

# Lab 4

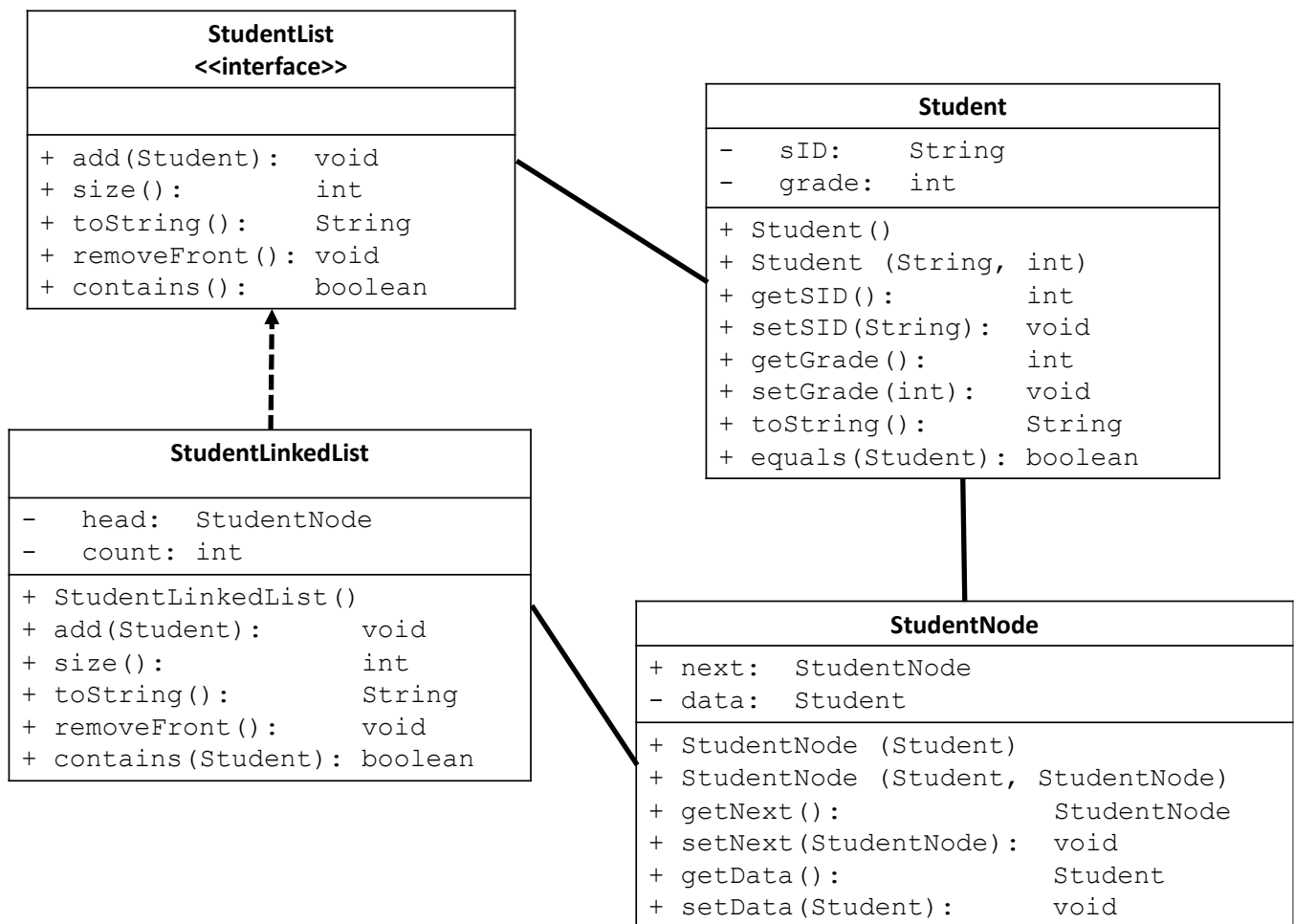
## Objectives

- Practice with interfaces and abstract data types
- Introduction to linked data structures

## Exercise - Interfaces

In this lab you will be implementing and testing the `StudentNode` and `StudentLinkedList` classes depicted in the following UML diagram.

**Recall:** the dashed arrow implies that one class implements the interface pointed to, the solid line means one class uses the other class.



1. Download `StudentList.java`, `Lab4Tester.java` and `Student.java` to your Lab4 folder.
2. Implement the `StudentNode` class in a new file called `StudentNode.java` in your Lab4 folder.
  - a. Write and test each constructor and method one at a time.
  - b. To test, compile and run `Lab4Tester.java`

**CHECKPOINT (Ungraded)** – Now might be a good time to check-in with the TA if you are aren't comfortable in your understanding of how the StudentNode should be implemented. You will need to use this class as part of your linked list in the next part, so please don't hesitate to ask questions if you are unclear about anything.

3. Implement the StudentLinkedList class in a new file called StudentLinkedList.java in your Lab4 folder
  - a. This class MUST implement the StudentList interface:  
public class StudentLinkedList implements StudentList {...
  - b. Write and test each constructor and method one at a time.  
You will need to write tests in the testList method in Lab4Tester.java  
If you are unsure how to test, look at the testNode method for help and the testShapeList method in Lab3Tester.java from last week.

**SUBMISSION (Graded)** – Submit the **StudentLinkedList.java** and **StudentNode.java** files into the Lab 4 submission page on ConneX.