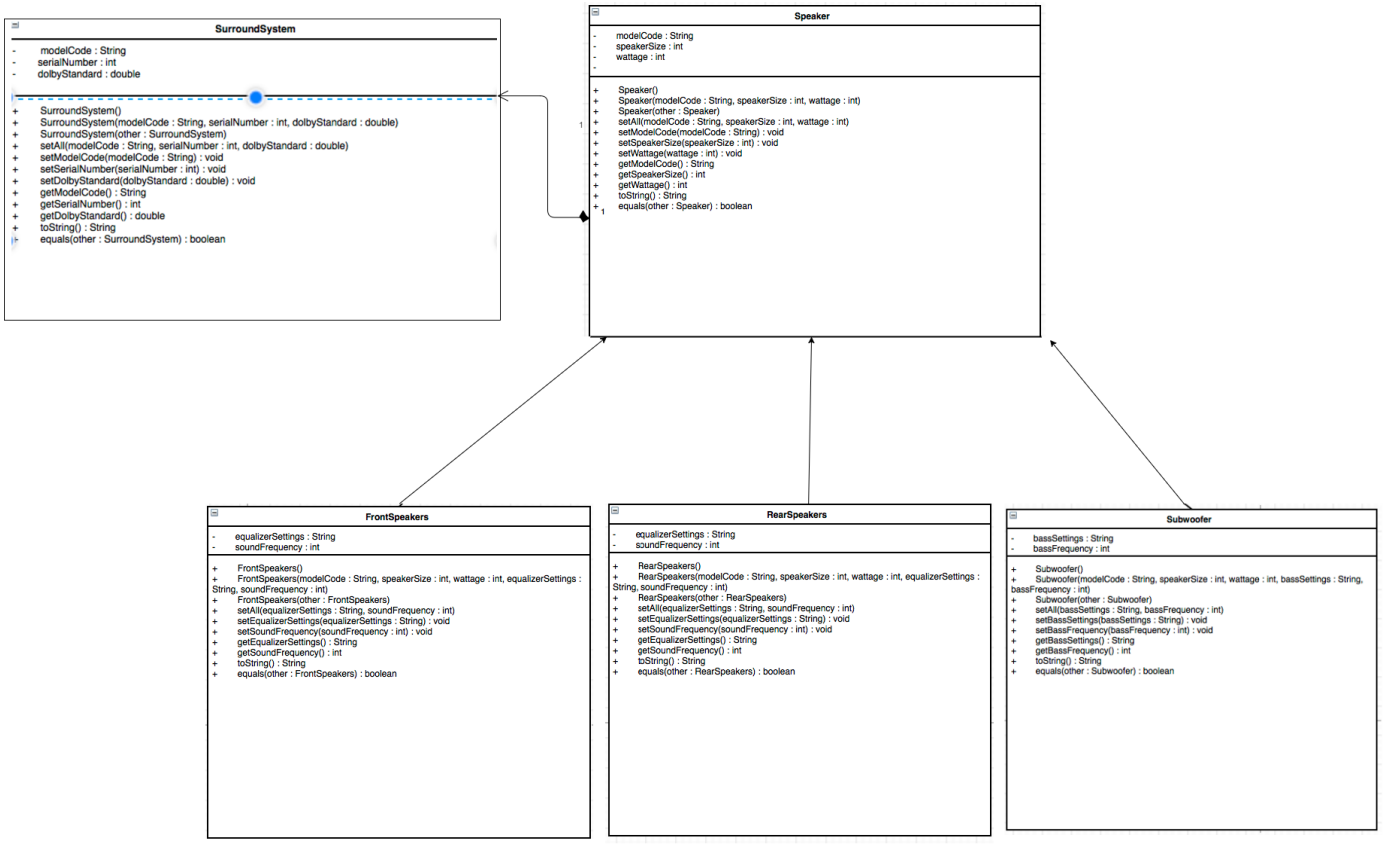
Kyle Harris

Professor Nery Chapeton-Lamas

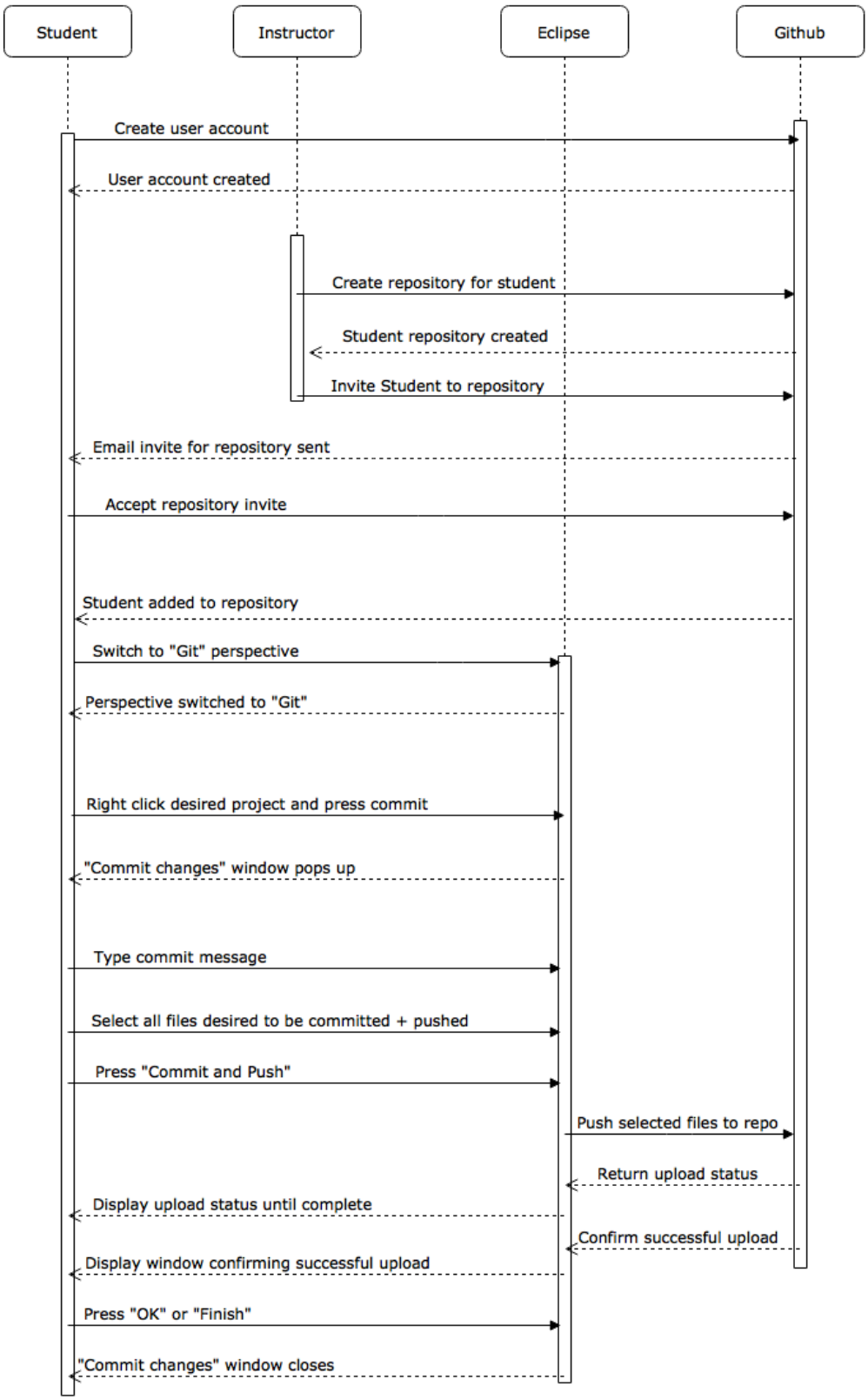
CS 113

11 Sep. 2017

1. I planned to have a 6th class for a center speaker. Would be essentially the same as front and rear speakers, minus the different constructor naming of course.



2.


Student
Instructor
Eclipse
Github
Create user account
User account created
Create repository for student
Student repository created
Invite Student to repository
Email invite for repository sent
Accept repository invite
Student added to repository
Switch to "Git" perspective
Perspective switched to "Git"
Right click desired project and press commit
"Commit changes" window pops up
Type commit message
Select all files desired to be committed + pushed
Press "Commit and Push"
Push selected files to repo
Return upload status
Display upload status until complete
Confirm successful upload
Display window confirming successful upload
Press "OK" or "Finish"
"Commit changes" window closes

3.

Big-O (shortest to longest)

1. O(0), O(5)
2. O($\frac{2}{n}$)
3. O(log n)
4. O($\sqrt{n}$)
5. O(n)
6. O(n log n)
7. O($n^{1.5}$)
8. O(n^2)
9. O(2^n)
10. O(n^4)
11. O(nm)
12. O(∞)

Big-O Complexity

3i. Line 1 counts as 1. Line 2 is the initialize (counts as 1), the n comparisons, and n increments, which all comes out to 2n + 1. Line 3 counts as 1 executed n times. Solution: **1 + (2n + 1) + n = 3n + 2. Reduces to O(n).**

3ii. Line 1 counts as 1. Line 2 is the initialize (counts as 1), the n comparisons, and n increments, which all comes out to 2n + 1. Total of Lines 1 and 2: 2n + 2

Line 3&4 are nested and their total will be multiplied by the totals of lines 1&2.

Line 3 is the initialize (counts as 1), the n comparisons, and n increments, which all comes out to 2n + 1. Line 4 counts as 1 executed n times. Total of lines 3 and 4: 3n + 1

Solution: **(2n + 2) * (3n + 1) = $6n^2 + 2n + 6n + 2 = 6n^2 + 8n + 2$. Reduces to $O(n^2)$.**

3iii. Line 1 counts as 1. Line 2 is the initialize (counts as 1), the n comparisons, and n increments, which all comes out to 2n + 1. Total of Lines 1 and 2: 2n + 2

Line 3&4 are nested and their total will be multiplied by the totals of lines 1&2.

Line 3 is the initialize (counts as 1), the i comparisons (which is already of n increments) and is the equivalent to n^2 comparisons, and the n increments. Line 4 counts as 1 executed n times. Total of lines 3 and 4: $3n^2 + 1$

Solution: **(2n + 2) * ($3n^2 + 1$) = $6n^3 + 2n + 6n^2 + 2 = 6n^3 + 6n^2 + 2n + 2$. Reduces to $O(n^3)$.**

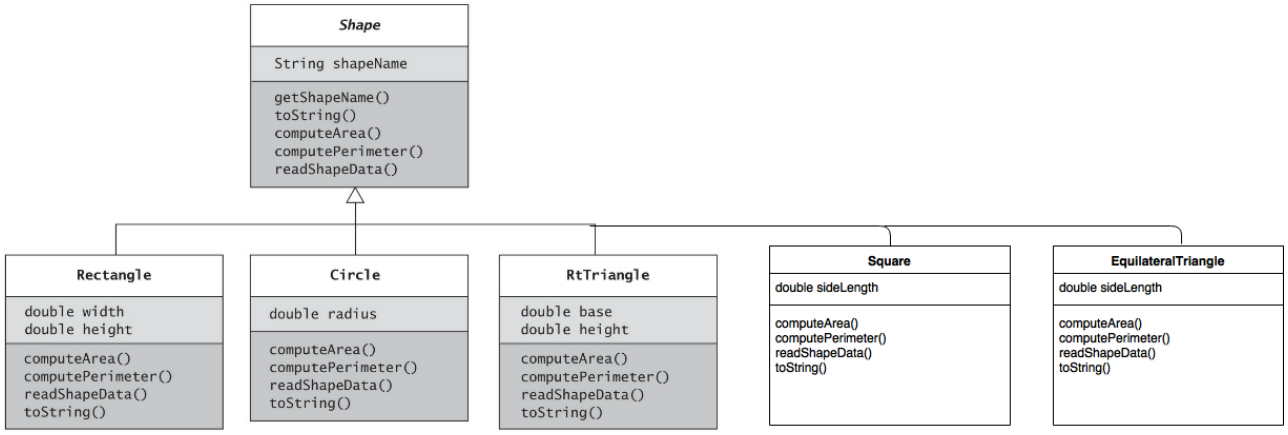
3iv. Line 1 counts as 1. Line 2 is the initialize (counts as 1), the n^2 comparisons, and the n increments. Total of lines 1 and 2: $2n^2 + 2$

Line 3&4 are nested and their total will be multiplied by the totals of lines 1&2.

Line 3 is the initialize (counts as 1), the n^2 comparisons, and the n increments. Line 4 counts as 1 executed n times. Total of lines 3 and 4: $3n^2 + 1$

Solution: $(\mathbf{2n^2 + 2}) * (\mathbf{3n^2 + 1}) = \mathbf{6n^4 + 2n^2 + 3n^2 + 2} = \mathbf{6n^4 + 5n^2 + 2}$. **Reduces to** $\boldsymbol{O(n^4)}$.

4.



For modifications to ComputeAreaAndPerim class, see attached java file in HW2 project folder.