

What is a Transaction?

Transaction means that there are some set of statements that are to be executed in all. If all the statements are not executed all then the transaction is not valid.

For example consider a bank database which has many accounts under it in accounts table.

Accid	Account name	Balance
1	Raman	5000
2	Aman	3000

Now if 1000 Rs are debited or withdrawn from Accid 1 and deposited or credited to Accid 2 then the transaction is completed. In case if 1000 rs are debited or withdrawn from accid 1 but are not credited to accid 2 the transaction fails and whole bank system fails. In this case it is not a proper bank.

So these are Transactions and transactions can be implemented in Java using executeBatch Function of Statement class in java.sql package.

Following is the code

```
import java.sql.*;

/**
 *
 * @author raman
 */

public class Transaction_Demo {

    /**
     * @param args the command line arguments
     */

    public static void main(String[] args) {
        // TODO code application logic here

        try
        {
            String driverName = "com.mysql.jdbc.Driver";
            Class.forName(driverName);

            String url = "jdbc:mysql://127.0.0.1:3306/bank?characterEncoding=utf8";
            Connection con = DriverManager.getConnection(url, "root", "");
            con.setAutoCommit(false);
```

```

Statement stmt=con.createStatement();

stmt.addBatch("update accounts set balance=balance-1000 where accid=1;");
stmt.addBatch("update accounts set balance=balance+1000 where accid=2;");


stmt.executeBatch();//executing the batch


con.commit();
con.close();

System.out.println("Transaction Succeeded");
    }
    catch(Exception e)
    {
        System.out.println(e.toString());
        System.out.println("Transaction Failed");
    }
}

}

```

The above code will debit rs 1000 from accid 1 and credit to accid 2.

it will add two update sql statements to a batch of statements or group of statements if both or either of the statement does not execute properly or some error is occurred it will rollback the group of statements or reverse the changes made to the database.

Commit means making permanent changes to database and rollback means reversing the changes to the database.

In the above code 1000 rs are debited or withdrawn from accid 1 and credited or deposited to accid 2.

Now if balance in accid becomes less than 0 this program does not have that implementation.

Now to implement this functionality we can use triggers in database management systems.

What are Triggers?

Trigger is code which is executed when some action is performed for example trigger can be executed when an update operation is performed on table accounts.

if the balance becomes less than 0 the trigger will not let update statement to be executed.

Triggers can be implemented in Database Management Systems like Oracle and MySQL.