

Software Engineering HomeWork 5:

Aufg1: Improvements of Code Review

- In the 1st Point: Politeness and constructive/don't show off (– e.g.: l. 5 “Basic Programming 101 knowledge ;)”)
- In the 2nd point: Try running the code (-e.g.: l.6 “**seem** inefficient” -> not tested and 4th point)
- In the 3rd point: Do get an understanding about the code's context (- e.g.: l.8 “it's not clear -> was the Context really looked at?)
- In the 4th point: again, testing and context of code
- In Final Comment: Don't discuss style if there are no guidelines (unclear whether there are guidelines, but does not seem to be the case)
- Do highlight the good parts (unclear whether there are good parts, but likely the case), only in 5th point (“...which is good,...”)

Aufg2: Black-Box Testing

Test Cases	TC1	TC2	TC3	TC4	TC5	TC6	TC7	TC8	TC9
totalStud > 0	X	X		X	X	X	X	X	
totalStud ≤ 0			X						X
groupSize > 0	X	X	X		X			X	
groupSize ≤ 0				X		X	X		X
availableGroups > 0	X	X	X			X	X		
availableGroups ≤ 0				X	X			X	X
Output = 0			X						
Output > 0	X				X	X			
Output exception		X		X			X	X	X
Input totalStud	100	100	0	100	100	100	100	100	0
Input groupSize	20	20	20	-10	20	0	-20	20	-10
Input availableGroups	5	4	10	-4	0	5	5	-4	-5
Expected Output	0	20	0	Exception	100	100	Exception	Exception	Exception
Result									

Aufgabe 3: White Box Testing

Zeilen:

```

1 List<Student> assignedStudents = new ArrayList<>();

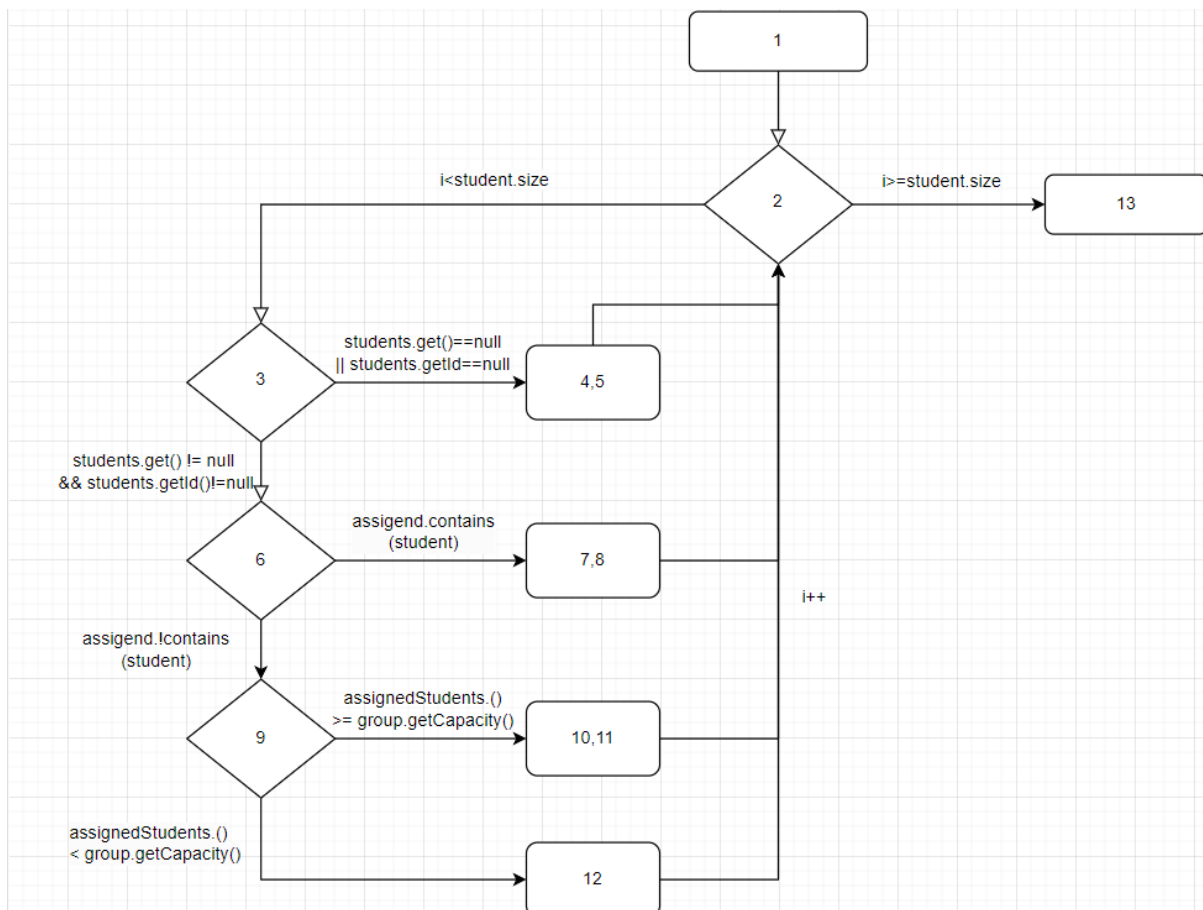
2 for(int i = 0; i < students.size(); i++) {
3     if(students.get(i) == null
4         || student.get(i).getID() == null) {
5         System.out.println("Invalid student or student ID");
6         continue;
7     }
8     if(assignedStudents.contains(student)) {
9         System.out.println("Student already assigned");
10        continue;
11    }
12    if(assignedStudents.size() >= group.getCapacity()) {
13        System.out.println("Group is full");
14        continue;
15    }

16    // All checks passed, add student to group
17    assignedStudents.add(student);
18 }

19 return assignedStudents;
20 }

```

Control Flow Graph:



Coverage:

Statement Coverage: $11/13 = 84,6\%$

Branch Coverage: $5/8 = 62,5\%$

Condition Coverage: $5/10 = 50\%$

Path Coverage: $2/5 = 40\%$