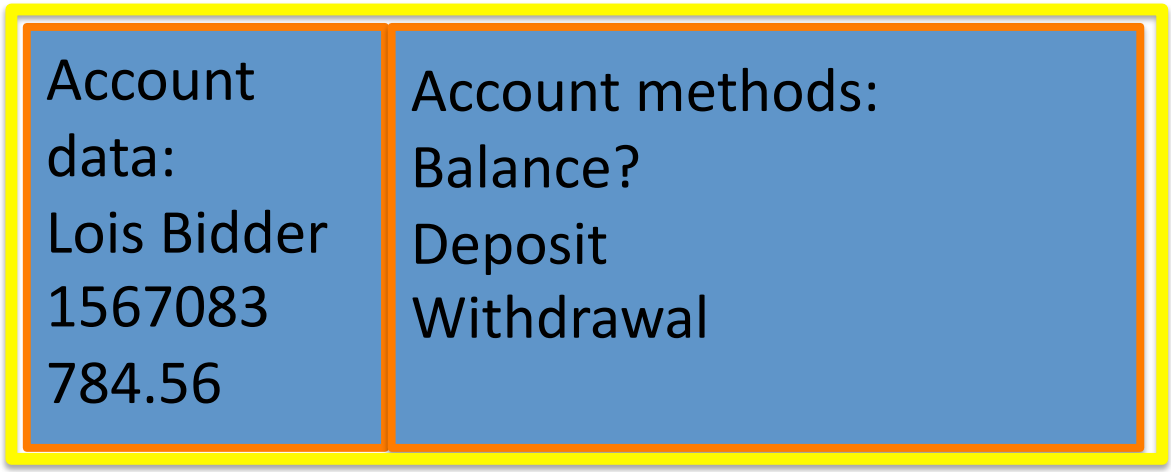
Open Android Studio and follow along



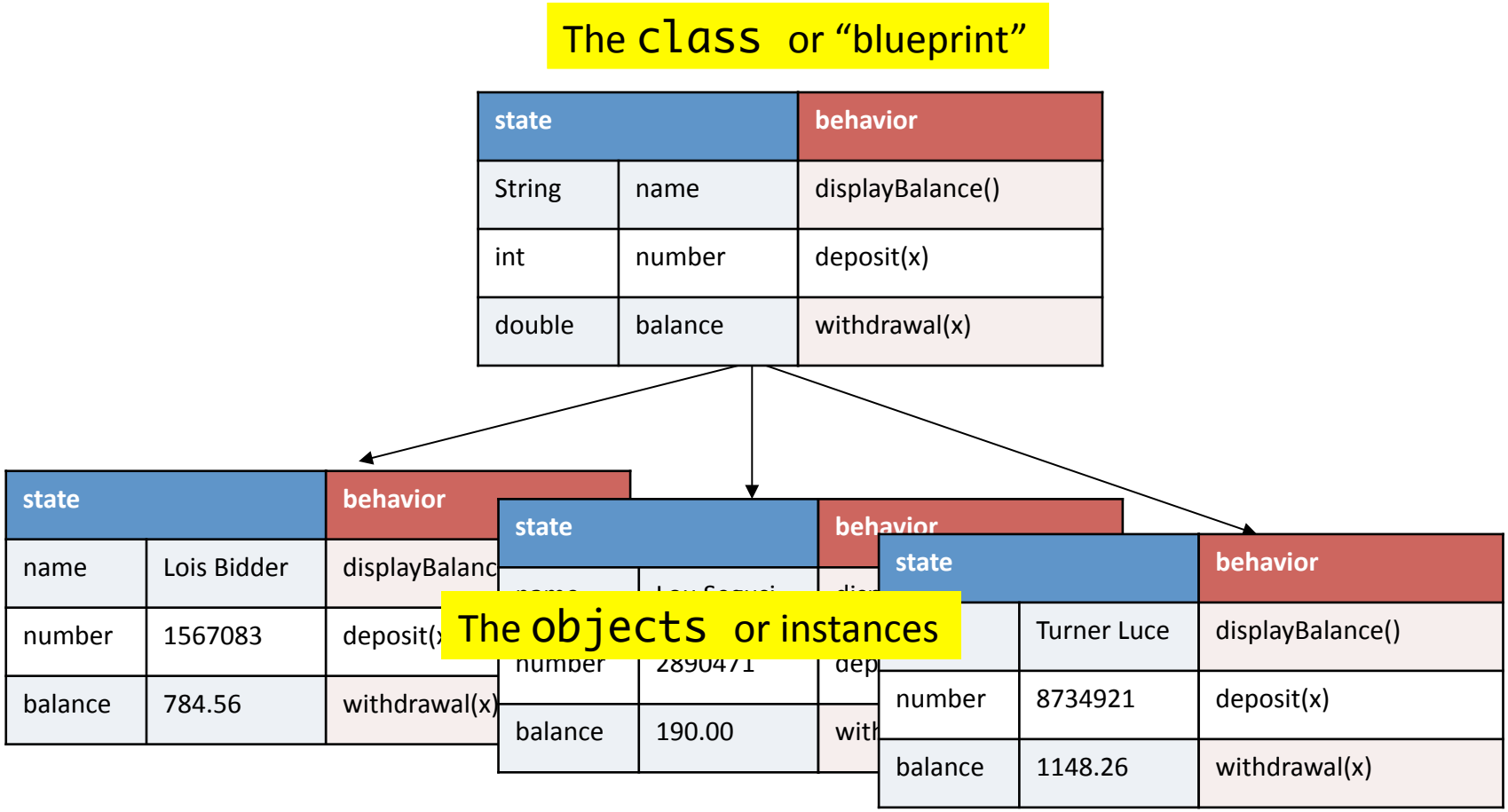
an `Account` object



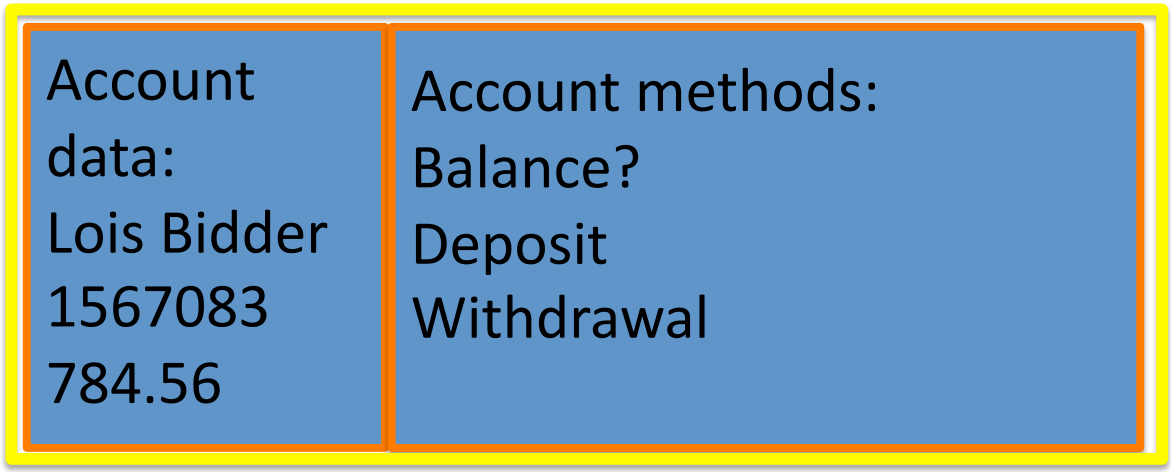
the `Account` class

Field name	Description
`name`	Account holder's first and last name
`number`	A unique identification number
`balance`	Amount currently in account

Method name	Description
`displayBalance()`	returns the current balance
`deposit(x)`	add x to the current balance
`withdrawal(x)`	subtract x from the current balance


The class or "blueprint"
state
behavior
String
name
displayBalance()
int
number
deposit(x)
double
balance
withdrawal(x)
state
behavior
name
Lois Bidder
number
1567083
balance
784.56
The objects or instances
state
behavior
number
balance
190.00
state
behavior
Turner Luce
displayBalance()
number
8734921
deposit(x)
balance
1148.26
withdrawal(x)

an `Account` object



class data– the state of an object

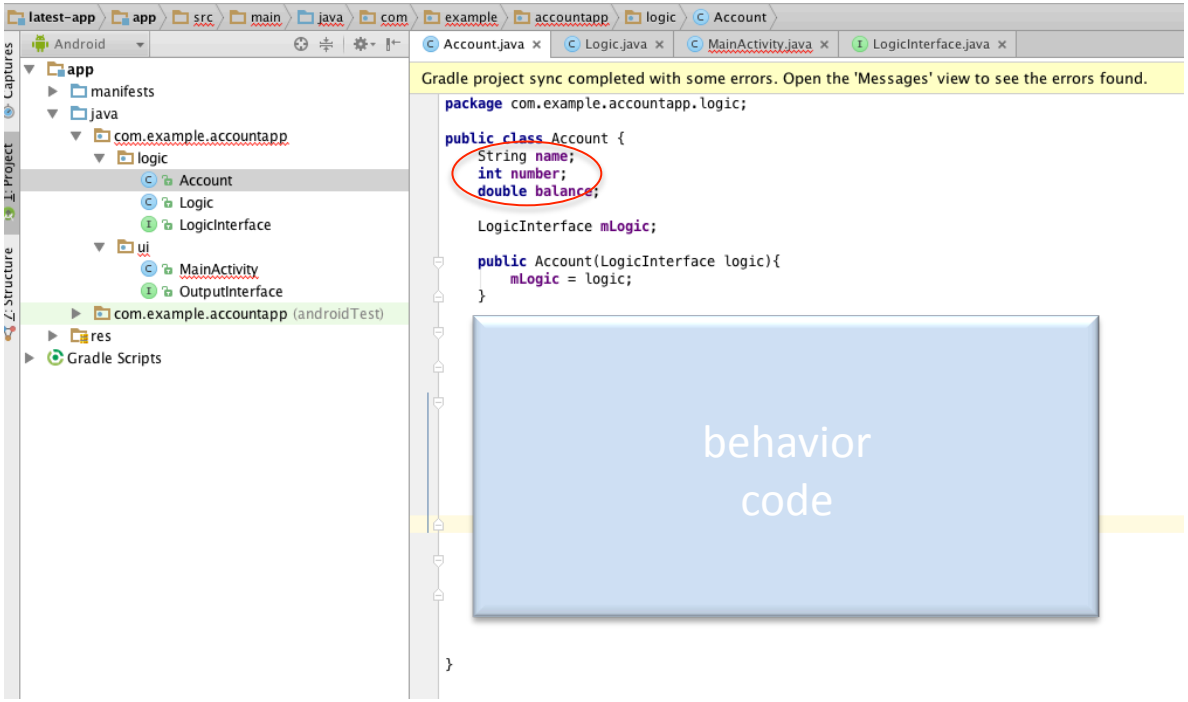
- The data portion of a class (the blueprint) or an object (the instance of a class) is sometimes called the *state*
- Each piece of data is called a *field* or *instance variable*
- Collectively, these fields store the state of an object

Build the Account class

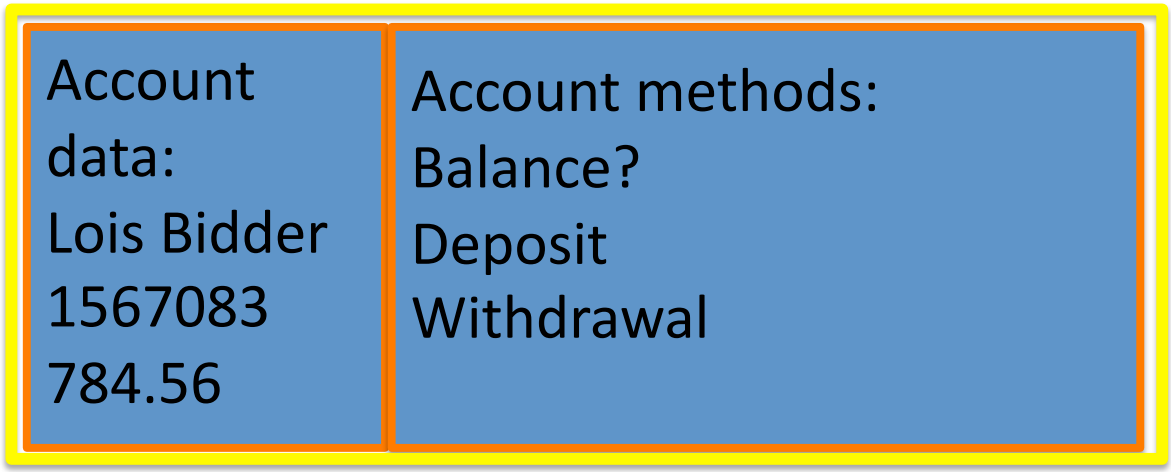
1. Open Account.java
2. Create the fields or instance variables for this class

```
String name;
int number;
double balance;
```

Build the Account class



an `Account` object



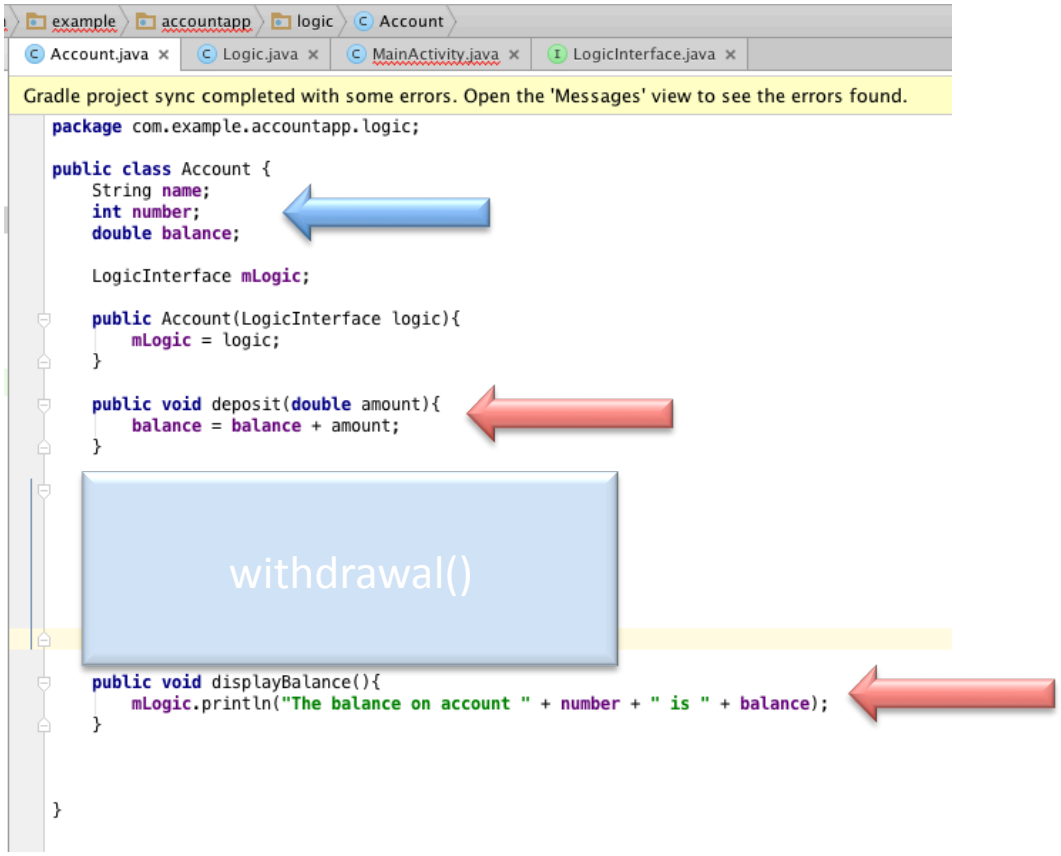
Build the Account class

Create the behaviors or methods

- `displayBalance()`
  - prints the Account number and the current balance

- `deposit(double amt)`
  - input parameter double
  - increases balance by the amount deposited

Build the Account class



Build the Account class

- `withdrawal(double amt)`
  - input parameter double
  - decreases balance by the amount withdrawn
  - what checks should be made?
  - what feedback should we give the user?

Think about Client classes

- As th

ABSTRACTION

– Ke gram users

Often you are both the author of the class and the author of the Client class(or user of the class)

You should consider both roles separately.

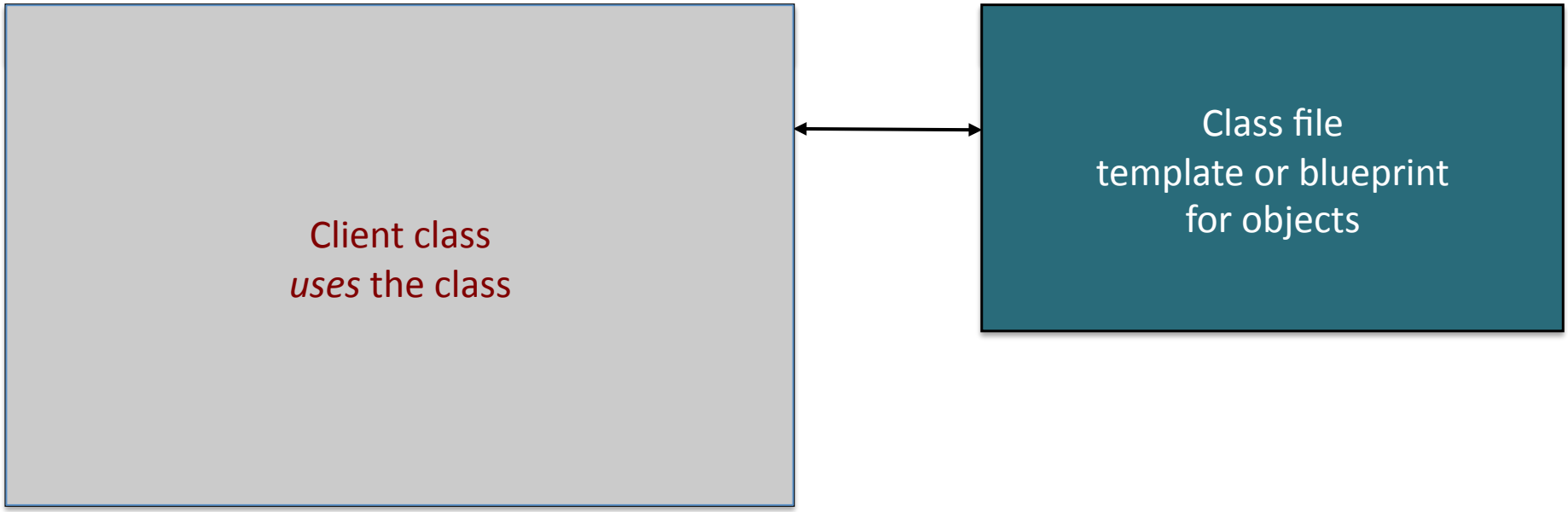
Build the Account class

What kind of information would other programmers need to know after a withdrawal has been attempted?

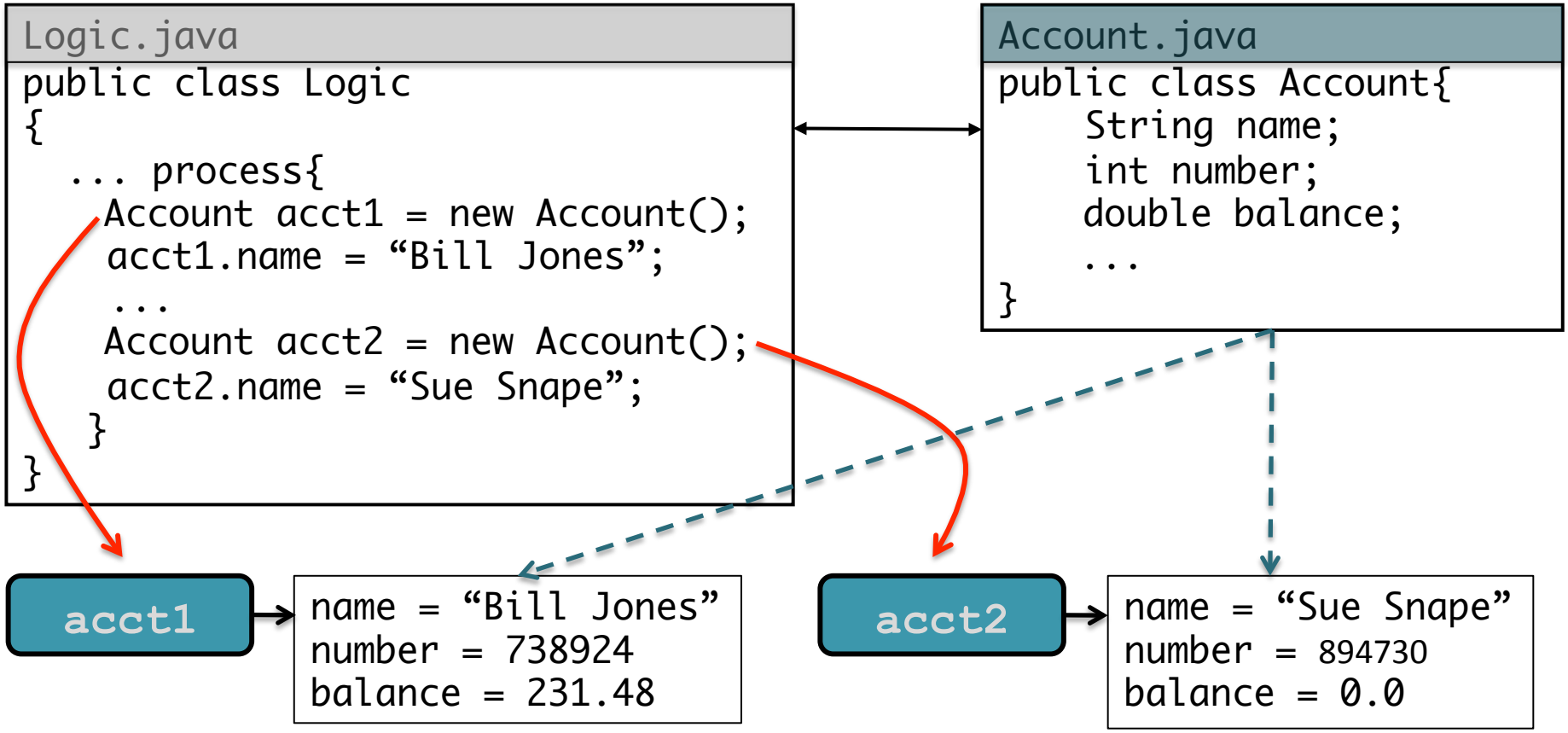
Build the Account class

```
package com.example.accountapp.logic;

public class Account {
    String name;
    int number;
    double balance;

    LogicInterface mLogic;

    public Account(LogicInterface logic){
        mLogic = logic;
    }

    public void deposit(double amount){
        balance = balance + amount;
    }

    public boolean withdrawal(double amount){
        if (balance > amount){
            balance = balance - amount;
            return (true);
        }
        else
            return(false);

    }

    public void displayBalance(){
        mLogic.println("The balance on account " + number + " is " + balance);
    }


}
```

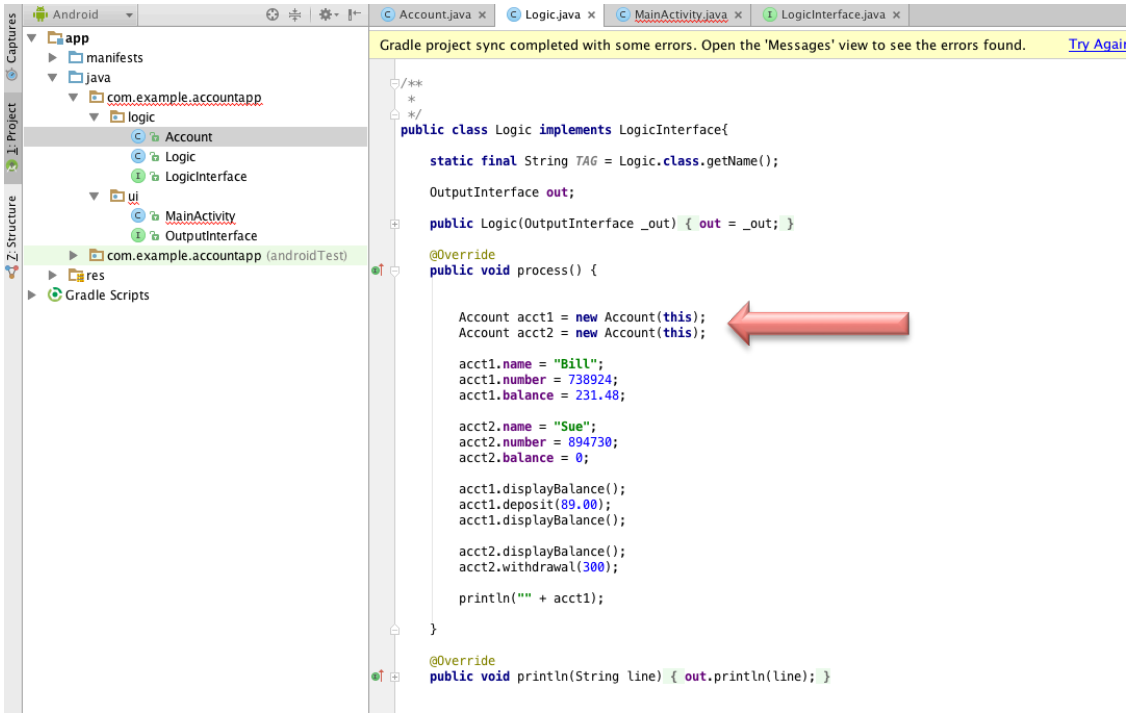
The Account class



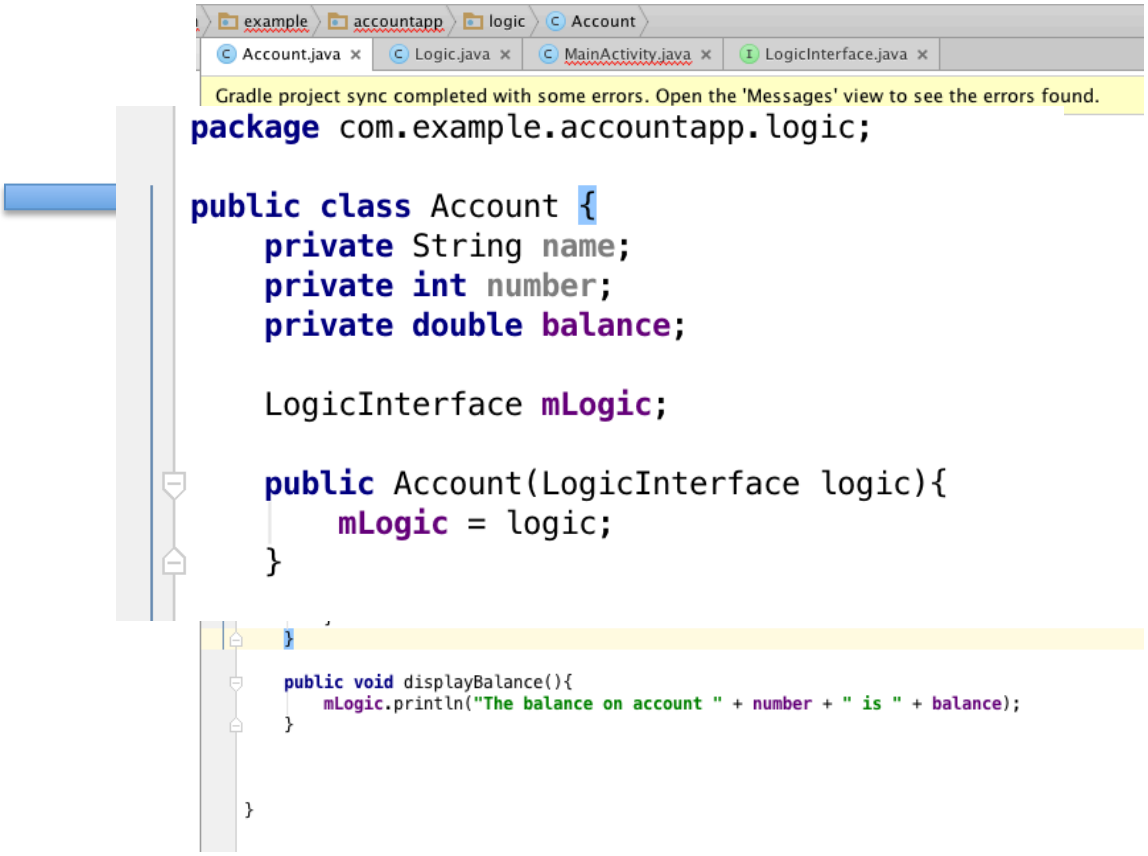
The Account class



An Account Client class: `Logic.java`



The Account class



When Client programs have direct access to data

- You
  a

Protecting your data

Build the Account class

- Instance variables should be private
- Methods not used to access or mutate data should be private
  - helper methods for example

Modify the Account class

```
package com.example.accountapp.logic;

public class Account {
    private String name;
    private int number;
    private double balance;

    LogicInterface mLogic;

    public Account(LogicInterface logic){
        mLogic = logic;
    }
```

Attempt to run the app

Trouble!