

Task 1 Size

- 22539 Lines of Code
- HTMLEditor.java is the Largest single code file with 2144 LOC
- The metrics tool decided each line that has text is a line of code, even if that text is a comment.

Task 1 Cohesion

- LCOM2 is the percentage of methods that do not access a specific attribute averaged over all attributes in the class. $LCOM2 = 1 - \frac{\text{sum}(\# \text{ of methods that access a variable})}{(\text{number of procedures in a class} * \text{the number of variables in a class})}$
- CharTablePanel.java has the highest Cohesion, I think its because it may consider each element of the array it's own attribute.

Task 1 Complexity

- The cyclomatic complexity is 16
- EventsManager.java has the worst, its mean is 2.5 with a maximum of 16

Task 2

Metric	Total	Mean	Std. Dev.	Maxim...	Resource causing Maximum	Method
> McCabe Cyclomatic Complexity (avg/max per		2.241	2.851	42	/MetricsOnline/src/main/java/memoranda/ui/html...	setTableProperties
> Number of Parameters (avg/max per method)		0.928	1.097	9	/MetricsOnline/src/main/java/memoranda/ui/html...	setImageProperties
> Nested Block Depth (avg/max per method)		1.39	0.955	8	/MetricsOnline/src/main/java/memoranda/NoteList...	getNotesForPeriod
> Afferent Coupling (avg/max per packageFragm		19.333	19.653	57	/MetricsOnline/src/main/java/memoranda/util	
> Efferent Coupling (avg/max per packageFragm		11.444	15.276	49	/MetricsOnline/src/main/java/memoranda/ui	
> Instability (avg/max per packageFragment)		0.36	0.247	0.778	/MetricsOnline/src/main/java/memoranda/ui	
> Abstractness (avg/max per packageFragment)		0.111	0.137	0.333	/MetricsOnline/src/main/java/memoranda/date	
> Normalized Distance (avg/max per packageFra		0.529	0.237	1	/MetricsOnline/src/main/java/memoranda/ui/html...	
> Depth of Inheritance Tree (avg/max per type)		2.652	1.934	6	/MetricsOnline/src/main/java/memoranda/ui/AppFr...	
> Weighted methods per Class (avg/max per typ	3254	14.148	25.54	242	/MetricsOnline/src/main/java/memoranda/ui/html...	
> Number of Children (avg/max per type)	60	0.261	1.405	16	/MetricsOnline/src/main/java/memoranda/ui/html...	
> Number of Overridden Methods (avg/max per	59	0.257	0.691	4	/MetricsOnline/src/main/java/memoranda/ui/table/...	
> Lack of Cohesion of Methods (avg/max per typ		0.262	0.398	1.2	/MetricsOnline/src/main/java/memoranda/ui/html...	
> Number of Attributes (avg/max per type)	1326	5.765	14.118	101	/MetricsOnline/src/main/java/memoranda/ui/html...	
> Number of Static Attributes (avg/max per type	136	0.591	1.793	12	/MetricsOnline/src/main/java/memoranda/Task.java	
> Number of Methods (avg/max per type)	1269	5.517	6.833	42	/MetricsOnline/src/main/java/memoranda/ui/html...	
> Number of Static Methods (avg/max per type)	183	0.796	2.51	17	/MetricsOnline/src/main/java/memoranda/EventsMa...	
> Specialization Index (avg/max per type)		0.15	0.487	5	/MetricsOnline/src/main/java/memoranda/ui/Projec...	
> Number of Classes (avg/max per packageFragr	230	25.556	29.833	92	/MetricsOnline/src/main/java/memoranda/ui	
> Number of Interfaces (avg/max per packageFrs	16	1.778	3.292	11	/MetricsOnline/src/main/java/memoranda	
> Number of Packages	9					
> Total Lines of Code	22539					

Metric	Total	Mean	Std. Dev.	Maxim...	Resource causing Maximum	Method
> McCabe Cyclomatic Complexity (avg/max per		2.241	2.851	42	/MetricsOnline/src/main/java/memoranda/ui/html...	setTableProperties
> Number of Parameters (avg/max per method)		0.928	1.097	9	/MetricsOnline/src/main/java/memoranda/ui/html...	setImageProperties
> Nested Block Depth (avg/max per method)		1.39	0.955	8	/MetricsOnline/src/main/java/memoranda/NoteList...	getNotesForPeriod
> Afferent Coupling (avg/max per packageFragm		21.7	20.13	57	/MetricsOnline/src/main/java/memoranda/util	
> Efferent Coupling (avg/max per packageFragm		10.7	14.304	49	/MetricsOnline/src/main/java/memoranda/ui	
> Instability (avg/max per packageFragment)		0.336	0.243	0.778	/MetricsOnline/src/main/java/memoranda/ui	
> Abstractness (avg/max per packageFragment)		0.176	0.299	1	/MetricsOnline/src/main/java/memoranda/interfaces	
> Normalized Distance (avg/max per packageFra		0.517	0.249	1	/MetricsOnline/src/main/java/memoranda/ui/html...	
> Depth of Inheritance Tree (avg/max per type)		2.652	1.934	6	/MetricsOnline/src/main/java/memoranda/ui/AppFr...	
> Weighted methods per Class (avg/max per typ	3254	14.148	25.54	242	/MetricsOnline/src/main/java/memoranda/ui/html...	
> Number of Children (avg/max per type)	60	0.261	1.405	16	/MetricsOnline/src/main/java/memoranda/ui/html...	
> Number of Overridden Methods (avg/max per	59	0.257	0.691	4	/MetricsOnline/src/main/java/memoranda/ui/table/...	
> Lack of Cohesion of Methods (avg/max per typ		0.262	0.398	1.2	/MetricsOnline/src/main/java/memoranda/ui/html...	
> Number of Attributes (avg/max per type)	1326	5.765	14.118	101	/MetricsOnline/src/main/java/memoranda/ui/html...	
> Number of Static Attributes (avg/max per type)	136	0.591	1.793	12	/MetricsOnline/src/main/java/memoranda/interfaces...	
> Number of Methods (avg/max per type)	1269	5.517	6.833	42	/MetricsOnline/src/main/java/memoranda/ui/html...	
> Number of Static Methods (avg/max per type)	183	0.796	2.51	17	/MetricsOnline/src/main/java/memoranda/EventsMa...	
> Specialization Index (avg/max per type)		0.15	0.487	5	/MetricsOnline/src/main/java/memoranda/ui/Projec...	
> Number of Classes (avg/max per packageFragm	230	23	28.245	92	/MetricsOnline/src/main/java/memoranda/ui	
> Number of Interfaces (avg/max per packageFra	16	1.6	2.835	10	/MetricsOnline/src/main/java/memoranda/interfaces	
> Number of Packages	10					
> Total Lines of Code	22585					
> Method Lines of Code (avg/max per method)	15637	10.769	28.219	346	/MetricsOnline/src/main/java/memoranda/ui/Prefer...	jblnit

The abstractness changed and it changed from better to worse, but not by much. This is because the additional package has only interfaces making that package have a higher abstractness while the others abstractness decreased.

Task 3

TASK 2-1 SMELL WITHIN A CLASS

EventManager.java had the too many parameters smell. I changed all the final ints into a single final int array. This allowed me to delete 4 parameters.

TASK 2-2 SMELL BETWEEN CLASSES

Feature Envy and Duplicate code between NoteListImpl and EventManager. Took the shared features and duplicate code, combined them into a few classes that all other classes can use, and allows for different types of entities to use.

Metric	Total	Mean	Std. Dev.	Maxim...	Resource causing Maximum	Method
> McCabe Cyclomatic Complexity (avg/max per		2.025	1.732	16	/MetricsOnline/src/main/java/memoranda/EventsMa...	getRepeatableEventsFor...
> Number of Parameters (avg/max per method)		0.705	1.006	8	/MetricsOnline/src/main/java/memoranda/EventsMa...	createRepeatableEvent
> Nested Block Depth (avg/max per method)		1.369	0.846	8	/MetricsOnline/src/main/java/memoranda/NoteListl...	getNotesForPeriod
Afferent Coupling	31					
Efferent Coupling	17					
Instability	0.354					
Abstractness	0.033					
Normalized Distance	0.613					
> Depth of Inheritance Tree (avg/max per type)		1.129	0.421	2	/MetricsOnline/src/main/java/memoranda/History.ja...	
> Weighted methods per Class (avg/max per typ	494	15.935	17.744	71	/MetricsOnline/src/main/java/memoranda/TaskImpl...	
> Number of Children (avg/max per type)	3	0.097	0.53	3	/MetricsOnline/src/main/java/memoranda/EventNot...	
> Number of Overridden Methods (avg/max per	3	0.097	0.39	2	/MetricsOnline/src/main/java/memoranda/TaskImpl...	
> Lack of Cohesion of Methods (avg/max per typ		0.122	0.235	0.679	/MetricsOnline/src/main/java/memoranda/TaskListl...	
> Number of Attributes (avg/max per type)	30	0.968	1.092	4	/MetricsOnline/src/main/java/memoranda/TaskListl...	
> Number of Static Attributes (avg/max per type)	29	0.935	1.983	7	/MetricsOnline/src/main/java/memoranda/History.ja...	
> Number of Methods (avg/max per type)	183	5.903	7.739	37	/MetricsOnline/src/main/java/memoranda/TaskImpl...	
> Number of Static Methods (avg/max per type)	61	1.968	4.223	17	/MetricsOnline/src/main/java/memoranda/EventsMa...	
> Specialization Index (avg/max per type)		0.066	0.353	2	/MetricsOnline/src/main/java/memoranda/Start.java	
> Number of Classes	31					
> Number of Interfaces	1					
> Total Lines of Code	2068					
> Method Lines of Code (avg/max per method)	1259	5.16	5.483	33	/MetricsOnline/src/main/java/memoranda/EventsMa...	getRepeatableEventsFor...

Yes the Cyclomatic Complexity changed for the better. There is now only a 16 maximum whereas before it was a 42.