

## Definitions of 15 UIWDPs

**Table a: Login Pattern**

| Variant | UI graphical items                                                                                                              | Lexical items                      | Feature types                                                                                                                                      | Pattern definitions                                       |
|---------|---------------------------------------------------------------------------------------------------------------------------------|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|
| 1       | <pre>&lt;form&gt;   &lt;input type="text"&gt;   &lt;input type="password"&gt;   &lt;input type="submit"&gt; &lt;/form&gt;</pre> | .<br>Login<br>Username<br>Password | F11: Start of form.<br>F12: End of form.<br>F13: Text data field.<br>F14: Password data field.<br>F15: Submit button.<br>F16: Label.<br>F17: Label | F11,F13,F14,F15,F12<br>OR<br>F11,F16,F13,F17, F14,F15,F12 |

**Table 2: Navigational Bar Pattern**

| Variant | UI graphical items                                                                                     | Lexical items | Feature types                                                                                                                         | Pattern definitions                                                                             |
|---------|--------------------------------------------------------------------------------------------------------|---------------|---------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| 1       | <pre>&lt;UL&gt; &lt;LI&gt; &lt;a&gt; &lt;/a&gt; &lt;/LI&gt; &lt;/UL&gt;</pre>                          | -             | F1: List starts point.<br>F2: List end point.<br>F3: Item start point.<br>F4: Item end point.<br>F5: Anchor start.<br>F6: Anchor end. | $F1,(F3,F5,F4,)* F2$                                                                            |
| 2       | <pre>&lt;DIV&gt; &lt;SPAN&gt;&gt; &lt;a&gt;&lt;a&gt;&lt;/SPAN&gt;&lt;/DIV&gt;</pre>                    |               | F7: Division start.<br>F8: Division end.<br>F9: Navigation item start point.<br>F10: Navigation item end point.                       | $F7,(F9,F5,F10)*,F8$                                                                            |
| 3       | <pre>&lt;table&gt; &lt;tr&gt;&lt;td&gt; &lt;a&gt;&lt;a&gt;&lt;/td&gt; &lt;/tr&gt; &lt;/table&gt;</pre> |               | F19: Start of table.<br>F20: End of table.<br>F21: Start of row.<br>F22: End of row.<br>F23: Start of column.<br>F24: End of Column.  | Horizontal<br>$F19,F21,(F23,F5,F6,F24)*F22,F20$<br>Vertical<br>$F19,(F21,F23,F5,F6,F24,F22)F20$ |

\*Any number of repetitions.

**Table 3: Breadcrumbs Pattern**

| Variant | UI graphical items                                                                              | Lexical items                                                     | Feature types                                                                                                                                                                                                                | Pattern definitions              |
|---------|-------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|
| 1       | <pre>&lt;Div&gt; &lt;UL&gt; &lt;Li&gt;&lt;a&gt; text&lt;/a&gt; &lt;/Li&gt; &lt;/Div&gt;</pre>   | <Div> tag<br>contains<br>attribute<br>Breadcrumbs<br>><br>>><br>/ | F7: Division start.<br>F1: Navigation list start point.<br>F3: Navigation item start point.<br>F5: Anchor start.<br>F6: Anchor end.<br>F4: Navigation item end point.<br>F2: Navigation list end point.<br>F8: Division end. | $F7,F28,(F1,F3,F5,F6,F4,F2)*,F8$ |
| 2       | <pre>&lt;Div&gt; &lt;Span&gt;&lt;a&gt;text&lt;/a&gt; &lt;/Span&gt; &lt;/Div&gt;</pre>           |                                                                   | F7: Division start.<br>F9: Navigation item area starts point.<br>F5: Anchor start.<br>F6: Anchor end.<br>F10: Navigation item area end point.<br>F8: Division end.                                                           | $F7,F28,(F9,F5,F6,F10)*,F8$      |
| 3       | <pre>&lt;Div&gt;&lt;a&gt;... &lt;/a&gt; &lt;Span&gt;&lt;img&gt; &lt;/Span&gt;&lt;/Div&gt;</pre> |                                                                   | F7: Division start.<br>F5: Anchor start.<br>F6: Anchor end.<br>F9: Navigation item area starts point.<br>F27: Navigation item area end point.<br>F8: Division end.                                                           | $F7,F28,(F5,F6,F9,F27)*,F8$      |

**Table 4: Lazy Registration Pattern**

| Variant | UI graphical items                                                                                                                                                                                                                                                                                           | Lexical items                                                                      | Feature types                                                                                                                                                                               | Pattern definitions                     |
|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|
| 1       | <pre> &lt;form&gt;   &lt;input type="text"   name="f-name"&gt;   &lt;input type="text"   name="l-name"&gt;   &lt;input type="email/text"   name="email"&gt;   &lt;input type="password"   name="password"&gt;   &lt;a&gt;---&lt;/a&gt;   &lt;input type="submit"   "&gt;/Button         &lt;/form&gt; </pre> | First name<br>Last name<br>Email<br>Password<br>Agree/accept term<br>and condition | F11: Start of form.<br>F12: End of form.<br>F13: Text data field.<br>F14: Password data field.<br>F5: Anchor start.<br>F6: Anchor end.<br>F15: Submit button.<br>F16: Label.<br>F17: Label. | F11,F13,F13,F13,F14,F14,F5,F6, F15 ,F12 |

**Table 5 : Pagination Pattern**

| Variant | UI graphical items                                                                                                                                                                             | Lexical items                        | Feature types                                                                                                                                                                                                                                                                         | Pattern definitions                                                    |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|
| 1       | <pre> &lt;p "&gt;/&lt;DIV&gt; &lt;strong class="current- page"&gt;1&lt;/strong&gt; &lt;/Span &gt; 1&lt;/Span&gt;/&lt;a&gt;1&lt;/a&gt; &lt;a href=#&gt;&lt;/a&gt; &lt;/p&gt;/&lt;div&gt; </pre> | Class="clearfix"<br>class=Pagination | F7: Division start.<br>F41: Para start.<br>F43: Text Highlighter start.<br>F45: Digits<br>F44: Text Highlighter end.<br>F9: Navigation item area starts point.<br>F10: Navigation item area end point.<br>F5: Anchor start.<br>F6: Anchor end.<br>F42: Para end.<br>F8: Division end. | (F41/F7),((F43,F45,F44)/<br>(F9,F45,F10)/(F5,F45,F6<br>)){8,n}(F42/F8) |

/ = one out of both sides.

{5,n} = At least 5 or maximum n times.

**Table 6 : Content Footers Pattern**

| Variant | UI graphical items                                                                                                                                                                                                                                   | Lexical items | Feature types                                                                                                                                                                                                               | Pattern definitions                 |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| 1       | <pre> &lt;footer class="site-footer"&gt; &lt;div &gt; &lt;UL&gt;&lt;LI&gt;&lt;a&gt;-----&lt;/a&gt;&lt;/li&gt;----- &lt;/ul&gt;&lt;/Div&gt; &lt;div&gt;&lt;a&gt;-----&lt;/a&gt;&lt;/div&gt;&lt;/footer&gt; </pre>                                     | footer        | F29: Footer start.<br>F7: Division start.<br>F5: Anchor start.<br>F6 Anchor end.<br>F8: Division end.<br>F30: Footer end.                                                                                                   | F29,(F7,(F5,F6)*,F8)*F30            |
| 2       | <pre> &lt;Div Id="footer"&gt; &lt;div &gt;&lt;UL&gt;&lt;LI&gt;&lt;a&gt;-----&lt;/a&gt;&lt;/li&gt;----- ---&lt;/ul&gt;&lt;/Div&gt; &lt;div&gt;&lt;p&gt;-----&lt;/p&gt;&lt;/div&gt; &lt;div&gt;&lt;p&gt;-----&lt;/p&gt;&lt;/div&gt;&lt;/div&gt; </pre> |               | F7: Division start.<br>F1: Navigation list start point.<br>F3: Navigation item start point.<br>F5: Anchor start.<br>F6 Anchor end.<br>F4: Navigation item end point.<br>F2: Navigation list end point.<br>F8: Division end. | F7,(F7,F1,(F3,F5,F6,F4)*,F2,F8)*,F8 |

**Table 7: Form Wizard Pattern**

| Variant | UI graphical items                                                                                                                                                                             | Lexical items                                 | Feature types                                                                                                         | Pattern definitions                                                                              |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| 1       | <pre> &lt;Form action= .....&gt; &lt;Div&gt;&lt;Label&gt;text&lt;/Label&gt; &lt;input types="text"&gt;&lt;/Div&gt; //repeat at least 2 times &lt;Div&gt;&lt;Label&gt;text&lt;/Label&gt; </pre> | Password<br>Conform<br>password<br>Agree/acce | F11: Start of form.<br>F7: Division start.<br>F31: Label Text start.<br>F32: Label text end.<br>F13: Text data field. | F11,(F7,F31,F32F13,F8<br>){2,n}(F7,F31,F32,F14,<br>F8){2}(F5,F6)?(F7,F3<br>1,F32,F16 F26,F8),F12 |

|   |                                                                                                                                                                                                                                                                                                                    |                       |                                                                                                                                                                                                                                      |                                                                                  |
|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
|   | <input &gt;&lt;="" <br="" div&gt;="" types="password"/> repeat 2 times<br><Div><br><a>- agree term and conditions -<br></a></Div> optional<br>Div><Label>text</Label><br><button>/<input<br>types="submit"></Div></Form>                                                                                           | pt term and condition | F14: Password data field.<br>F8: Division end.<br>F5: Anchor start.<br>F6: Anchor end.<br>F16: Submit button.<br>F26: Button for action.<br>F12: End of form.                                                                        |                                                                                  |
| 2 | <Form ><br><Label>text</Label> // repeat at least 2<br>times<br><input types="text"> //repeat at least<br>2 times<br><Label>password </Label><br><input types="password"> //repeat 2<br>times<br><a>- agree term and conditions -</a><br>optional<br><Label>text</Label><br><button>/<input types="submit"></Form> |                       | F11: Start of form.<br>F31: Label Text start.<br>F32: Label text end.<br>F13: Text data field.<br>F14: Password field.<br>F5: Anchor start.<br>F6: Anchor end.<br>F16: Submit button.<br>F26: Button of action.<br>F12: End of form. | F11,(F31,F32F13){2,n}<br>(F31,F32,F14){2,n}(F5,<br>F6)?(F31,F32,F16/F26),<br>F12 |

{2,n}= At least 2 or maximum n times

**Table 8 : Modular Tabs Pattern**

| Variant | UI graphical items                                                                                                                                                                               | Lexical items | Feature types                                                                                                                                                                                                                                                                                               | Pattern definitions                                                          |
|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| 1       | <link rel="stylesheet"><Script<br>Type="text/javascript"> optional<br><Section><Div><article><br><header><h1><a>-- </a></h1><br><p><a>--<br></a></p></header></article>{4,}<br></div></section > | -             | F33: Section start.<br>F7: Division start.<br>F35: Sub section start.<br>F37: Sub section heading.<br>F39: Heading style start.<br>F5: Anchor start.<br>F6: Anchor end.<br>F40: Heading style end.<br>F41: Para start.<br>F42: Para end.<br>F36: Sub Section end.<br>F8: Division end.<br>F34: Section end. | F33,(F7,F35,F<br>37,F39,F5,F6,F<br>40,F41,F5,F6,F<br>42,F36){5,n},F<br>8,F34 |
| 2       | <div><br><ul><br><li><a>---</a></li>{5,n}<br></ul><br></div>{2,n}                                                                                                                                |               | F7: Division start.<br>F1: List starts point.<br>F3: Item start point.<br>F5: anchor start.<br>F6: anchor end.<br>F4: Navigation item end point.<br>F2: Navigation list end point.<br>F8: Division end.                                                                                                     | (F7,F1, (F3,<br>F5, F6,<br>F4){5,n},<br>F2,F8)                               |

{5,n}= At least 5 or maximum n times

**Table 9: Page Grids Pattern**

| Variant | UI graphical items                                                                                   | Lexical items | Feature types                                                                                        | Pattern definitions            |
|---------|------------------------------------------------------------------------------------------------------|---------------|------------------------------------------------------------------------------------------------------|--------------------------------|
| 1       | <!DOCTYPE><br><html><head><title><br><link rel="stylesheet"><body><br><div id="text"> repeat n times | -             | F52: HTML version.<br>F53: Webpage head.<br>F54: CSS link.<br>F55: Page body.<br>F7: Division start. | F52,F53,F54,F55,(F7){<br>35,n} |

{35,n}= repeat at least 35 and maximum n times.

**Table 10: Article Lists Pattern**

| Variant | UI graphical items                                                                                                                                                                                                                                                                | Lexical items                                 | Feature types                                                                                                                                                                                                                                                                                                      | Pattern definitions                                                          |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| 1       | <pre> &lt;section&gt; &lt;header "&gt;&lt;time&gt;&lt;/time&gt; &lt;/header&gt; &lt;article&gt; &lt;h1&gt;&lt;a&gt;-- &lt;/a&gt;&lt;/h1&gt; &lt;p&gt;&lt;a&gt;-- &lt;/a&gt; . &lt;a&gt;--&lt;/a&gt;&lt;/p&gt; &lt;p&gt; summary &lt;/p&gt;&lt;article&gt; &lt;/Section&gt; </pre> | Title<br>Entry detail<br>Summary              | F33: Sections start.<br>F37: Sub section title start.<br>F38: Sub section title end.<br>F35: Sub section.<br>F39: Heading style start.<br>F5: Anchor start.<br>F6: Anchor end.<br>F40: Heading style end.<br>F18: Label /Text.<br>F41: Para start.<br>F42: Para end.<br>F36: Sub Section end.<br>F34: Section end. | F33,F37,F38,(F35,F39,F5,F6,F40,F41,(F5,F6){1.2})F42,F41,F18,F42,F36){3,n}F34 |
| 2       | <pre> &lt;div class/ID&gt; &lt;Div&gt;&lt;H1&gt;text &lt;/h1&gt; &lt;div&gt;&lt;P&gt;&lt;a&gt;-- &lt;/a&gt;&lt;/div&gt;&lt;/P&gt; &lt;p&gt;&lt;a&gt;-- &lt;/a&gt;&lt;/p&gt;&lt;/div&gt; {3,n} &lt;div&gt; </pre>                                                                  | Div tag may<br>have wrapper<br>/article /main | F7: Division start.<br>F39: Heading style start.<br>F40: Heading style end.<br>F18: Text.<br>F41: Para start.<br>F5: Anchor start.<br>F6: Anchor end.<br>F42: Para end.<br>F8: Division end.                                                                                                                       | F7,(F7,F39,F18,F40,(F7/F41),F5,F6,(F8/F42),(F41,F5,F6,F42,F8){3,n}F8         |

{3,n}= Repeat at least 3 and maximum n times.

**Table 11: Vote to Promote Pattern**

| Variant | UI graphical items                                                                                                                                                                                                                                                  | Lexical items                    | Feature types                                                                                                                                                                                                                                                                                                                                                                     | Pattern definitions                                                                         |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| 1       | <pre> &lt;section&gt;&lt;/div&gt;&lt;/table&gt; &lt;div&gt;&lt;tr&gt;&lt;a&gt;text&lt;/a&gt; &lt;div&gt;&lt;td&gt;&lt;a&gt;text &lt;/a&gt; &lt;div&gt;&lt;td&gt;&lt;span&gt;&lt;/p&gt;text&lt;/span&gt;&lt;/p&gt; &lt;/section&gt;&lt;/div&gt;&lt;/table&gt; </pre> | Title<br>Entry detail<br>Summary | F33: Sections start.<br>F19: Table start.<br>F7: Division start.<br>F21: Start of row.<br>F23: Start of column.<br>F5: Anchor start.<br>F6: Anchor end.<br>F18: Text.<br>F9: Navigation item area starts point.<br>F10: Navigation item area end point.<br>F41: Para start.<br>F42: Para end.<br>F22: End of row.<br>F34: Section end.<br>F8: Division end.<br>F20: End of table. | (F33/F7/F9)((F7/F21),F5f6,(F7/F23),F5,F6,(F7/F23)(F9/F42),F18,(F10/F42)){10,n},(F34/F8/F20) |

{10,n}= repeat at least 10 and maximum n times.

**Table 12: Archives Pattern**

| Variant | UI graphical items                                                                                                                                                                                                                                                                          | Lexical items    | Feature types                                                                                                                                                                                                                                                | Pattern definitions                                                                         |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| 1       | <pre> &lt;section&gt;&lt;/div&gt;&lt;/table&gt; &lt;tr&gt;&lt;/div&gt;&lt;/article&gt; &lt;h\d&gt;)text&lt;/h\d&gt; &lt;ul&gt;&lt;ol&gt;&lt;/article&gt; &lt;li&gt;&lt;a&gt;&lt;/a&gt;&lt;/li&gt; &lt;/ul&gt;&lt;/ol&gt;&lt;/article&gt; &lt;/section*&gt;&lt;/div&gt;&lt;/table&gt; </pre> | Archives<br>Date | F33: Sections start.<br>F19: Table start.<br>F7: Division start.<br>F21: Start of row.<br>F46: Order list start.<br>F47: order list end.<br>F5: Anchor start.<br>F6: Anchor end.<br>F39: Heading style start.<br>F40: Heading style end.<br>F18: Label/Text. | (F33/F7/F9)((F7/F21),F5f6,(F7/F23),F5,F6,(F7/F23)(F9/F42),F18,(F10/F42)){10,n},(F34/F8/F20) |

|  |  |  |                                                                                                                                                                                                      |  |
|--|--|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|  |  |  | F1: List start.<br>F2: List end.<br>F3: Item start point.<br>F4: item end point.<br>F35: Sub section start.<br>F36: Sub section end.<br>F34: Section end.<br>F8: Division end.<br>F20: End of table. |  |
|--|--|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|

{10,n}= repeat at least 10 and maximum n times.

**Table 13: Dashboard Pattern**

| Variant | UI graphical items                                                                                   | Lexical items | Feature types                                                                                  | Pattern definitions                    |
|---------|------------------------------------------------------------------------------------------------------|---------------|------------------------------------------------------------------------------------------------|----------------------------------------|
| 1       | (<Script<br>type="text/javascript"><br>(Dashboard)</script><br>(Div class/Id="Dashboard">)<br></div> | Dashboard     | F48: Scripting language start.<br>F18: Label/Text.<br>F7: Division start.<br>F8: Division end. | (F48,F18,F18,F49){1,n}/(F7,F18,F8){1,} |

{1,}= Repeat at least 1 or any number of times.

{1,n}= repeat at least 1 or n number of times.

**Table 14: Hierarchical Actions Pattern**

| Variant | UI graphical items                                          | Lexical items         | Feature types                                                                                                               | Pattern definitions   |
|---------|-------------------------------------------------------------|-----------------------|-----------------------------------------------------------------------------------------------------------------------------|-----------------------|
| 1       | <form><br><input type="submit"><br><a> text </a></form>     | Signup/Sign in/Forgot | F11: Start of form.<br>F15: Submit button.<br>F5: Anchor start.<br>F6: Anchor end.<br>F18: Label/Text<br>F12: End of form . | F11,F15,F5,F18,F6,F12 |
| 2       | <form><br><a> text </a><br><input type="submit"><br></form> | Signup/Sign in/Forgot | F11: Start of form.<br>F15: Submit button.<br>F5: Anchor start.<br>F6: Anchor end.<br>F18: Label/ Text.<br>F12: Form end.   | F11,F5,F18,F6,F15,F12 |

**Table 15: Display Collection Pattern**

| Variant | UI graphical items                                          | Lexical items         | Feature types                                                                                                                 | Pattern definitions    |
|---------|-------------------------------------------------------------|-----------------------|-------------------------------------------------------------------------------------------------------------------------------|------------------------|
| 1       | <form><br><input type="submit"><br><a> text </a></form>     | Signup/Sign in/Forgot | F11: Start of form.<br>F15: Submit button.<br>F5: Anchor start.<br>F6: Anchor end.<br>F18: Label/Text.<br>F12:End of Form.    | F11,F15,F5,F18,F6, F12 |
| 2       | <form><br><a> text </a><br><input type="submit"><br></form> | Signup/Sign in/Forgot | F11: Start of form.<br>F15: Submit button.<br>F5: Anchor start.<br>F6: Anchor end.<br>F18: Label/ Text.<br>F12: End of form . | F11,F5,F18,F6,F15, F12 |