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ISM4432 Software Testing

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Portfolio Report

This portfolio report will be completed with the application of Notable, an application used for taking mark-down-based notes which has multiple open-source components. Users can write notes from scratch as well as import files from other applications and mark-down languages. For this given application, we will be conducting three different techniques of functional testing, structural testing based on the Dumper component for attachments, and discuss the use of automation for testing this software.

To begin with the given functional testing of the application, we start with using boundary-based testing, where we test the given minimum and maximum bounds of a given function for a given application, testing within and outside the bounds of the application. For this application, it is somewhat difficult to determine the details on the bounds of a given portion of the application. However, we can test the Dumper file type import tool to test the boundaries of file size for file imports. Specifically, we can test files with size of 0KBs as a minimum, 234KBs to be within bounds, and the maximum of the given file type. We cannot test files below 0KBs, as it would not be possible to have a file that uses less than zero storage space on a computer.

Because Notable is an Electron-based application, it is based on a single tab of Google Chrome. It is documented that Google Chrome will index a maximum of 2.5MBs of an HTML file type.

(<https://webmasters.stackexchange.com/questions/47233/what-is-the-maximum-size-of-an-html-file-that-google-will-crawl-through#:~:text=All%20files%20larger%20than%2030MB,they%20will%20be%20completely%20ignored.>) Because of this, we can test an HTML file with that

maximum, a file that is larger than that documented maximum, and a file below that maximum.

We will be reaching this maximum by using an existing HTML file and increasing its file size to reach that maximum by adding more mark-up information.

With the given boundaries we generated, we tested the following files for the following order of 0KBs, 234KBs, 2551KBs/2.49MBs, and 2578KBs/2.50MBs: minimumhtml.html, Large HTML page.html, Large HTML page with images.html, and Large HTML page with images Upper Bounds.html. The testing we conducted concluded that an HTML file imported works fine, showing that the HTML file was imported successfully with no issue. Next, we found that the reasonably sized file also imported successfully. Going to the upper bounds, we found that the file imported at 2.49 MBs made the document incredibly unstable, where the file loaded successfully but was not able to render well. The application was incredibly unstable, not allowing me to use the application. Certain parts of the application were not able to function, and mouse clicks sometimes were not registering. We reported this as a defect, as it seemed like the application wasn't taking excessive resources but wasn't responding properly. Similarly, when we tested the file over 2.5MBs, the application became unresponsive, and it would not load at all. Both defects had separate reports, as they had different outcomes.

Next, we continue with analyzing the specifications for the Notable application, and test whether the given specifications for the application are successful. In this case, we can test given bugs held within the change log for Notable version 1.8.4. We wanted to test two notable bug fixes shown in the change notes and confirm through the specifications testing method whether

the bug fix was effective: if the creation date and modification date were updated when duplicating a note, and if loose task lists were properly assigned when created. When testing, we found that when conducting two tests of different variants of duplicating a native file type note and a working imported HTML file, the creation and modification date within windows show the correct date created and last modified for the original note and the current date for the new note, which match expected results. In addition, when testing bracketed task lists of different indentions in both native and HTML imports of notes, both successfully align.

Next, we wanted to run risk-based functional testing on Notable. In this, we wanted to test the Dumper function once more, testing its ability to import various HTML elements. Because the application runs on Electron, we can assume it will support certain newer HTML elements, however there is a risk in accepting certain HTML elements that may not be completely supported by the application, so we must verify if certain non-text based elements function correctly. This pairs nicely with the boundary tests conducted earlier, as we had other more basic elements tested previously. We tested two elements: the nav and tag elements. The nav element is used for a top navigation bar, while the tag is used to highlight certain text within an HTML webpage. The tests conducted show that the nav element text is correctly displayed, while we found a defect with the tag element, where it also shows the element brackets in the notes. We recorded this as a defect.

Next, we wanted to test the structure of the application, and because the Dumper importation tool is opensource, we can analyze parts of its code. Specifically, there is a `turndown.js` element function that matches our risk-based analysis previously, which I hadn't noticed until conducting the structural testing. To verify the structure of this subfunction, we tested two different HTML elements shown or not shown within the variable `table.isBlock`:

meter and article. We expect that it's now intentional that the tag element was not supposed to display anything, as it's shown in the blocked elements table. With the test cases conducted, our expectations met reality: the text within the article function did display, while the information with meter showed with the markup elements alongside the text. This was not a defect, but in fact an intended feature that wasn't public-facing.

Finally, because this application is a stand-alone application and not within a web browser, it was too difficult initially to conduct automated testing with Selenium. However, if we conducted automated testing with this application, where when a change is implemented for this application, we would setup known working and non-working files with specific changes such as elements, file size, file type, and formatting for importing with the Dumper feature to confirm functionality and defects. With this, we can confirm that the turndown function is correctly working, the application stability with larger file types, and compatibility with file types in case there were known changes with receiving any of those input variables.

FUNCTIONAL TEST CASE REPORTING FORM

Test Case ID	CSE0001									
Component	Dumper (File importer)									
Purpose of Test Case	Verify the file importer can import HTML documents of size of 0.									
Functional Test Type	Boundary									
Pre-Conditions	Windows 10 64-bit OS using Notable version 1.8.4. All other notes available are in trash or fully deleted.									
Inputs	Minimumhtml.html (HTML document with file size 0)									
Expected Outputs	Markup notes list with no information becomes populated.									
Post-Conditions	Single visible note shown.									
Execution History	<table><tr><th>Date</th><th>Result</th><th>Tester</th></tr><tr><td>4/26</td><td>Success, no defects found</td><td>Quinn Butler</td></tr><tr><td>4/26</td><td>Success, no defects found</td><td>Quinn Butler</td></tr></table>	Date	Result	Tester	4/26	Success, no defects found	Quinn Butler	4/26	Success, no defects found	Quinn Butler
Date	Result	Tester								
4/26	Success, no defects found	Quinn Butler								
4/26	Success, no defects found	Quinn Butler								

Test Case ID	CSE0002		
Component	Dumper (File importer)		
Purpose of Test Case	Verify the file importer can import HTML documents of size of 234 KBs.		
Functional Test Type	Boundary		
Pre-Conditions	Windows 10 64-bit OS using Notable version 1.8.4. All other notes available are in trash or fully deleted.		
Inputs	Large HTML page.html (HTML document with file size 234 KBs)		
Expected Outputs	Markup notes list with equivalent information of webpage loaded success.		
Post-Conditions	Single visible note shown.		
Execution History			
	Date	Result	Tester
	4/26	Success, no defects found	Quinn Butler
	4/26	Success, no defects found	Quinn Butler

Test Case ID	CSE0003								
Component	Dumper (File importer)								
Purpose of Test Case	Verify the file importer can import HTML documents of size of 2.49 MBs.								
Functional Test Type	Boundary								
Pre-Conditions	Windows 10 64-bit OS using Notable version 1.8.4. All other notes available are in trash or fully deleted.								
Inputs	Large HTML page with images.html (HTML document with file size 2.49 MBs)								
Expected Outputs	Markup notes list with equivalent information of webpage loaded success.								
Post-Conditions	Single visible note shown. Very unresponsive application.								
Execution History	<table><tr><th>Date</th><th>Result</th><th>Tester</th></tr><tr><td>4/26</td><td>File loaded, application failed, defect</td><td>Quinn Butler</td></tr></table>			Date	Result	Tester	4/26	File loaded, application failed, defect	Quinn Butler
Date	Result	Tester							
4/26	File loaded, application failed, defect	Quinn Butler							

Test Case ID	CSE0004						
Component	Dumper (File importer)						
Purpose of Test Case	Verify the file importer can import HTML documents of size of 2.50 MBs.						
Functional Test Type	Boundary						
Pre-Conditions	Windows 10 64-bit OS using Notable version 1.8.4. All other notes available are in trash or fully deleted.						
Inputs	Large HTML page with images.html (HTML document with file size 2.50 MBs)						
Expected Outputs	Error message about file size or application						
Post-Conditions	Note failed to load with no error message, application completely unresponsive.						
Execution History	<table><tr><th>Date</th><th>Result</th><th>Tester</th></tr><tr><td>4/26</td><td>Application failed before file loaded, defect</td><td>Quinn Butler</td></tr></table>	Date	Result	Tester	4/26	Application failed before file loaded, defect	Quinn Butler
Date	Result	Tester					
4/26	Application failed before file loaded, defect	Quinn Butler					

Test Case ID	CSE0005		
Component	Notable (main application)		
Purpose of Test Case	Verify bugfixes in changelog.		
Functional Test Type	Specification		
Pre-Conditions	Windows 10 64-bit OS using Notable version 1.8.4. All other notes available are in trash or fully deleted.		
Inputs	Large HTML page.html (HTML document with file size 234 KBs)		
Expected Outputs	Successfully duplicates old document retaining creation date and modification date while duplicate file has creation date and modification date for date of duplication.		
Post-Conditions	Both note files match expected outputs.		
Execution History			
	Date	Result	Tester
	4/26	File show correct creation and modification date for html document.	Quinn Butler

Test Case ID	CSE0006						
Component	Notable (main application)						
Purpose of Test Case	Verify bugfixes in changelog.						
Functional Test Type	Specification						
Pre-Conditions	Windows 10 64-bit OS using Notable version 1.8.4. All other notes available are in trash or fully deleted.						
Inputs	[] .md document.						
Expected Outputs	Successfully duplicates old document retaining creation date and modification date while duplicate file has creation date and modification date for date of duplication.						
Post-Conditions	Both note files match expected outputs.						
Execution History	<table><tr><th>Date</th><th>Result</th><th>Tester</th></tr><tr><td>4/26</td><td>File show correct creation and modification date for md document.</td><td>Quinn Butler</td></tr></table>	Date	Result	Tester	4/26	File show correct creation and modification date for md document.	Quinn Butler
Date	Result	Tester					
4/26	File show correct creation and modification date for md document.	Quinn Butler					

Test Case ID	CSE0007						
Component	Notable (main application)						
Purpose of Test Case	Verify bugfixes in changelog.						
Functional Test Type	Specification						
Pre-Conditions	Windows 10 64-bit OS using Notable version 1.8.4. All other notes available are in trash or fully deleted.						
Inputs	Large HTML page.html (HTML document with file size 234 KBs)						
Expected Outputs	Successfully displays bracketed task lists.						
Post-Conditions	Input for bracketed task lists are successful						
Execution History	<table><tr><th>Date</th><th>Result</th><th>Tester</th></tr><tr><td>4/26</td><td>Successfully displays bracketed task lists.</td><td>Quinn Butler</td></tr></table>	Date	Result	Tester	4/26	Successfully displays bracketed task lists.	Quinn Butler
Date	Result	Tester					
4/26	Successfully displays bracketed task lists.	Quinn Butler					

Test Case ID	CSE0008						
Component	Notable (main application)						
Purpose of Test Case	Verify bugfixes in changelog.						
Functional Test Type	Specification						
Pre-Conditions	Windows 10 64-bit OS using Notable version 1.8.4. All other notes available are in trash or fully deleted.						
Inputs	[].md document.						
Expected Outputs	Successfully displays bracketed task lists.						
Post-Conditions	Input for bracketed task lists are successful						
Execution History	<table><tr><th>Date</th><th>Result</th><th>Tester</th></tr><tr><td>4/26</td><td>Successfully displays bracketed task lists.</td><td>Quinn Butler</td></tr></table>	Date	Result	Tester	4/26	Successfully displays bracketed task lists.	Quinn Butler
Date	Result	Tester					
4/26	Successfully displays bracketed task lists.	Quinn Butler					

Test Case ID	CSE0007						
Component	Dumper (File importer)						
Purpose of Test Case	Verify ability to preserve HTML tags for HTML imports						
Functional Test Type	Risk						
Pre-Conditions	Windows 10 64-bit OS using Notable version 1.8.4. All other notes available are in trash or fully deleted.						
Inputs	HTML document with nav element						
Expected Outputs	Information in nav element displayed						
Post-Conditions	Successfully displayed information in nav element.						
Execution History	<table><tr><th>Date</th><th>Result</th><th>Tester</th></tr><tr><td>4/28</td><td>Successfully displayed information in nav element.</td><td>Quinn Butler</td></tr></table>	Date	Result	Tester	4/28	Successfully displayed information in nav element.	Quinn Butler
Date	Result	Tester					
4/28	Successfully displayed information in nav element.	Quinn Butler					

Test Case ID	CSE0008						
Component	Dumper (File importer)						
Purpose of Test Case	Verify ability to preserve HTML tags for HTML imports						
Functional Test Type	Risk						
Pre-Conditions	Windows 10 64-bit OS using Notable version 1.8.4. All other notes available are in trash or fully deleted.						
Inputs	HTML document with mark element						
Expected Outputs	Information in mark element displayed						
Post-Conditions	Did not successfully display information in mark element.						
Execution History	<table><tr><th>Date</th><th>Result</th><th>Tester</th></tr><tr><td>4/28</td><td>Did not successfully display information in mark element, gives markup brackets.</td><td>Did not successfully display information in mark element.</td></tr></table>	Date	Result	Tester	4/28	Did not successfully display information in mark element, gives markup brackets.	Did not successfully display information in mark element.
Date	Result	Tester					
4/28	Did not successfully display information in mark element, gives markup brackets.	Did not successfully display information in mark element.					

Test Case ID	CS0011	
Program	Dumper (File importer)	
Purpose of Test Case	Testing bugfix list provided in changelog.	
Structural Test Type	Efficiency	
Path Being Tested	turndown.js's function isBlock for verifying HTML tag input.	
Pre-Conditions	Windows 10 64-bit OS using Notable version 1.8.4. All other notes available are in trash or fully deleted.	
Inputs	HTML document with <meter>	
Expected Outputs	Article has difference in formatting as it's not within the blockElements variable table within the _turnwdown.js.	
All statements in path covered as expected?	Because function is based on a single line that calls from a single variable table, all paths of Javascript function tested.	
Post-Conditions	Article is displayed. Matches results, no notable defects in Notable.	
Execution History		
	Date	Result
	4/28	Article displayed successfully, matches expected output, no defect found.

Test Case ID	CS0012	
Program	Dumper (File importer)	
Purpose of Test Case	Testing bugfix list provided in changelog.	
Structural Test Type	Efficiency	
Path Being Tested	turndown.js's function isBlock for verifying HTML tag input.	
Pre-Conditions	Windows 10 64-bit OS using Notable version 1.8.4. All other notes available are in trash or fully deleted.	
Inputs	HTML document with <article>	
Expected Outputs	Meter does not show a difference in formatting or information within brackets not displayed at all, as it's within the blockElements variable table within the _turnwdown.js.	
All statements in path covered as expected?	Because function is based on a single line that calls from a single variable table, all paths of Javascript function tested.	
Post-Conditions	Article is displayed. Matches results, no notable defects in Notable.	
Execution History		
	Date	Result
	4/28	Article displayed successfully, matches expected output, no defect found.

DEFECT REPORTING FORM

DEFECT ID:DFT001

TITLE: File importation instability

REPORTED BY:Quinn Butler

REPORTED ON:04/26/21

COMPONENT: Notable

SUBCOMPONENT:Dumper

VERSION:1.8.4

PLATFORM:PC

OPERATING SYSTEM: Windows 10

RELATED TEST CASE IDS: CSE0003

RESOLUTION PRIORITY:P2

RESOLUTION SEVERITY:S1

CONSISTENCY:Regular

DEFECT SUMMARY:

When attempting to upload large HTML document in Notable, application becomes very unstable and fails to load certain elements and becomes regularly unresponsive.

STEPS TO REPRODUCE:

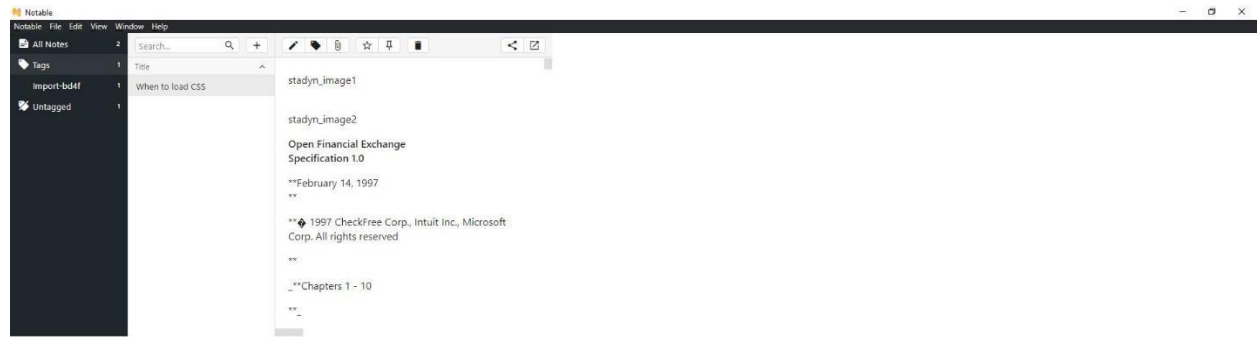
Select File -> Import
Select the large file to import

COMMENTS:

In this case, the file was able to successfully import compared to the next defect. Difficulties with making window larger, causes white borders.

ATTACHMENTS:

1



For evaluators use only

DEFECT STATUS: _____ **APPROVED** _____ **REJECTED**

REASON: _____

DEFECT REPORTING FORM

DEFECT ID:DFT002

TITLE: File importation instability
REPORTED BY:Quinn Butler
REPORTED ON:04/26/21

COMPONENT: Notable
SUBCOMPONENT:Dumper
VERSION:1.8.4

PLATFORM:PC
OPERATING SYSTEM: Windows 10
RELATED TEST CASE IDS: CSE0004

RESOLUTION PRIORITY:P1
RESOLUTION SEVERITY:S1
CONSISTENCY:Regular

DEFECT SUMMARY:

When attempting to upload large HTML document in Notable, application becomes very unstable and fails to load note completely, crashes application eventually.

STEPS TO REPRODUCE:

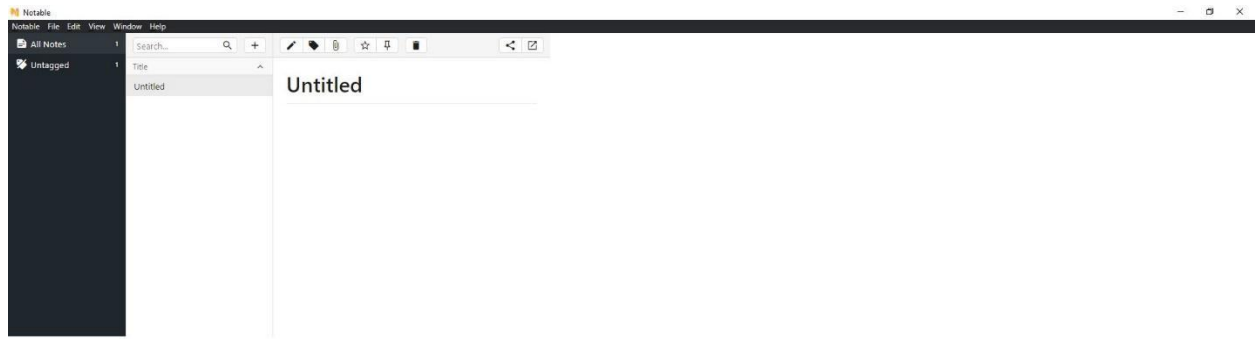
Select File -> Import
Select the large file to import

COMMENTS:

In this case, the file was not able to successfully load, task manager had difficulties closing application.

ATTACHMENTS:

1



For evaluators use only

DEFECT STATUS: _____ **APPROVED** _____ **REJECTED**

REASON: _____

DEFECT REPORTING FORM

DEFECT ID:DFT003

TITLE: File importation instability
REPORTED BY:Quinn Butler
REPORTED ON:04/26/21

COMPONENT: Notable
SUBCOMPONENT:Dumper
VERSION:1.8.4

PLATFORM:PC
OPERATING SYSTEM: Windows 10
RELATED TEST CASE IDS: CSE0008

RESOLUTION PRIORITY:P3
RESOLUTION SEVERITY:S3
CONSISTENCY:Regular

DEFECT SUMMARY:

When attempting to import HTML document with one element using mark element tag to highlight, text is not highlighted and displays markup.

STEPS TO REPRODUCE:

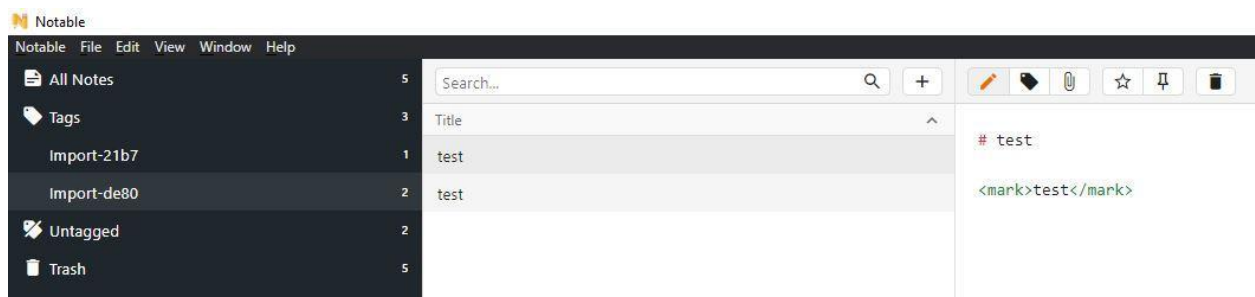
Select File -> Import
Select the file to import

COMMENTS:

In this case, all of the raw text was imported into the application.

ATTACHMENTS:

1



For evaluators use only

DEFECT STATUS: _____ **APPROVED** _____ **REJECTED**

REASON: _____