

Test Plan for HTML Library

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Revision History

Date	Version	Description	Author(s)
04.12.2017	1.0	Initial Version	Emily WUU, Deniz Sarici, Anthony Kalbermatten, Andrea Meier
17.12	1.1	Anchor, List, External Links and Code Generator Visitor Update	Anthony Kalbermatten
17.12	1.2	Text, Snippet, Table	Deniz
18.12	1.3	Image and Paragraph Test Update	Emily WUU

Public API Overview

1.1 Public classes to be tested

```
html_text
html_image
html_snippet
html_external_link
html_ordered_list
html_unordered_list
html_table
html_paragraph
html_anchor_manager
html_anchor
html_title
html_code_generator_visitor
```

1.2 Public Routines

```
html_text.make()
html_image.make()
html_snippet.make()
html_external_link.make()
html_unordered_list.make()
html_unordered_list.add_row()
html_table.make()
html_table.add_row()
html_paragraph.make()
html_paragraph.new_element()
html_anchor_manager.make()
```

code_generator_visitor.visit_anchor

code_generator_visitor.visit_ext_link

code_generator_visitor.visit_title

code_generator_visitor.visit_image

code_generator_visitor.visit_int_link

code_generator_visitor.visit_ordered_list

code_generator_visitor.visit_paragraph

code_generator_visitor.visit_snippet

code_generator_visitor.visit_table

code_generator_visitor.visit_text

code_generator_visitor.visit_unordered_list

2 Test Suite Description

2.1 HTML_Text Tests

2.1.1 <HTMLText Test 1>

Test, that an HTMLText object is created, when provided a correct string.

Routine(s) or other functionality under test: make()

Set-up if any: text1: TEXT

• Tear-down if any: None

• **Test data:** text1.make("I am a string")

Any other resources: None

Oracle:

An instance of a text is created with content "I am a string". All style attributes are set to false.

2.1.2 <HTMLText Test 2>

Test, that style attributes (bold, italic and underlined) are set to True. Testing each style feature. The text instance is assumed to be created with a valid string input.

• Routine(s) or other functionality under test: bold, italic, underlined

Set-up if any: text1: TEXT

text1.make("I am a string")

• Tear-down if any: None

• Test data: Set text1 bold, italic and underlined

· Any other resources: None

· Oracle:

An instance of text is created with content "I am a string". The style attributes is_bold, is_italic and is_underlined are set to True.

2.1.3 <HTMLText Test 3>

Test that text set to be bold.

• Routine(s) or other functionality under test: bold, italic, underlined

• **Set-up if any:** text1: TEXT

text1.make("I am a string")

• Tear-down if any: None

• Test data Set text1 to bold

• Any other resources: None

Oracle:

An instance of text is created with content "I am a string". Only the style attribute is_bold is set to True, the others are set to False.

2.1.4 <HTMLText Test 4>

Test that text set to be bold.

• Routine(s) or other functionality under test: bold, italic, underlined

• Set-up if any: text1: TEXT

text1.make("I am a string")

• Tear-down if any: None

Test data
 Set text1 to italic

• Any other resources: None

· Oracle:

An instance of text is created with content "I am a string". Only the style attribute is_italic is set to True, the others are set to False.

2.1.5 <HTMLText Test 5>

Test that text set to be bold.

• Routine(s) or other functionality under test: bold, italic, underlined

• Set-up if any: text1: TEXT

text1.make("I am a string")

• Tear-down if any: None

Test data
 Set text1 to underlined

• Any other resources: None

· Oracle:

An instance of text is created with content "I am a string". Only the style attribute is_underlined is set to True, the others are set to False.

2.1.6 <HTMLText Test 6>

Test that text remains bold if bold feature was called again.

• Routine(s) or other functionality under test: bold

Set-up if any: text1: TEXT

text1.make("I am a string")

text1.bold

• Tear-down if any: None

• Test data: Set text1 to bold (again)

• Any other resources: None

· Oracle:

An instance of text is created with content "I am a string". The style attribute is_bold is remains set to True. The other style attributes remain unchanged as well.

2.1.7 <HTMLText Test 7>

Test that an exception is caught if the precondition is violated by creating an instance with an empty string.

· Routine(s) or other functionality under test: make

Set-up if any: text1: TEXTTear-down if any: None

• **Test data**: text is created with an empty string

• Any other resources: None

• Oracle:

Precondition is violated and the exception caught by the test.

2.2 HTMLTitle Tests

2.2.1 <Title Test 1>

Test, that an Title object is created, when provided a correct input.

• Routine(s) or other functionality under test: make()

• Set-up if any: title1: TITLE

• Tear-down if any: None

• Test data: String1: "I am a title"

Integer1: random number from 1 to 6 (e.g. 5)

• Any other resources: None

· Oracle:

Creates an title object "title1" in which the string "I am a header" is attached to the variable text and the size integer1 is attached to the variable size.

2.2.2 <Title Test 2>

Test, that no Title object is created, when the second input is not within the scope of integers 1-6.

• Routine(s) or other functionality under test: make()

Set-up if any: title2: TITLETear-down if any: None

• Test data: String1: "I am a title"

Integer1: random integer except the integers 1-6, eg.7.

Any other resources: None

Oracle:

Precondition is violated and the exception caught by the test.

2.3 HTMLImage Tests

2.3.1 <HTMLImage Test 1>

Test, that an HTMLImage is created.

Routine(s) or other functionality under test: make()

• Set-up if any: image1: IMAGE

• Tear-down if any: None

• Test data: src: "test_image.jpg"

alt: "alternative text"

Any other resources: None

Oracle:

An object "image1" of type HTMLImage is created and the variable src has the value "test image1" and the variable althas the value "alternative text"

2.3.2 <HTMLImage Test 2>

Test, that an HTMLImage not created if the input of source of image is empty

• Routine(s) or other functionality under test: make()

• Set-up if any: image1: IMAGE

• Tear-down if any: None • Test data: src: ""

alt: "alternative text"

Any other resources: None

· Oracle:

Precondition is violated and the exception caught by the test.

2.3.3 <HTMLImage Test 3>

Test, that an HTMLImage not created if the input of alt of image is empty

• Routine(s) or other functionality under test: make()

• Set-up if any: image1: IMAGE

• Tear-down if any: None

Test data: src: "test_image.jpg"

alt: ""

Any other resources: None

• Oracle:

Precondition is violated and the exception caught by the test.

2.4 HTML_Snippets Tests

2.4.1 <HTMLSnippets Test 1>

Test, that a HTMLSnippet is created

• Routine(s) or other functionality under test: make()

• Set-up if any: Snippet1: SNIPPET

• Tear-down if any: None

• Test data: String1: "I am a string"

• Any other resources: None

· Oracle:

An HTML is created within String is stored

2.4.2 <HTMLSnippets Test 2>

Test that an exception is caught if the precondition is violated by creating an instance with an empty string.

• Routine(s) or other functionality under test: make

• Set-up if any: snippet1: SNIPPET

• Tear-down if any: None

• **Test data:** snippet is created with an empty string

· Any other resources: None

· Oracle:

Precondition is violated and the exception caught by the test.

2.5 HTMLExternal_Link Tests

2.5.1 <HTMLExternal Link Test 1>

Test, that an HTMLExternal_Link object is created.

• Routine(s) or other functionality under test: make()

• Set-up if any: Text1: HTMLText

• Tear-down if any: None

• Test data: url: "https://www.google.ch/"

text: Text1

· Any other resources: None

· Oracle:

Creates an an htmlexternal link object within Text1 and url are stored.

2.5.2 <HTMLExternal_Link Test 2>

Test, that no HTMLExternal Link object is created when url is no string.

• Routine(s) or other functionality under test: make()

• Set-up if any: Text1: HTMLText

• Tear-down if any: None

• Test data: url: any data type except of string

text: Text1

• Any other resources: None

Oracle:

Program reports a failure in the input.

2.5.3 <HTMLExternal Link Test 3>

Test, that no HTMLExternal Link object is created when text is not of type HTMLText.

• Routine(s) or other functionality under test: make()

• **Set-up if any:** Object1: Any object except of HTMLTextObjects

• Tear-down if any: None

• Test data: url: "https://www.google.ch/"

text: Object1

Any other resources: None

· Oracle:

Program reports a failure in the input.

2.5.4 <HTMLExternal_Link Test 4>

Test, that no HTMLExternal_Link object is created when text object is not existing.

• Routine(s) or other functionality under test: make()

• Set-up if any: Text1: HTMLText

• Tear-down if any: None

• Test data: url: "https://www.google.ch/"

text: Text2

• Any other resources: None

· Oracle:

Program reports a failure in the input.

2.6 Unordered-List Tests

2.6.1 < Unordered List Test 1>

Test, that an unordered_list object is created

Routine(s) or other functionality under test: make
 Set-up if any: list: HTML UNORDERED LIST

Tear-down if any: NoneTest data: NoneAny other resources: None

· Oracle:

An ordered list object is created with an empty row list.

2.6.2 < Unordered List Test 2>

Test, that content can be added to an unordered list object

Routine(s) or other functionality under test: add_row()
 Set-up if any: list: HTML_UNORDERED_LIST

• Tear-down if any: None

• Test data: Content1: any class that is an HTMLComponent

Object: UList1

· Any other resources: None

Oracle:

Content1 is added to UList1.

2.7 HTML Table Tests

2.7.1 < Table Test 1>

Test, that a table object is created with specified number of columns.

• Routine(s) or other functionality under test: make()

• Set-up if any: table1: TABLE

• Tear-down if any: None

• Test data: column1: integer >= 1

Any other resources: None

Oracle:

A table object is created with column1 columns. The list of rows is empty.

2.7.2 <Table Test 2>

Test, that the precondition is violated, when provided a wrong input for column

• Routine(s) or other functionality under test: make()

• Set-up if any: table1: TABLE

• Tear-down if any: None

• Test data: column1: any data types except integer or 0

· Anv other resources: None

Oracle:

Program reports a failure in the input.

2.7.3 < Table Test 3>

Test, that a row with a single text instance is added to a table object. Column of table is set to 1.

· Routine(s) or other functionality under test: add row

• **Set-up if any:** table1: TABLE

row1: LINKED LIST

text1: TEXT

• Tear-down if any: None

• Test data: table1 created with column=1

row1 contains text1, text1 has content "I am a string"

• Any other resources: None

· Oracle:

Table with one row and one cell containing an instance of text. Content of text is "I am a string".

2.7.4 < Table Test 4>

Test, that a row cannot be added to a table object if the list contains a wrong number of objects

Routine(s) or other functionality under test: add_row
 Set-up if any: table1: TABLE with 1 column

text1: TEXT

• Tear-down if any: None

• Test data: row1: LINKED_LIST with 2 entries of text1

· Any other resources: None

Oracle:

Precondition violation raised.

2.8 Paragraph Tests

2.8.1 <Paragraph Test 1>

Test, that an paragraph object is created

Routine(s) or other functionality under test: make()
 Set-up if any: paragraph1: PARAGRAPH

Tear-down if any: NoneTest data: NoneAny other resources: None

· Oracle:

A paragraph(paragraph1) gets created.

2.8.2 <Paragraph Test 2>

Test, that an object can be added to an paragraph

Routine(s) or other functionality under test: new_element()

• Set-up if any: dummy object1: HTML TEXT

• Tear-down if any: None

• Test data: dummy object1

Any other resources: None

Oracle:

The element "dummy_object1" is stored at the first place in the array "word_arr" in the paragraph object "paragraph1".

2.8.3 < Paragraph Test 3>

Test, that a second object can be added to an paragraph

• Routine(s) or other functionality under test: new_element()

• **Set-up if any:** dummy_object2: HTML_TEXT

• Tear-down if any: None

• Test data: dummy_object2

· Any other resources: None

· Oracle:

The element "dummy_object2" is stored at the second place in the array "word_arr" in the paragraph object "paragraph1" while the first element "dummy_object1" is still located at the first position.

2.9 HTML_Anchor and HTML_anchor_manager Tests

2.9.1 < Anchor Test 1>

Test, that an anchor manager is created

• Routine(s) or other functionality under test: HTML ANCHOR MANAGER.make()

• Set-up if any: create manager.make (Type ANCHOR MANAGER)

create cgv.make (Type HTML_CODE_GENERATOR_VISITOR)

create exception asserter

• Tear-down if any: None

• Test data: manager.make()

Any other resources: None

· Oracle:

An anchor manager object "manager" gets created with an id = 1

2.9.2 < Anchor Test 2>

Test, that an anchor is set/anchor object is created

• Routine(s) or other functionality under test: create_anchor

HTML ANCHOR.make

• Set-up if any: like in Anchor Test 1

anchor1: HTML ANCHOR

• Tear-down if any: None

• Test data: anchor1 = manager.create anchor()

Any other resources: None

· Oracle:

An anchor object "anchor1" gets created with the id = 1

2.9.3 < Anchor Test 3>

Test, that a second anchor can be set, and its id is another then of the first anchor

Routine(s) or other functionality under test: create_anchor

HTML_ANCHOR.make()

• **Set-up if any:** like in Anchor Test 2

anchor2: HTML ANCHOR

• Tear-down if any: None

• **Test data:** anchor2 = manager.create_anchor()

• Any other resources: None

· Oracle:

A second anchor object gets created with an id = 2

2.9.4 < Anchor Test 4>

Test, that a anchor link to the first anchor can be created

• Routine(s) or other functionality under test: add_link

• Set-up if any: like in 2

link1: HTML_INTERNAL_LINK

Tear-down if any: None

· Test data: link1 = anchor1.add link("click me to get to an other position")

Any other resources: None

· Oracle:

Creates a link object with the url and an id=1 and the text "click me to get to another position"

2.9.5 < Anchor Test 5>

Test, that two internal links from the same anchor have the same id

Routine(s) or other functionality under test:

Set-up if any: like in Anchor Test 4

link2: HTML INTERNAL LINK

Tear-down if any: None

link1.id and link2.id · Test data:

Any other resources: None

Oracle:

Creates two links with the id "00000001"

2.9.6 < Anchor Test 6>

Test, that precondition holds for empty source

• Routine(s) or other functionality under test: precondition source is not empty

Set-up if any: like in 1

link1: HTML_INTERNAL_LINK

Tear-down if any: None

Test data: link1.make("", "TEXT")

• Any other resources: None

· Oracle:

Program states that a precondition violation occurred

2.9.7 <Anchor Test 7>

Test, that precondition holds for empty text

Routine(s) or other functionality under test: precondition text is not empty

Set-up if any: like in 1

link1: HTML INTERNAL LINK

Tear-down if any: None

Test data: link1.make("TEXT", "")

Any other resources: None

Oracle:

Program states that a precondition violation occurred

2.10 HTML code generator visitor Tests

2.10.1 < Visitor Test 1>

Test, that correct HTML code of the anchor is generated.

· Routine(s) or other functionality under test: visit anchor

Anchor object as described in 2.10.2 Set-up if any:

Tear-down if any: None Test data: anchor1

cgv.visit anchor(anchor1)

• Any other resources: None

· Oracle:

The visitor creates a string of the HTML representation which is stored in variable end_string and it will look like this: "%T%N"

2.10.2 < Visitor Test 2>

Test, that correct HTML code of the internal link is generated.

• Routine(s) or other functionality under test: visit int link

• **Set-up if any:** Anchor object anchor1 as described in 2.10.2

• Tear-down if any: None

• **Test data:** internal :=anchor1.add_link("to top")

cgv.visit_int_link(internal)

• Any other resources: None

· Oracle:

The visitor creates a string of the HTML representation which is stored in variable end string and it will look like this: "<%Tto top>%N"

2.10.3 < Visitor Test 3>

Test, that correct HTML code of the external link is generated.

Routine(s) or other functionality under test: visit_ext_link()
 Set-up if any: External link object as described in 2.5.1

Tear-down if any: NoneTest data: link

cgv.visit_ext_link(link)

Any other resources: None

· Oracle:

The visitor creates a string of the HTML representation which is stored in variable end_string and it will look like this: "%TLink to Google%N"

2.10.4 < Visitor Test 4>

Test, that correct HTML code of title is generated.

Routine(s) or other functionality under test: visit_title

• Set-up if any: title:= TITLE

title.make("I am a title",4)

• Tear-down if any: None • Test data: title

cgv.visit title(title)

• Any other resources: None

· Oracle:

The visitor creates a string of the HTML representation which is stored in variable end string and it will look like this: "%T<h4>%"I am a title%"</h4>%N"

2.10.5 < Visitor Test 5>

Test, that correct HTML code of an image is generated.

• Routine(s) or other functionality under test: visit_image

• Set-up if any: image:= IMAGE

image.make"testimage.jpg","testimage")

Tear-down if any: NoneTest data: image

cgv.visit image(image)

· Any other resources: None

· Oracle:

The visitor creates a string of the HTML representation which is stored in variable end_string and it will look like this: <%T%N"

2.10.6 < Visitor Test 6>

Test, that correct HTML code of an ordered_list is generated.

• Routine(s) or other functionality under test: visit_ordered_list

• Set-up if any: olist:= HTML_ORDERED_LIST

otext:=HTML_TEXT

otext.make("I am dummy text")

olist.add_row(otext)
olist.add_row(otext)

Tear-down if any: NoneTest data: Olist

cgv.visit_ordered_list(olist)

Any other resources: None

· Oracle:

The visitor creates a string of the HTML representation which is stored in variable end_string and it will look like this:%T%N%T%TI am dummy text%N%T%/Ol>%N" am dummy text%N%T

2.10.7 < Visitor Test 7>

Test, that correct HTML code of an oedered list is generated.

Routine(s) or other functionality under test: visit_unordered_list

Set-up if any: ulist:= HTML_UNORDERED_LIST

utext:=HTML TEXT

utext.make("I am dummy text")

ulist.add_row(utext)
ulist.add row(utext)

Tear-down if any: NoneTest data: ulist

cgv.visit_unordered_list(ulist)

· Any other resources: None

Oracle:

The visitor creates a string of the HTML representation which is stored in variable end_string and it will look like this:"%T%N%T%TI am dummy text%N%T%TI am dummy text%N%T

2.10.8 < Visitor Test 8>

Test, that correct HTML code of a paragraph is generated.

· Routine(s) or other functionality under test: visit paragraph

• **Set-up if any:** para:= HTML_PARAGRAPH

ptext:=HTML_TEXT

ptext.make("I am dummy text")

para.make

para.new_element(ptext)

Tear-down if any: NoneTest data: para

cgv.visit_paragraph(para)

Any other resources: None

· Oracle:

The visitor creates a string of the HTML representation which is stored in variable end_string and it will look like this:"TI am dummy text%N"

2.10.9 < Visitor Test 9>

Test, that correct HTML code of a snippet is generated.

• Routine(s) or other functionality under test: visit_snippet

Set-up if any: snippet:=HTML SNIPPET

snippet.make("I am a snippet")

Tear-down if any: NoneTest data: snippet

cgv.visit snippet(snippet)

• Any other resources: None

· Oracle:

The visitor creates a string of the HTML representation which is stored in variable end string and it will look like this:"%TI am a snippet%N"

2.10.10 <Visitor Test 10>

Test, that correct HTML code of a table is generated.

• Routine(s) or other functionality under test: visit table

• **Set-up if any:** table:=HTML_TABLE

ttext:=HTML_TEXT

tlist:= LINKED_LIST[COMPONENT]
ttext:=html.text("I am dummy text")

table:=html.table(2) table.add_row(tlist) table.add_row(tlist)

Tear-down if any: NoneTest data: table

cgv.visit table(table)

Any other resources: None

· Oracle:

The visitor creates a string of the HTML representation which is stored in variable end_string and it will look like this:"%T%N%T%T%N%T%T%TI am dummy text

2.10.11 <Visitor Test 11>

Test, that correct HTML code of a text is generated.

• Routine(s) or other functionality under test: visit_text

Set-up if any: text:=HTML TEXT

text.make("I am dummy text")

text.bold text.underline text.cursiv

Tear-down if any: NoneTest data: text

cgv.visit_text(text)

• Any other resources: None

Oracle:

The visitor creates a string of the HTML representation which is stored in variable end_string and it will look like this:"<i><u>l am dummy text</u></i></u>>"

2.11 End-to-End Test

2.11.1 < End-to-End Test 1>

```
General program test. Should be set up separately.
```

```
html: HTML_FACTORY
text1: TEXT
text2: TEXT
text3: TEXT
text4: TEXT
title1: TITLE
title2: TITLE
image1: IMAGE
table1:TABLES
row1: LINKED_LIST[COMPONENT]
link1:LINK
link2:LINK
link3:LINK
anchor1:ANCHOR
ordered_list1: LISTS
unordered_list1: LISTS
paragraph1:PARAGRAPH
snippet1:SNIPPET
manager: HTML_ANCHOR_MANAGER
title1:=html.title("Main title",1)
list.extend(title1)
manager.make
anchor1:= manager.create_anchor
list.extend(anchor1)
text1:=html.text("I am bold")
text1.bold
```

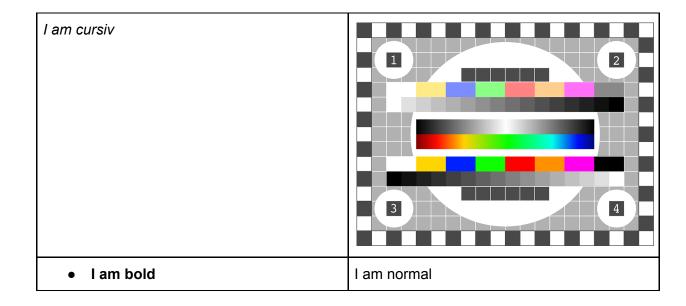
link1:=html.external_link("www.google.com", "Link to Google")

```
paragraph1:= html.paragraph()
paragraph1.new element(text1)
paragraph1.new_element(link1)
list.extend(paragraph1)
text2:=html.text("I am cursive")
text2.cursive
text3:=html.text("I am normal")
image1:=html.image("testimage.jpg","This is a test image")
unordered list1:=html.unordered list()
unordered list1.add row(text1)
unordered list1.add row(text2)
table1:=html.table(2)
table1.add row([text2,image1])
table1.add row([unordered list1,text3])
list.extend(table1)
title2:=html.title("Subtitle",3)
list.extend(title2)
link2:=html.link("C://...","go to second page")
snippet1:=html.snippet("<b>I am a snippet</b>")
text4:=html.text("I am bold and cursive and underlined")
text4.bold()
text4.cursive()
text4.underline()
ordered list1:=html.ordered list()
ordered_list1.add_row(link2)
ordered_list1.add_row(snippet1)
ordered list1.add row(text4)
list.extend(ordered list1)
link:=html.internal_link(anchor1, "Go to top")
list.extend(link)
Oracle: The final HTML representation should then look like:
<!DOCTYPE html>
<html lang="en">
<head>
    <META CHARSET="UTF-8">
    <title>A document created with a HTML Generator</title>
</head>
<body>
```

```
<h1>Main title</h1>
   <a name="00000001"></a>
   <b>I am bold</b><a href="www.google.com">Link to Google</a>
   <i>I am cursive</i>
                   <img src="testimage.jpg" alt="This is a test image">
                   <b>| am bold</b>
   <i>I am cursive</i>
I am normal
                    <h3>Subtitle</h3>
   <a href="C://...">go to second page</a>
                    <b>I am a snippet</b>
                    <b><i><u>I
                                   am
                                         bold
                                                 and
                                                        cursive
                                                                  and
underlined</u></i></b>
   <a href="#00000001">Go to top</a>
</body>
</html>
```

Main Title

I am bold Link to Google



I am cursiv

Subtitle

- 1. Go to second page (does not work in word)
- 2. I am a snippet
- 3. I am bold and cursiv and underlined

Go to top (does not work here either)

3 Expected Coverage

The estimated coverage over the whole program is 71%