

Lab 7

Part A:

Given is the project **Lab7PartA**.

First run the code and notice that both the Account and the Customer is saved in the database. Now change the method `saveCustomer()` in the `CustomerRepository` like this:

```
public interface CustomerRepository extends
JpaRepository<Customer, Long> {
    default void saveCustomer(Customer customer) {
        throw new RuntimeException("could not save customer");
    }
    // save(customer);
}
```

Run the application and notice that we have an account in the database without customer. Modify the application such that you never can have an account without a customer in the database.

Part B:

Copy and paste **Lab7PartA** to **Lab7PartB**.

First change the `CustomerRepository` back like this:

```
public interface CustomerRepository extends
JpaRepository<Customer, Long> {
    default void saveCustomer(Customer customer) {
        // throw new RuntimeException("could not save customer");
        save(customer);
    }
}
```

Now modify the application such that

When both the Account and Customer are saved correctly we send an email to the customer with the text "Welcome <customername>"

When we cannot save the Account and Customer correctly in one transaction, we send an email to the customer with the text "We could not create your account <accountnumber>"

Part C:

Now we want to add tracing to this application.

We need a separate table with the name **tracerecord** which stored the result of the transactional method `createCustomerAndAccount()`. This table saves the current date and time, and the result of the transaction.

When both the Account and Customer are saved correctly we save a record to the database with the current date and time and the text “**Customer <customername> created with account <accountnumber>**”

When we cannot save the Account and Customer correctly in one transaction, we save a record to the database with the current date and time and the text “**Could not create customer <customername> with account <accountnumber>**”

What to hand in:

1. A separate zip file with the solution of part A
2. A separate zip file with the solution of part B
3. A separate zip file with the solution of part C
4. A PDF file with the solution of part D.