

Task 1

Size

1. 2187
2. Events Manager, 328
3. `getNoteListener`, if note changed ave state

Cohesion

- 1.
2. TasklistImpl.java, because all methods act on the same data, meaning that they are very similar.

Complexity

1. 1.746
2. Eventsmanager.java, 2.5
3. Removed else from EventsManager, line 95, because it is redundant and the return value is the same as the default return value of the method itself. You dont need the third return and you dont need the second if. You can turn this into an else.

Package-level Coupling

1. They are the inverse of each other. Efferent is the amount of classes that a given class depends on. Afferent is the amount of classes that depend on a given class.
2. Util
3. UI
4. NoteListImpl, because of the high number of methods in combination with it's complexity.

Task 2

1. (Sorry about the font color, I dont know why it's like that)

▶ McCabe Cyclomatic Complexity (avg/m	2.24	2.851	42	/SER316-Spring-2018/src/main/java/memorand	setTableProperties	
▶ Number of Parameters (avg/max per m	0.928	1.097	9	/SER316-Spring-2018/src/main/java/memorand	setImageProperties	
▶ Nested Block Depth (avg/max per met	1.39	0.955	8	/SER316-Spring-2018/src/main/java/memorand	getNotesForPeriod	
▶ Afferent Coupling (avg/max per pack	19.333	19.053	57	/SER316-Spring-2018/src/main/java/memorand		
▶ Efferent Coupling (avg/max per pack	11.444	15.276	49	/SER316-Spring-2018/src/main/java/memorand		
▶ Instability (avg/max per packageFra	0.36	0.247	0.778	/SER316-Spring-2018/src/main/java/memorand		
▶ Abstractness (avg/max per packageFr	0.111	0.137	0.333	/SER316-Spring-2018/src/main/java/memorand		
▶ Normalized Distance (avg/max per pa	0.529	0.237	1	/SER316-Spring-2018/src/main/java/memorand		
▶ Depth of Inheritance Tree (avg/max	2.652	1.934	6	/SER316-Spring-2018/src/main/java/memorand		
▶ Weighted methods per Class (avg/max	3253	14.143	25.533	242	/SER316-Spring-2018/src/main/java/memorand	
▶ Number of Children (avg/max per typ	60	0.261	1.405	16	/SER316-Spring-2018/src/main/java/memorand	
▶ Number of Overridden Methods (avg/n	59	0.257	0.691	4	/SER316-Spring-2018/src/main/java/memorand	
▶ Lack of Cohesion of Methods (avg/ma		0.262	0.398	1.2	/SER316-Spring-2018/src/main/java/memorand	
▶ Number of Attributes (avg/max per t	1326	5.765	14.118	101	/SER316-Spring-2018/src/main/java/memorand	
▶ Number of Static Attributes (avg/ma	136	0.591	1.793	12	/SER316-Spring-2018/src/main/java/memorand	
▶ Number of Methods (avg/max per type	1269	5.517	6.833	42	/SER316-Spring-2018/src/main/java/memorand	
▶ Number of Static Methods (avg/max p	183	0.796	2.51	17	/SER316-Spring-2018/src/main/java/memorand	
▶ Specialization Index (avg/max per t		0.15	0.487	5	/SER316-Spring-2018/src/main/java/memorand	
▶ Number of Classes (avg/max per pack	230	25.556	29.833	92	/SER316-Spring-2018/src/main/java/memorand	
▶ Number of Interfaces (avg/max per p	16	1.778	3.292	11	/SER316-Spring-2018/src/main/java/memorand	
▶ Number of Packages	9					
▶ Total Lines of Code	22537					
▶ Method Lines of Code (avg/max per m	15635	10.768	28.22	346	/SER316-Spring-2018/src/main/java/memorand	jUnit

7.

Metric	Total	Mean	Std. Dev	Maximum	Resource causing Maximum	Method
McCabe Cyclomatic Complexity (avg/n		2.34	2.851	42	/SER316-Spring-2018/src/main/java/memorand	setTableProperties
Number of Parameters (avg/max per m		0.928	1.097	9	/SER316-Spring-2018/src/main/java/memorand	setImageProperties
Nested Block Depth (avg/max per met		1.39	0.955	8	/SER316-Spring-2018/src/main/java/memorand	getNotesForPeriod
Afferent Coupling (avg/max per pack		21.6	28.811	57	/SER316-Spring-2018/src/main/java/memorand	
Efferent Coupling (avg/max per pack		18.6	14.263	49	/SER316-Spring-2018/src/main/java/memorand	
Instability (avg/max per packagefra		0.335	0.243	0.778	/SER316-Spring-2018/src/main/java/memorand	
Abstractness (avg/max per packageFr		0.172	0.381	1	/SER316-Spring-2018/src/main/java/memorand	
Normalized Distance (avg/max per pa		0.522	0.251	1	/SER316-Spring-2018/src/main/java/memorand	
Depth of Inheritance Tree (avg/max		2.652	1.934	6	/SER316-Spring-2018/src/main/java/memorand	
Weighted Methods per Class (avg/max	3253	14.143	25.533	242	/SER316-Spring-2018/src/main/java/memorand	
Number of Children (avg/max per typ	68	0.261	1.485	16	/SER316-Spring-2018/src/main/java/memorand	
Number of Overridden Methods (avg/n	59	0.257	0.691	4	/SER316-Spring-2018/src/main/java/memorand	
Lack of Cohesion of Methods (avg/na		0.262	0.398	1.2	/SER316-Spring-2018/src/main/java/memorand	
Number of Attributes (avg/max per t	1326	5.765	14.118	181	/SER316-Spring-2018/src/main/java/memorand	
Number of Static Attributes (avg/na	136	0.591	1.793	12	/SER316-Spring-2018/src/main/java/memorand	
Number of Methods (avg/max per type	1269	5.517	6.833	42	/SER316-Spring-2018/src/main/java/memorand	
Number of Static Methods (avg/max p	183	0.798	2.51	17	/SER316-Spring-2018/src/main/java/memorand	
Specialization Index (avg/max per t		0.15	0.487	5	/SER316-Spring-2018/src/main/java/memorand	
Number of Classes (avg/max per pack	230	23	28.174	92	/SER316-Spring-2018/src/main/java/memorand	
Number of Interfaces (avg/max per p	16	1.6	3.169	11	/SER316-Spring-2018/src/main/java/memorand	
Number of Packages	10					
Total Lines of Code	22584					
Method Lines of Code (avg/max per m	15635	18.768	28.22	346	/SER316-Spring-2018/src/main/java/memorand	jsInit

8. Yes, many metrics did change. Instability was reduced for the better after refactoring.

Task 3

1. There was major redundant code in NoteListImpl.java namely with the getAllNotes and getMarkedNotes methods. This add a lot to the complexity of this class and is hard to debug/messy. I refactored the class by adding a helper method that gets the requested note type by passing in a boolean variable.

2. I found an unused inheritance in EventImpl.java wherein the class inherited the Comparable interface. This Interface was not used. Removing it reduced the overall complexity and increased the clarity of the class.

3.

Metric	Total	Mean	Std. Dev	Maximum	Resource causing Maximum	Method
➤ McCabe Cyclomatic Complexity (avg/n	2.912	1.734	15	/SER316-Spring-2018/src/main/java/nemorand	getRepeatableEventsForDate	
➤ Number of Parameters (avg/max per m	0.788	1.087	0	/SER316-Spring-2018/src/main/java/nemorand	createRepeatableEvent	
➤ Nested Block Depth (avg/max per met	1.366	0.828	0	/SER316-Spring-2018/src/main/java/nemorand	getNotesForPeriod	
Afferent Coupling	31					
Efferent Coupling	16					
Instability	0.34					
Abstractness	0					
Normalized Distance	0.66					
➤ Depth of Inheritance Tree (avg/max	1.187	0.373	2	/SER316-Spring-2018/src/main/java/nemorand		
➤ Weighted methods per Class (avg/max	489	16.3	17.66	71	/SER316-Spring-2018/src/main/java/nemorand	
➤ Number of Children (avg/max per typ	0	0	0	0	/SER316-Spring-2018/src/main/java/nemorand	
➤ Number of Overridden Methods (avg/n	3	0.1	0.396	2	/SER316-Spring-2018/src/main/java/nemorand	
➤ Lack of Cohesion of Methods (avg/ma	0.128	0.239	0.679	/SER316-Spring-2018/src/main/java/nemorand		
➤ Number of Attributes (avg/max per t	30	1	1.095	4	/SER316-Spring-2018/src/main/java/nemorand	
➤ Number of Static Attributes (avg/ma	29	0.967	2.086	7	/SER316-Spring-2018/src/main/java/nemorand	
➤ Number of Methods (avg/max per type	182	6.067	7.865	37	/SER316-Spring-2018/src/main/java/nemorand	
➤ Number of Static Methods (avg/max p	61	2.033	4.278	17	/SER316-Spring-2018/src/main/java/nemorand	
➤ Specialization Index (avg/max per t		0.008	0.359	2	/SER316-Spring-2018/src/main/java/nemorand	
➤ Number of Classes	30					
➤ Number of Interfaces	0					
➤ Total Lines of Code	2855					
➤ Method Lines of Code (avg/max per m	1248	5.136	5.443	33	/SER316-Spring-2018/src/main/java/nemorand	getRepeatableEventsForDate

4. Yes the metrics have changed. The McCabe Complexity has been reduced quite a bit. This is likely due to the refactoring of NoteListImpl.java since I was able to condense a large chunk of code.