

— Software Engineering Vertiefung —

Exercise 3

Handout:

Handin:

1 Design Pattern

Punkte: 12

b) (12 Pt) Consider the class diagram given in Figure 1. The classes should implement the `Iterator` de-

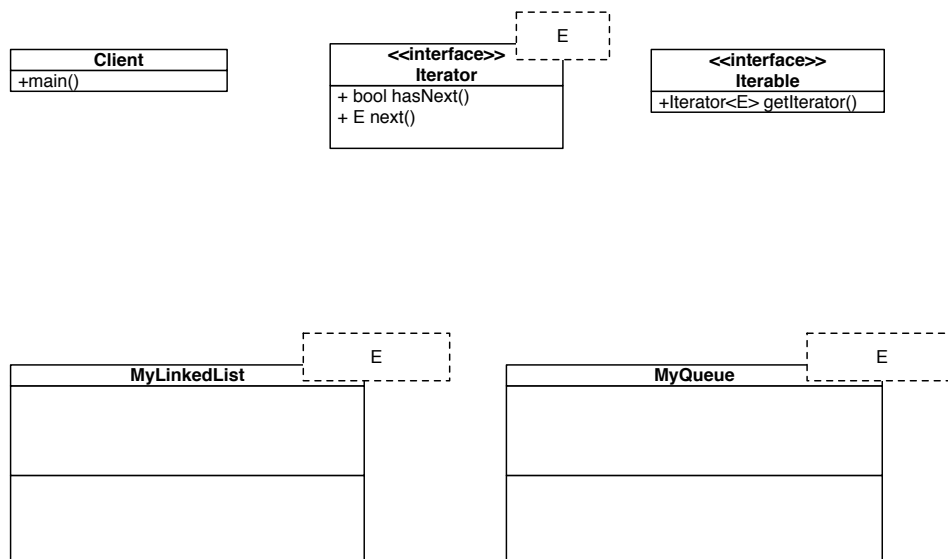


Abbildung 1: Iterator

sign pattern. `MyLinkedList` and `MyQueue` are generic user defined classes that implement the respective data structures.

- b1) (4 Pt) Complete the class diagram with the missing associations, generalizations, etc. Draw the missing elements directly into the given diagram. Try to make them as complete as possible.
- b2) (8 Pt) Write down (in Java or pseudo code) the `main()` method. (*Instead of really populating the data structures just write down a comment and use ellipses . . .*). As generic data type use `Integer`. After creation, iterate over both data structures using the provided methods and print the elements of the data structure. Reuse code if possible by creating helper methods if needed!

- b3) Now try to combine the Iterator Pattern with the Visitor Pattern. Use your code from the last exercise or download the sample code from OPAL. Extend the tree elements so that now every tree element has a unique number. Create a new visitor that only prints the number of the tree element on the terminal and extend the visitor class so that you can print out the tree in pre-order, in-order and post-order by using only one visitor.