Assignment 1: Explain the difference of closed nested transactions, open nested transactions, Sagas and detached transactions on the following example:

```
111T 112T
T1
T11 T12
121T 122T
```

What happens in the different models when transaction $T_{112}$ aborts? Why do we need advanced transaction models in this case?

Assignment 2: Describe the importance of recovery! Which system components are needed for the recovery.

Assignment 3: In the following example, what does the recovery manager need to ensure regarding the persistency of modifications?

Assignment 4: Assign the following problems to the given error classes and explain these classes:
1. operating system error
2. Head-Crashes
3. transaction abort by the system

Assignment 5: Consider the errors of the previous assignment. Which recovery classes are needed to correct these errors?

Assignment 6: Explain the concept and structure of an log.

Assignment 7: Explain the different logging methods. Discuss the advantages and disadvantages of each method. Explain the concept of WAL.

Assignment 8: Explain the concept of a savepoint. Discuss the different types of savepoints.