Review of OO Basics

3 Fundamental Characteristics of O-O

Name and describe the 3 fundamental (3 pillars) of object-oriented programming.

1.

2.

3.

What is "Data Hiding"?

Also known as "Information Hiding"

```java
public class BankAccount {

    /** attributes of a bank account */

    private final String accountId;

    private Person accountOwner;

    private Money balance;

    private List<Transaction> transactions;
```

How do we access private attributes?

If an attribute is private, how can we access it?

How can we get the account balance?

```
public class BankAccount {

    private Money balance;
```

Who can access private attributes?

Can one object directly access *private* members of another object of the same class?

```java
public class BankAccount {
    private double balance;
    /**
     * Take money from another account.
     * @param other the account to steal from
     */
    public void takeTheMoney(BankAccount other){
        this.balance += other.balance;
        other.balance = 0.0;
    }
```

Can we access?

Inheritance Example

```java
/** A person has a name and id. */

public class Person {

    private String name;

    private Long id;

    public Person(String aname) { . . . }
```

<u>Person</u>
-id: Long
-name: String

Student Subclass

```java
/** A person has a name and id. */
public class Student extends Person {
    private String id;  // bad idea
    public Student(String name,
            String id) {
        super(aname);
        this.id = id;
    }
}
```

Person
-id: Long
-name: String

Student
-id: String