Database Synchronized Web Form Builder  
Software Requirement Specification

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# Startup

On startup of Web Form Builder, Users can create new pages or open existing pages.

|  |  |  |
| --- | --- | --- |
| No | Action | Result |
| 1.1 | Create New Page | Open a blank untitled page.  The property panel is activated and users can check its page id that is defined automatically in specific rule.  Sets the Page width to default (1024px). |
| 1.2 | Edit existing Page | I can open a HTML page file to edit it. |
| 1.3 | Edit Login Page | I can open a login page file to edit it. If the selected page is not a login page, it should not be opened. |
| 1.4 | Edit Case Page | I can open a case page file to edit it.  Page panel is activated after case page is loaded. If the selected page is not a case page, it should not be opened. |

# Settings & DB catalog analysis

## Users can customize some application settings.

|  |  |  |
| --- | --- | --- |
| No | Action | Result |
| 2.1 | Click on the ‘options’ button in menu bar | User can configure the following settings. |
| 2.1.1 | Show placeholder on empty elements | Elements such as ‘div’ or ‘section’ that have empty content can be shown on HTML editing panel.  Actually, a CSS class with ‘min-height: 100px’ is added to empty elements, but this doesn’t affect rendering in real browser. |
| 2.1.2 | Set Internal Web Server hostname | System uses internal web server to access local HTML files. New hostname will be used. |
| 2.1.3 | Set Internal Web Server port | New port number will be used to access local HTML files. |
| 2.1.4 | Set Font size in code editor | In code editor, new font size is applied. |
| 2.1.5 | Set code indent size in code editor | In code editor, code is indented with new size. |
| 2.1.6 | Save change | The setting changes are saved. |
| 2.1.7 | Cancel | The setting changes are discarded. |

## Users can set database configuration to use database-synchronized html controls.

|  |  |  |
| --- | --- | --- |
| No | Action | Result |
| 2.2 | Click on the ‘Database’ button in menu bar | Database configuration dialog is opened. |
| 2.2.1 | Set SQL Server url | Users can see server url is set. |
| 2.2.2 | Set Username | Users can see username is set. |
| 2.2.3 | Set Password | Users can see password is set. |
| 2.2.4 | Click a “Connect” button to connect to server | Users can see the catalog selection is enabled. |
| 2.2.5 | Set ‘Remember me’ | System remember the DB server credential and connect to DB server as it starts. |
| 2.2.6 | Select a catalog | System analyzes selected catalog and checks whether database schema is valid or not.  If invalid, system alerts to user.  If valid, show wfClsDisplayName below the catalog selection. |
| 2.2.7 | Choose one of wfClsDisplayName | System looks up and add the tables/columns under the root tables with specified relationship. |
| 2.2.8 | Save configuration | Apply the settings to the system. |
| 2.2.9 | Cancel | Close Configuration dialog. |

# Initial view

## When users click on the app logo button, main menu is shown.

The features on the startup are also provided in Main menu and those are abbreviated here.

|  |  |  |
| --- | --- | --- |
| No | Action | Result |
| 3.1 | Click on the ‘App logo’ button in header bar | Users can see Main menu is shown. |
| 3.1.1 | Save page | HTML page that is activated in HTML editing panel is saved. Also its properties such as page id are saved.  The API related to the page is also saved. |
| 3.1.2 | Save as | A dialog is shown to let IT admin choose path and name of file. Then the activated page is “Saved as” on the path with a name set by IT admin. |
| 3.1.3 | Duplicate page | A HTML page with the same content of the one that is activated in HTML editing panel is duplicated and is activated.  Its file name is defined by adding “(1)” or “(2)” to the origin file name.  Its page id is also defined in the same way. |
| 3.1.4 | Close page | System verifies that activated HTML page has no content changed.  If changed, system alerts user to “Save & Close” or “Discard”, or “Cancel”.  In case that there are no pages opened, system goes to startup. |
| 3.1.5 | Publish to a folder | System shows a folder selection dialog to let user to select a folder to publish.  If user selects a folder, the HTML form pages are published into the folder by creating the default folder structure of the portal.  And the APIs (server side) codes and dedicated database are also published to the specified sub-folder and the SQL Server. |
| 3.1.6 | Exit | System verifies that all opened pages have no change.  If all have no change, then the system disconnects SQL server connection and is quitted.  Unless, system alerts user to “Quit”, or “Don’t Quit”. |

## User can undo/redo.

|  |  |  |
| --- | --- | --- |
| No | Action | Result |
| 3.2 | Click on the Undo button in header bar | Perform Undo action.  If nothing to undo, system alerts user. |
| 3.3 | Click on the Redo button in header bar | Perform Redo action.  If nothing to redo, system alerts user. |

## Users can get help from system.

|  |  |  |
| --- | --- | --- |
| No | Action | Result |
| 3.4 | Click on the ‘?’ button in header bar | Users can see help menu is shown. |
| 3.4.1 | Get Online Tutorials | A default web browser is opened and go to tutorials page. |
| 3.4.2 | Get Online Support | A default web browser is opened and go to support page. |
| 3.4.3 | Community | A default web browser is opened and go to community page. |
| 3.4.4 | About Web Form Builder | An about dialog is opened. |

## For opened pages, I can do some actions in page menu.

|  |  |  |
| --- | --- | --- |
| No | Action | Result |
| 3.5 | Click on the page menu button on tab bar containing file name. | Users can see page menu is shown. |
| 3.5.1 | Save page | Same with 3.1.1 |
| 3.5.2 | Duplicate page | Same with 3.1.2 |
| 3.5.3 | Refresh page | Reload page and render it again. |
| 3.5.4 | Close page | Same with 3.1.3 |
| 3.5.5 | Manage Properties | On Properties panel, users can modify the page id of current page. |
| 3.5.6 | Edit code | A code editor is shown on the bottom part of the HTML editing panel.  Its content is filled with HTML code of selected page. |
| 3.5.6.1 | Edit CSS code in code editor | In code editor, user can select CSS file in a list to edit.  Only the CSS files that are linked to selected HTML page are listed. |
| 3.5.6.2 | Set wrap mode | The content in the code editor is wrapped. |
| 3.5.6.3 | Set auto refresh | The changes in the code editor are affected in rendering page in HTML editing panel immediately. |
| 3.5.6.4 | Close code editor | Save code changes and quit code editor. |

## For opened pages, the screen width can be set to render page in different width.

|  |  |  |
| --- | --- | --- |
| No | Action | Result |
| 3.6 | Click on the view options menu on right corner of tab bar. | Users can see view options menu is shown. |
| 3.6.1 | Set different screen size | The HTML editing panel shortened horizontally.  If new screen size is bigger that default panel width, the panel width is fixed to default and HTML page content is zoomed out. |
| 3.6.2 | Modify custom size | Dragging the right border of HTML editing panel. |
| 3.6.3 | Set Test mode | It gets disabled to edit pages in HTML editing panel.  And it renders pages as on a real web browser.  Javascript actions and CSS animations may run or not run according to settings below. |
| 3.6.4 | Set Javascript enabled | If this option is checked, Javascript actions are performed in test mode. Unless, they are not performed. |
| 3.6.5 | Set CSS animation enabled | If this option is checked, CSS animations are performed in test mode. Unless, they are not performed. |
| 3.6.6 | Test in browser | System alerts user that the database would be backed up because the form data is submitted to database when user submits in browser.  Then default web browser is opened and renders the selected page. |

# Drag & Drop controls

## Database fields

|  |  |  |
| --- | --- | --- |
| No | Action | Result |
| 4.1 | Click on the ‘Application’ tab. | Table columns are listed in ‘Application’ panel according to catalog structure.  Each columns’ icon represents its value type. |
| 4.1.1 | Drag & Drop column control into HTML editing panel. | If the selected control is a column, the cursor holds control preview while dragging.  And also, HTML page is rendered as if the column control is located on the position of cursor while dragging. After it is dropped, the column control is located at the position. |
| 4.1.2 | Drag & Drop table control into HTML editing panel. | If the selected control is a table, then its all columns are listed at drop position after the control is dropped down.  Till that time, the cursor holds dotted empty region.  When user chooses a column control in the list, then it is located instead of dotted region, and also the system checks that there are conflict records on the column selected. If there are conflicts, the number of conflicts are shown temporarily and shows a list of rest columns with a last element of ‘ignore’.  This process is repeated until there are no conflicts or user chooses ignore. |

## Wizard controls

|  |  |  |
| --- | --- | --- |
| No | Action | Result |
| 4.2 | Click on the ‘Application’ tab. | The form controls are listed below the database-sync controls. |
| 4.2.1 | Drag & Drop Next button | A button of which ‘action’ property is ‘next’ is shown. \* |
| 4.2.2 | Drag & Drop Save button | A button of which ‘action’ property is ‘next’ is shown.\* |
| 4.2.3 | Drag & Drop Reset button | A button of which ‘action’ property is ‘reset’ is shown. \*\* |

\* The value of ‘action’ property influence on publishing the pages because it defines the action of server code.

\*\* The action of ‘reset’ is not affected to server code but it adds Javascript code resets all values of the form inputted by portal user.

\*\*\* The value of ‘action’ property of the other buttons should be ‘normal’ and its actions depend on IT admins code editing as the Pinegrow does.

## Bootstrap controls

|  |  |  |
| --- | --- | --- |
| No | Action | Result |
| 4.3 | Click on the ‘Bootstrap’ tab. | The bootstrap controls are listed on the panel by groups according to their type.  A Search form is located on the top of panel. |
| 4.3.1 | Search controls | Result controls are listed on the panel by groups. |
| 4.3.2 | See bootstrap control preview | While a cursor is on a bootstrap control, its preview is shown on the right end of panel. |
| 4.3.3 | Drag & Drop bootstrap control | While dragging control, the cursor holds control preview till the control is dropped.  And also, HTML page is rendered as if the column control is located on the position of cursor while dragging. After it is dropped, the column control is located at the position. |

# Live HTML Editing

Users can edit HTML pages on HTML editing panel.

## While the cursor is hovering a control, user can see the region of the control.

|  |  |  |
| --- | --- | --- |
| No | Action | Result |
| 5.1 | Hovering a control | If the cursor is on a control, a rectangle that represents the control’s region is drawn.  On top of rectangle, the controls’ rule name (tag name + class names) are shown.  And a rectangle that matches the controls’ margin area and a rectangle that matches the controls’ padding area are drawn. |

## User selects a control and can delete, duplicate or move it.

|  |  |  |
| --- | --- | --- |
| No | Action | Result |
| 5.2 | Select a control | A tiny tool bar containing delete, duplicate and move icons is drawn on top of the region of control. |
| 5.2.1 | Delete control | Selected control is deleted. |
| 5.2.2 | Duplicate control | Same control with the same content of selected control is created after the selected control. |
| 5.2.3 | Move control | User can drag & drop selected control to relocate it in the page. |

## User right clicks a control and a context menu is shown.

|  |  |  |
| --- | --- | --- |
| No | Action | Result |
| 5.3 | Select a control and right click on it. | A control stack pan is shown.  In this pan are the rule names of controls on the path from body control to selected control.  And also a menu with some features is shown below. |
| 5.3.1 | Hover a control on control stack pan. | Same result as 5.1 |
| 5.3.2 | Select a control on control stack pan. | Same result as 5.2 |
| 5.3.3 | Add Link | Adds a link attribute to selected control.  Then Properties panel is activated and Url property is activated. |
| 5.3.4 | Add new CSS class | Properties panel is activated a dialog is opened to input class name. If user inputs class name and press ‘Assign’ button then the CSS class is applied to control. User can cancel the dialog by pressing ‘Cancel’ button. |
| 5.3.5 | Add Lorem Ipsum | If the selected is text control, Lorem Ipsum is inserted into the text. Lorem Ipsum is chunk sentence that has no meaning. |
| 5.3.6 | Edit text | If it is text editable control, then users can edit text of the control on the HTML editing panel.  At this time, there are no UI change in HTML editing panel for editing. |
| 5.3.7 | Edit code | A code editor is shown and the selected controls’ HTML code is filled in the editor.  The changes in code editor is affected to rendering in HTML editing panel immediately. |
| 5.3.8 | Delete | Same as 5.2.1. |
| 5.3.9 | Duplicate | Same as 5.2.2. |
| 5.3.10 | Properties | Properties panel is activated and each property value of the control is set in the panel. |

# Cascade style sheet

Users can manage the cascade style sheets of bootstrap controls on CSS panel.

## Manage style sheets.

|  |  |  |
| --- | --- | --- |
| No | Action | Result |
| 6.1 | Click on the ‘CSS’ tab to cascade style sheets | The CSS files that are linked to activated HTML page are listed on top of the panel with a group name of “StyleSheets”.  CSS rules are listed below with a group name of “CSS rules”. |
| 6.1.1 | Check/Uncheck each CSS file. | Only the CSS rules of checked CSS files are listed on the bottom part of the CSS panel. |
| 6.1.2 | Enable/Disable each CSS file. | Only the enabled CSS files are applied to activated HTML page. But this actions doesn’t affect in rendering in real browser. That is, the HTML code is not changed actually. |
| 6.1.3 | Drag & Drop CSS files to rearrange link order | For each CSS file in the list, users can rearrange the listing order by drag & drop.  Then the linking order in HTML code is also rearranged and rendering is also affected. |
| 6.1.4 | Add new CSS file | A new CSS file with empty content is created and linked to activated HTML page. |

## Manage CSS rules and CSS variables.

|  |  |  |
| --- | --- | --- |
| No | Action | Result |
| 6.2.1 | Search CSS rules | Search results are listed on bottom part of the panel grouped by CSS files. |
| 6.2.2 | Set Active | If this setting is set to active, only the CSS rules that are applied to bootstrap control that is selected in HTML editing panel.  Unless, all CSS rules are listed. |

## Manage CSS variables

|  |  |  |
| --- | --- | --- |
| No | Action | Result |
| 6.2.4 | Click on the ‘Vars’ button to manage CSS vars. | A new dialog is shown and defined CSS variables are listed for each CSS file. |
| 6.2.4.1 | Click on the ‘Add var’ button to add new CSS variable | A new balloon dialog is shown to let user input variable name.  Then a new variable with the name is defined with empty value. If it is the first variable for the CSS file, then a less file with the same name of CSS file is created and since then, the CSS files is parsed by ‘Less parser’. |
| 6.2.4.2 | Edit CSS variable value | For each CSS variable, an input control is filled with its value and users can edit it. |
| 6.2.4.3 | Set CSS variable to color value | A color picker is placed next to input control.  Users can pick a color to set the variable to color value. |
| 6.2.4.4 | Set CSS variable to url value | Users can select a file by clicking on the folder icon button. Then CSS variable value is set to path to the selected file. |
| 6.2.4.5 | Delete CSS variable | A trash button can be used to delete variable. |

## Manage CSS rules

Users can manages each CSS rule in the CSS rules list.

|  |  |  |
| --- | --- | --- |
| No | Action | Result |
| 6.2.5 | Add CSS rule in CSS file by clicking ‘Add rule’ button | A new balloon dialog is shown to let user to input rule selector.  Then CSS panel is navigated to CSS editing panel and the selector value is set to new CSS rule selector.  Finally, a new rule with customized property values are created in selected CSS file. |
| 6.2.6 | See the list of CSS rules | CSS rules are listed grouped with CSS files.  For the selected bootstrap control in the HTML editing panel, the CSS rules applied to selected control are distinguished with others by the color difference of rule selector name. |
| 6.2.6.1 | Edit CSS rule property by clicking rule name | CSS panel is navigated to CSS editing panel and the selector is set to the selected CSS rule.  If the CSS property value is modified, the change affects rendering HTML page in HTML editing panel immediately. |
| 6.2.6.2 | Edit CSS rule code | A CSS code editor is shown and the current rule code is filled in content of editor.  Users can edit code and save it.  If the CSS property value is modified, the change affects rendering HTML page in HTML editing panel immediately. |
| 6.2.6.3 | Delete CSS rule | A trash button is used to delete CSS rule.  This affects rendering immediately. |
| 6.2.6.4 | Rearrange CSS rule order | Users can drag & drop CSS rules to change the order in CSS code. This affects rendering immediately.  It is available to drop a CSS rule to a rule list of other CSS file. |
| 6.2.6.5 | Assign / Unassign CSS rule | For each CSS rule that is able to assign to selected bootstrap control, ‘+’ button is preceded by the rule selector in the list.  For each CSS rule that is able to unassign to selected bootstrap control, ‘-’ button is preceded by the rule selector in the list.  Users can assign or unassign CSS rules using these buttons. |

# Modify properties

## Manage page id property

For each pages: HTML page and Login page, the page id property must be assigned so that it can be used to identify pages in a case page.

|  |  |  |
| --- | --- | --- |
| No | Action | Result |
| 7.1 | Edit page id | For the selected page, users can edit page id on the Property panel. |

## Manage application properties

Application properties are for the specific controls and forms that affect to server side code such as ‘Create Case’, ‘Edit Case’ buttons in case page and third party API selection in login page.

These properties are affected by business logic, so, might be modified properly during development under the confirmation of the client.

## Manage bootstrap properties

|  |  |  |
| --- | --- | --- |
| No | Action | Result |
| 7.2 | Users can manage CSS rules for selected bootstrap control. | CSS rules assigned to selected bootstrap control is listed on top part of the Property panel.  For each rule, if it is able to unassign from selected control, that is, if the rule is assigned in the “class” attribute of selected bootstrap control, ‘×’ button is enabled. Unless, it is disabled. |
| 7.2.1 | See details of CSS rules by clicking them in the list | Each CSS rule selector in the list has button type.  If user clicks this button, CSS panel is activated and the search form is filled with the rule selector.  And the results are listed below grouped by CSS files. |
| 7.2.2 | Disable CSS rule | CSS rule is unassigned temporarily from the selected control. |
| 7.2.2 | Unassign CSS rules by clicking ‘×’ button | CSS rule is unassigned from the selected control. |
| 7.2.3 | Assign CSS class by clicking ‘Add more’ button | A new balloon dialog is shown to let user to input CSS class name. If user clicks assign, typed CSS class is assigned to selected control. |
| 7.3 | Edit bootstrap property  (validation and editable, visible are also provided as bootstrap property) | For each bootstrap property of selected control, input controls are listed in the Property panel grouped by category in various type, e.g. check box, option control, etc.  Users can edit each property value of selected bootstrap control. |

# Case page

|  |  |  |
| --- | --- | --- |
| No | Action | Result |
| 8. | Opens a case page to edit it. | A template case page is opened in the HTML editing panel.  Case page has a ‘Create Case’ button and a case table with a template record and this cannot be removed but can be duplicated.  This template record has no meaning but IT admin can manipulate its properties and CSS in order to see how it would be shown to the portal users. |
| 8.1 | Manage properties for ‘Create Case’, ‘Edit Case’, and ‘View Case’. | On property panel, user can choose task page ids that will be used to create case, edit case, and view case. |
| 8.2 | Edit bootstrap properties | User can edit bootstrap properties of buttons and table. |

# Login page

|  |  |  |
| --- | --- | --- |
| No | Action | Result |
| 9. | User opens a login page to edit it. | Selected login page is opened in HTML editing panel.  And the property panel is activated.  On property panel, specific properties for login page can be edited. |
| 9.1 | Edit Login Form | Users can edit bootstrap elements in login form.  But ‘username’ input control, ‘password’ input control, login button, cancel button cannot be removed. |
| 9.2 | Edit login API property\* | User can edit the API property of the login form by setting the API URL and method. |

\* Web portal uses login API provided by 3rd party system.

# Database-synchronized controls vs. field types

|  |  |  |
| --- | --- | --- |
| Data type | Conditions to determine | HTML control |
| String | dataType = nvarchar, attribAttributeType = 15 |  |
| Image | dataType = tinyint, attribAttributeType = 1003 |  |
| File | dataType = tinyint, attribAttributeType = 1002 |  |
| Currency | dataType = money, attribAttributeType = 8 |  |
| Integer | dataType = int, attribAttributeType = 2 |  |
| Boolean | dataType = bit, attribAttributeType = 5 |  |
| Date-time | dataType = datetime, attribAttributeType = 12 |  |
| Extended Text | dataType = ntext, attribAttributeType = 23 |  |
| Float | dataType = float, attribAttributeType = 10 |  |
| Real | dataType = real, attribAttributeType = 11 |  |
| Small Integer | dataType = smallint, attribAttributeType = 3 |  |
| Tiny Integer | dataType = tinyint, attribAttributeType = 4 |  |