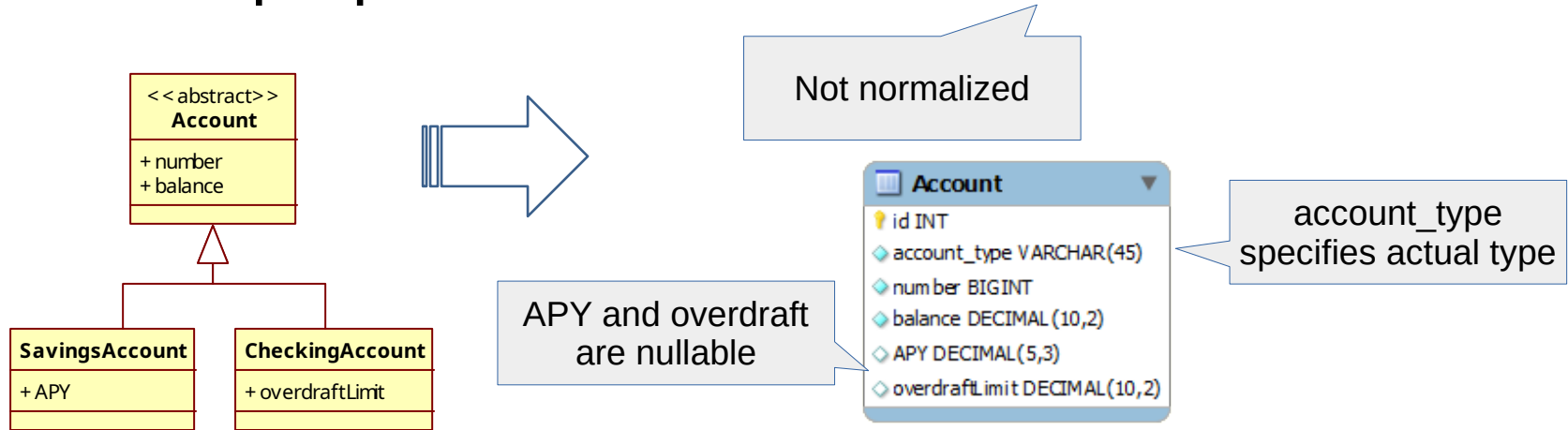CS544 EA
Hibernate

Inheritance: Single Table

Single Table

- Single Table uses **one big table**
  - **Discriminator column** specifies actual type
  - Sub class properties added as nullable columns

Not normalized

<>
Account
+ number
+ balance

SavingsAccount
+ APY

CheckingAccount
+ overdraftLimit

APY and overdraft are nullable

Account
id INT
account_type VARCHAR(45)
number BIGINT
balance DECIMAL(10,2)
APY DECIMAL(5,3)
overdraftLimit DECIMAL(10,2)

account_type specifies actual type

Single Table in Action

ACCOUNT_TYPE	NUMBER	BALANCE	OVERDRAFTLIMIT	APY
checking	1	500	200	
savings	2	100		2.3
checking	3	23.5	0	

APY null for checking
overdraft null for savings

✔ Simple, easy to implement

✔ Good performance on all queries (poly and not)

✗ Nullable columns / de-normalized

✗ Table may have to contain lots of columns

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SQL for Single Table Query

```
select
        account0_.number as number0_,
        account0_.balance as balance0_,
        account0_.owner_id as owner6_0_,
        account0_.overdraftLimit as overdraf4_0_,
        account0_.APY as APY0_,
        account0_.account_type as account1_0_
    from
        Account account0_
```

Single Table Mapping

Optional @Inheritance
Optional strategy
Default = SINGLE_TABLE

Opional @DiscriminatorValue
Default value is class name

```
@Entity
@Inheritance(strategy=InheritanceType.SINGLE_TABLE)
@DiscriminatorColumn(name="account_type",
        discriminatorType=DiscriminatorType.STRING)
public abstract class Account {
        @Id
        @GeneratedValue
        private Long id;
        private Long number;
        private double balance;
```
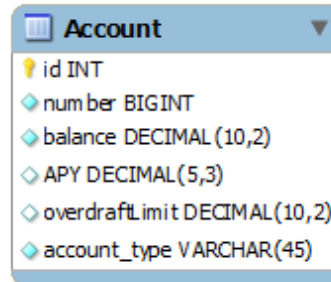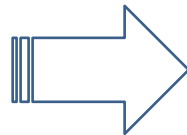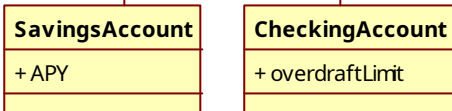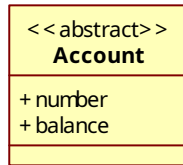
```
@Entity
@DiscriminatorValue("savings")
public class SavingsAccount extends Account {
        private double APY;
```

```
@Entity
@DiscriminatorValue("checking")
public class CheckingAccount extends Account {
        private double overdraftLimit;
```

Opional @DiscriminatorColumn
Default name is: DTYPE
Default type is: STRING

<>
Account

+ number
+ balance

SavingsAccount

+ APY

CheckingAccount

+ overdraftLimit

📘 Account ▼

🔑 id INT
◇ number BIGINT
◇ balance DECIMAL(10,2)
◇ APY DECIMAL(5,3)
◇ overdraftLimit DECIMAL(10,2)
◇ account_type VARCHAR(45)

Important: subclasses do not have an **@Id**

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Defaults

- Works without extra annotations
  - Defaults to Single Table

```java
@Entity
public abstract class Account {
        @Id
        @GeneratedValue
        private Long id;
        private Long number;
        private double balance;
```

```java
@Entity
public class SavingsAccount extends Account {
        private double APY;
```

```java
@Entity
public class CheckingAccount extends Account {
        private double overdraftLimit;
```


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