Welcome to NEEDLU School!

You are about to have some exciting experience with NEEDLU zero-code software development framework.

New Updates

Month	Area	New Update
24/04	query new operations	In the query new operation it is possible to expand the query records to the sibling entities of the query form. qfm@siblings^qf1,tf1,lo1 $ qf2,tf2,lo2^qv1,dv1$qv2,dv2
24/04	Options_search field	In the options_search query part, fetch_match fields can be used to filter records
24/06	n3-siblings	This form class is used for view forms and view_list forms if the data should be retreived from the sibling entities of the view form.
24/06	n3-openSubform(x)	This form class is used select the subform x, when the main-form instance is opened.

Needlu Structure

Needlu Structure consists of the following concepts.

- Entity Level
- Entity
- Forms and Records
- Subforms
- Form Category
- Data Type
- Operations
- Operation Groups

Entity Level

Entity Level is a blueprint of entities in a hierachy. For example you can create entity levels named Country, States, Village. And then you can make entities of entity level of country such as US, Brazil, India. Then you can make states of US suchg as Florida, Georgia, Texas of entity type state under the entity US.

Entity Levels are used to group and structure the forms. Each form belong to an entity level.

Entities

Each Entity is belogned to an entity level. An entity level can have one or many entiies. An entity should have a parent entity and may have children entities as well. End users are granted access for one or many entities. If the user is granted access for an entity, she can access forms of the entity level of that entity.

Forms and Records

Forms are used to enter, edit and show records. Each form belongs to an entity level. Each record enterd in a form belong to an entity (of the entity level of the form).

Subform

Subforms can be added to forms. There are several types of subforms (Any, View, View Select, View List) whichs are used for diffrent purposes. New records are enterd in 'Any' type subforms. Those records can be considered as children records of the recrod of the main form.

Form category

A set of forms are categorised to a form categary. Access for users are grated for form categories not for individual forms. First users should be granted access for entities. Then the users will be given access to required form categories. Therefore the users will have access to the form categories of the entity (or entities) that she has given access to.

Data Types

You create fields in the forms. Each field has a data type. There are many data types in Needlu. You will learn more about data types.

Operations

You can add operarions to a form. you can use opeartions to tell what shoud be done either when a form is saved or when a menu operation is called.

Operation Groups

You shoud group one or more opearations to an operation group. You can select which operation groups shoud be the menu operations and which operation groups shoupd be called when the form is saved.

User Roles

There are three user roles in Needlu

- Admin
- Editor
- User

Admin

Admin creates users of types Admin, Editor or User. Admin grant access for User type users to entities.

Editor

Create and edit application programs.

User

User use the application programs.

Reserve Operation

Map sorting order syntax:
* f1-A,f2-D

* This means sort the mapped values by field f1 by ascending order then by field f2 by descending order.

Link Button

You can create a button in a form which upon click a new tab is opened for a given url.

How to

Enter a Group Operation with the display type link_button. Enter the link in the List of Operations. You can refer to field values in the form by including a calcuation formula in the url between <cal> and <cal/> tags. For example you can have a link button which open whatsApp chat with the mobile number stored in the field ID, 123 by;
https://wa.me/<cal>{123}</cal>?text=Hi, Please use this link to register. http://localhost/NEEDLU-2.0/register_form.html

Page Design

Cards

Required Data fields will be shown as a list of cards.

Enter the response seperated by commas (eg: 67,68,89)

Enter the filter criteria

Filter citeria
Example for filter cirteria : 23=Released,28>0

For the right-hand side values you can use @today and @user to indicate the current date and the current user.

Note : response and filter criteria is same as for tables.

Table

Required data records will be shown in tabular form

Enter the response seperated by commas (eg: 67,68,89)

Response can be included a sorting column, sorting order (ascending or descending), the maximum number of records, and group-by column as well. (Eg: 67,68,89$89$D$50$68)

You can retriev the records of an acsendant entity(It is not necessary to have the access to the acsendant entity to see the records via a table.) To retreive records from the ascendant entity you may add the eneity level as the fifth parameter of the response. eg: 78,79,80$$$$$Site.

Enter the filter criteria.

Filter citeria
Example for filter cirteria : 23=Released,28>0

For the right-hand side values you can use @today, @entity and @user to indicate the current date, entity and the current user.

You can refer to a field value using {x}. ex: 25={27}. Please note that you cannot refer to field values of data types fetch match, fetch calculation and fetch sum in the righthand side of the query

Drilldown Table Values

This is used to drill down data in tables. Detail table is shown underneeth the table row.

Enter the expanding query in Page Designer content. Format is 'response$filter'. (Eg : 148,151,145$146=@1,147=Reserved. Filter is field ID 146 of detail form should be equal to first in the response and the field id 147 is equal to "Reserved"). Also it is possible to use @user, @thisMonth and @today in the filter.

Limitation : Filter is limited to the = at the moment. (This will be improved on request).

Conditional Formatting

Define conditional formatting in the widget_style column

Formatting filed ^ value field ^ value1,classes1$value2,classes2$...

Eg: 25^33^Invoiced,w3-green$Delivered,w3-orange$Released,w3-yellow

Count

The number of records filetered by the given filter will be shown.

Enter the form ID in response column.

Enter the filter criteria

Filter citeria
Example for filter cirteria : 23=Released,28>0

For the right-hand side values you can use @today and @user to indicate the current date and the current user.

Get Count by SQL

Alternatively, it is possible to get the count by a sql query. The sql query to get intances that are supposed be counted should be written in the response column. The filter column should be left blank.

eg: SELECT ins FROM t5 WHERE c45="Active"

Visit another page on click

Add the page name in the Expanding Query column to make the section clickable. And on click, the page given will be visited.

Sum

The sum of a field of records filetered by the given filter will be shown.

Enter the field ID in response column.

Enter the filter criteria filter column.

Filter citeria
Example for filter cirteria : 23=Released,28>0

For the right-hand side values you can use @today and @user to indicate the current date and the current user.

In the Widget Title column, you may add 'n3-decimal2' to get two decimal places. In the Widget Title column, you may add 'n3-commaformat' to get the number forma with commas.

Visit another page on click

Add the page name in the Expanding Query column to make the section clickable. And on click, the page given will be visited.

Stack Charts

Select the Content type 'stack_charts'.

Enter the field ids of x-axis and y-axis seperated by commas in the Response.

Enter the filter criteria

Filter citeria
Example for filter cirteria : 23=Released,28>0

For the right-hand side values you can use @today and @user to indicate the current date and the current user.

Gantt Chart

Shows projects or chars in a gantt chart.

Enter the field IDs which represent the following values in the response column.

resource, task name, start date, end date

Resource is what this task utilizes. It may be the machine or the assignee of the task. The bars in the gantt chart are applied different colours for the resources.

Enter the filter criteria filter column.

Filter citeria
Example for filter cirteria : 23=Released,28>0

For the right-hand side values you can use @today and @user to indicate the current date and the current user.

Options

The values of a perticular field is retreived to a dropdown list. When the value is selected by the user the respective records from another form can be displayed in given manner in the Expanding Query column.

Enter the field ID in response column.

Enter the filter criteria filter column.

Filter citeria
Example for filter cirteria : 23=Released,28>0

For the right-hand side values you can use @today and @user to indicate the current date and the current user.

Enter the string in the Expanding Query column in the folleing mannar. This explains the display of data upon selection of an option.

Expanding Query
response $ filter $ data-display-method $ cell-id

Eg: 123,245,130$125=thisVal,133=Planned$stack_charts$4

Int the fileter, 'thisVal' refers to the selected value by the user. It is possible to enter any content type (table, charts, stack_charts, gantt_chart) as the data-display-method. Data will be displayd in the cell related to 'cell-id'.

Charts

Select the Content type 'charts'.

Enter the field ids of x-axis and y-axis seperated by commas in the Response.

Enter the filter criteria

Filter citeria
Example for filter cirteria : 23=Released,28>0

For the right-hand side values you can use @today and @user to indicate the current date and the current user.

html_page

Upload the html page to the server.

Select the Content type 'html_page'.

Enter the page name in the Response column.

In the page section the content of the respective html page will be shown.

New Record Button

Upon clicking this button, a form will be opened to enter a new record.

Enter the form ID in the response column.

Click Content New

Upon clicking this section, a form will be opened to enter a new record.

Enter the form ID in the response column.

Click Content Page

Upon clicking this section, the user will be navigated to a page.

Enter the page name in the response column.

Query Table

Query table is used to retrieve data when there is more than one form (table) is involved in the query. You can write the SQL query directly in the response column and put the column names in the Filter column.

Ins (or t25.ins type) column will be automatically converted to links to be navigated. It is important to handle entities in the query. @entity can be used to get the current entity and @entity^entit level^ can be used to get the name of the entity's ascendant.

@user can be used in the query to get the current username. Remember to use LOWER() in the where condition (eg: LOWER(c34)=LOWER(@user)).

- @thisMonth - get the month number
- @thisYear - get the year number
- @lastYear - get the last year number
- @today - get the date string
- @entity - get this entity
- @entity^entit level^ - get the entity's ascendant at the given level.
- @entity^descendants^ - get all of the descendants including the current entity. Since descendants are multiple, you should use "IN" operation in the sql select query. (eg: "WHERE entity IN (@entity^descendants^)"
- @value(formId,fieldId) - Use this to refer to single record froms. For example to refer to company name. The formId may belongs to an ascendant level. You should use double quotes for string values.
-

Table Headers : Enter table headers seperated by commas in the filter column.

Drilldown Table Rows

It is possible to navigated another table upon clicking the row in a query table. Write the query in the reposnce column in another cell. You may refer to the column values in the clicked row of the first table as @row(1), @row(2), ..etc. Put the cell id of the second table in the expanding query column in the first table. You may add any content before the second table in its Widget Title column. You can use @row(x) there as well.

Refer to the Trail Balance page in the ERP2 for an example of this.

Date Table

Date Table is used to retrieve data inbetween two dates selected by the user.

User can select from Date and To Date and click the Submit button. These will be automatically available for a Date Table.

Follow the same instructions as you need to provide a Table. Additionaly enter the field ID of the date field which the date range will be considered in the expanding_query column.

Query Stack Chart

You can give the query as a SQL query to make a stack column chart or a column chart. The values will be shown in tabular form as well.

Enter the SQL query in response column. @entity and @user can be used in the query (eg: entity = "@eneity", c45="@user")

Enter the column names in the filter column.

Query Value

You can give the query as a SQL query to get a value. You must put the alias "value" for that. Ex: "SELECT c30 AS value FROM..."

Check the Query Table for syntaxes that can be used in the query.

Page Designer-Content Type Options

Depending on the content type you can use thes column to set options for cards, charts,..etc

1. Cards-Style classes for a card
2. Charts- Chart options as per google charts.
   For example chart chart options can be set as follows.

   "title":"pieHole": 0.4,"width":500,"height":500,"title":"Sales per Customer"

Upload records by a csv file

Users can update multiple records to a form using a csv. Editor can create a page to facilatate that.

- Select the Content type, upload_csv.
- In the respose column, enter the form id and the feild is to upload in the csv using the following sintax.
- form id$field id1, field id2, fielld id3
- 45$458,561,785,661,777

Form Page Design

Page Content

You can write any html code.

To get a field value in the form, put the field id inside '{' and '}'. To avoide applying number format, use '{t' insted of '{'.

Enter calculation formula inside '<cal>' and '<cal/>' tags. Inside these tags you can:

- Write any calcualtion formula
- Write fetch_match formula
- Use @entity, @user, @today
  You may use the followings as well.

- @clientImages/my_logo.png
- @value(form_id,field_id)- This can be used to get values of the forms where only unique record is allowed for an entity. This can be used to get company details.
- Any calculation formula

Charts

Select the Content type 'charts'.

Enter the field ids of x-axis and y-axis seperated by commas in the Response.

Enter the filter criteria

Filter citeria
Example for filter cirteria : 23=Released,28>0

For the right-hand side values you can use @today and @user to indicate the current date and the current user.

Form Table

Form Table is used to show a table of records from abother form filtered based on values of this instance.

Write "table" in the Content Type column. Refresh the page. Hover the mouse to row menu. Click the "View/Modify Table Query". Enter the view form ID. This is the form which you need to retrieve data from. Then enter the filert criteria. Enter the required filed ids seperated by commas ans field widdths seperated by commas in sequence as in the example below.

56,57,60^100,300,100

Here 56,57,60 are the field ids and 100px, 300px, and 100 px are the repective widdths of those columns.

Response can be included a sorting column, sorting order (ascending or descending), the maximum number of records, and group-by column as well. (Eg: 67,68,89$89$D$50$89^100,300,100)

In case that you need to expand the query results to the sibling entities, you can add the third paramater **siblings** (Eg: 67,68,89$89$D$50$89^100,300,100^siblings)

Enter the filter criteria.

html_page

Upload the html page to the server.

Select the Content type 'html_page'.

Enter the page name in the Response column.

In the page section the content of the respective html page will be shown.

Page Designer-Content Type Options

Depending on the content type you can use thes column to set options for cards, charts,..etc

1. Cards-Style classes for a card
2. Charts- Chart options as per google charts.
For example chart chart options can be set as follows.

"title":"pieHole": 0.4,"width":500,"height":500,"title":"Sales per Customer"

Topic Table

Shows multiple tables under topics taken from a filed. You can specify a fieldid to be taken as the topic field, and a sorting criteria.

Display Fields $ Sorting fields $ Sorting Order ^ Topic field ^ Lengths of Display Fields

eg: 334,335,336,337$331,335$A,D^331^100,600,100,50

Generate Barcode

In a form page, you can include a barcode for a combination of field values in the record. This can be done by adding the svg tag in the content column of the page layout.

```
<svg id='barcode'> formula goes here </svg>
```

The formula should necessarily include the string that is needed to convert to the barcode.

eg: {227}|{228}|{229}
This will create a barcode for the values in the fields 227,228 and 229 seperated by "|".

Optionally, you can change the default settings. You should use '$' sign to sepearate parameters.
By default, the barcode string is displayed under the barcode. if you need to avoid that, you may add 0 as your second parameter
eg: {227}|{228}|{229}$0

The complete formula to address all paramers are as follows.

```
barcode string $ display $ width $ height $ format
```

eg: {227}|{228}|{229}$1$2$100$CODE128

- code String - explained above
- display - If you need the barcode string to de displayed below the barcode, set the value to 1. If you need that to be hidden, set the value to 0.
- width. - Sets the width of the barcode. The value should be either 1,2,3,4. The default value is 2.
- height - Sets the height of the barcode. The default value is 100.
- format - Sets the format of the barcode. The possible values are either CODE128, CODE39, EAN, UPC. The default value is CODE128.
  Note : Out of these five parameters you can enter either only first parameter, first two parameters, first three parameters, first four parameters or all parameters.

Form and Fields Settings

Form Classes

Form classess are used to controll the behavior and apperance of the forms. To add a form class. Select the form and click the "Edit Form Details" button.

n3-noNewAtMain	New button will not be available when the form is opened as the main form. No impact for the subform.
n3-quickSubform(x)	The sub-form given by its form ID in 'x' will be opened in the new record mode, when the main-form instance is opened.
n3-openSubform(x)	The sub-form given by its form ID in 'x' will be selected, when the main-form instance is opened.
n3-fullWidth	The form will get the full width of the screen.
n3-formPage(page name)	When a perticular record is selected the form page given by the page name will be appered. eg: n3-formPage(print_inv)
n3-siblings	This is used for view forms and view_list forms if the data should be retreived from the sibling entities of the view form.
n3-singleColumn	Set the form view to a vertical view

n3-singleColumn_200	Set the form view to a vertical view and input width to 200px.
n3-singleColumn_100	Set the form view to a vertical view and input width to 100px.
n3-organised	Usual Group Open and Group Close given in the form is converted to a much organised responsive grid layout.
n3-conditionalSubform(f,=,a)	Use this class for a subform if that subform should be displayed confditionaly based on a field value in the main form. eg:n3-conditionalSubform(455,=,service)
n3-icon	Set the an icon to the form. eg: n3-icon(fa fa-tools w3-green)
n3-headerRight(x)	Put the value of the field x to the right corner of the form header.
n3-headerLeft(x)	Put the value of the field x to the left corner of the form header.

Field Classes

Field classes add styles and/or behaviours to the input field area and/or at the saved record mode.

n3-notEdit	Hide at New Record mode
n3-hideAtNewSub	Hide at New Record mode in sub-forms
n3-hideAtInstance	Hide at instance mode
n3-hideAtEdit	Hide at edit mode
n3-double_length	Space of two fields are acquired for the field/td>
n3-full_length	Space of of the full width is acquired for the field
n3-half_length	Space of of the half width (of the screen) is acquired for the feield

Cover Classes

Cover classes add styles to the input field area includeing its label.

n3-hideAtNew	Hide at New Record mode
n3-hideAtNewSub	Hide at New Record mode in sub-forms
n3-hideAtInstance	Hide at instance mode
n3-hideAtEdit	Hide at edit mode
n3-double_length	Space of two fields are acquired for the field/td>
n3-full_length	Space of of the full width is acquired for the field
n3-half_length	Space of of the half width (of the screen) is acquired for the feield

How To?

Nested Subform

It is possible to have nested subforms. A Subform record can be opend as a main form and subforms can be enterd for that and so on.

How to

Set the form_display_type of the subform to 'expandingSub'. You may use Quick Edit page to do that.

Hidden Subform

It is possible to skip subform tab after the header form. This might be useful when you want to get sum velues in the header form but don't want to dispay the subform there.

How to

Set the form_display_type of the subform to 'hidden_subform'. You may use Quick Edit page to do that.

HTML Page After Form

It is possible to get details from a html page after the form.

How to

Upload the html file to the server. Edit form and give the html file name for the HTML Page. (eg: test.html)

Custom Duplicate Message

Custom message when records are duplicated.

How to

Edit the quick form.

View List Forms

Show the list without tabs.

How to

Set the form type to view_list. Setup is similar to View forms.

Fetch Match Formula inside calculations

Values in other forms can be included in the calculations by fetch match formula.

Same can be used in primary and secondary operations in the fixed value fields (for both updating values and mapping values)

How to

Eg: {"fetch Match formula"}*{79}

Eg: {"25^100^101,78,="}*{79}

Note: Do not forget the double quotes for the fetch match formula.

Skip Calculation

In operations, the calcuations of calculation type fields in the altering form will not take place after an update from this operation. Suitable for simple update operations where further calcualations inthe altering form are not required.

How to

Edit the operation and enter 1 in the Skip Calculation field.

Conditional Formatting

Fields can be appliedly conditional formatting.

How to

Enter the required condition in the condition_format column for the field and enter 'conditional_format' in the coverClasses column. You may use Quick Edit page to do that.

Conditional Formatting Formula

Conditions are seperated by "^".

The fomula for one condition is "logical condition $ value/cover $ style classes to add if true $ style classes to remove if true

Style classes should be seperated by the space if there are more than one style class.

The second parameme value/cover indicates whether the styles should be applied for the value only or for the covering area including the field name.

Eg: {136}=="Planned"$value$w3-light-blue$^{136}=="Released"$value$w3-lime$w3-light-blue^{136}=="Reserved"$value$w3-yellow$w3-lime

{1019}=="Purchased Product"$cover$$w3-hide

Conditional Show/Hide

Fields or groups can be shown conditionally based on values selected on options and radio data types. The same can be appleid for fetch data fields based on the retrieved value.

How to

Enter the required condition in the condition_show column of the options, radio,or fetch field. The condition_show indicates which field or field group to be shown based on the selected or fetched value. if a field group is given, the entire field group will be shown. You may use Quick Edit page to do that.

Eg:Purchased Product$=$1020^Manufactured Product$=$1022

In the above example, if the 'Purchased product' is selected the field (or group) 1020 will be shown and if the 'Manufactured Product' is selected, field (or group) 1022 will be shown

Tip: If you need to conditional hide and show fields in the instance mode, use the cover class "w3-hide" and remove the same using conditional formatting.

Conditionally validating the form before save

Enter conditionally required fields here. If you need some fields to be mandatory based on values given in a field, use this.

field$value$required fields$Error Message
Eg: 23$Manufactured$56,89,90$Manufacturing Details are required for Manufatured parts
You can include more than one conditions by repeating the same as above and seperating them by '^'.

Managing Field width

Using cover classes it is possible to set the width of the fields.

- n3-double_length : Space of two fields are acquired for this field
- n3-full_length : Space of of the full width is acquired for this field
- n3-half_length : Space of of the half width (of the screen) is acquired for this field

How to

Enter the respective cover class for the field

Hide At Modes

Using cover classes it is possible to hide fields in different modes.

- n3-hideAtNew : The field is hidden when a new record is entering.
- n3-hideAtNewSub : The field in the subform is hidden when when a new record is entering.
-
- n3-hideAtInstance: The field is hidden when the record is displayed.
- n3-hideAtEdit : The field is hidden when the record is editing.

How to

Enter the respective cover class for the field

Conditional Formatting in Table

Table

Required data records will be shown in tabular form

Enter the response seperated by commas (eg: 67,68,89)

Response can be included a sorting column, sorting order (ascending or descending), the maximum number of records, and group-by column as well. (Eg: 67,68,89$89$D$50$68)

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Example for filter cirteria : 23=Released,28>0

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Limitation : Filter is limited to the = at the moment. (This will be improved on request).

Conditional Formatting

Define conditional formatting in the widget_style column

Formatting filed ^ value field ^ value1,classes1$value2,classes2$...

Eg: 25^33^Invoiced,w3-green$Delivered,w3-orange$Released,w3-yellow

Refer to one record from navigation

You can refer to a single record of a a form by a navigator item by providing the necessary filter criteria.

How To: Go to Quick Edit/Navigator. Enter a new record.

Form ID	Enter 0
Form name	Enter the Navigator display name
Frequency	Enter **view_filter**
Data Entry Level	Enter the navigator level.
Form Category	Enter the form category.
Sort	Enter the sorting order.
Page Name	Follow this formmula. **one $ form Id $ filer criteria** eg: one $ 24 $ 405^@today and 407^Current

Value Based User Access

Value-Based Access allows users to view certain records, even if they do not have access to the forms or categories those records belong to. Access is granted based on specific conditions that check the values within each record.

Enter the formula in the row for the correct form in Quick Edid/Forms.

Example:
A user might not have permission to access the "HR Forms" category, but if a record's "Department" field is set to "IT" (and the user is in IT), they may still be allowed to view that record.
View Access
Users with value-based view access to a particular form can view records that meet the defined value-based access conditions.

The access rule follows this formula:

view$EntityLevel$FieldID

In this setup, the value in the specified FieldID must match the name of an entity. If the user has access to that entity, they will be granted view access to the corresponding record.

Example: If FieldID idicates "Department" and a record's Department value is "HR", only users who have access to the "HR" entity will be able to view that record.

multile field ids can be used as well and they are seperated by "||".

view$Project Sites$3952||view$Project Sites$3953

Button Access

Users with value-based button access can see and interact with operational buttons on a form, such as custom actions or workflows. However, they cannot perform actions like Edit, New, or Delete.

The access rule follows this formula:
button$EntityLevel$FieldID

In this setup, the value in the specified FieldID must match the name of an entity. If the user has access to that entity, they will be able to view and click the enabled buttons for that record.

Example: If FieldID indicates "Region" and a record's Region value is "Western", only users with access to the "Western" entity will see and be able to use the operational buttons for that record.

multile field ids can be used as well and they are seperated by "||".

buttons$Project Sites$3952||buttons$Project Sites$3953

Write Access

Users with value-based write access have full access to records that meet the defined access conditions. This includes the ability to view, edit, and delete existing records, as well as create new records when conditions are satisfied.

Since write access also allows users to create new records, the values in those new records may need to be validated against data from another form.

Example: In the Employee Complaint form, a user may be allowed to submit a new complaint record only if the employee mentioned works in a department the user has access to. Since the employee's department is stored in another form (e.g., Employee), the system may use a fetch-match formula instead of referencing a direct FieldID.

Formula Example:
write$Project Sites$168^3952^926,982,=

Formula Breakdown

Forms

any
These are general forms.

view
View form is assentially a subform. This subform simply show records from another form(which we refer to as the view form) filterd as per the values in the parent form. The filter critera which matches the values in the header form to the view form. The fields (form the view form) that are required to be shown in this subform can be selcted.

If you need extend the records in the view form to the siblings of the view form's entity add the form class **n3-siblings**

user_form
User forms are used to retrict the access to the record(s) for the users.

How to create user_form

Create a form of type user_form. Add fields for the form. There are two methods to controll access to a user_form. One method would be to enter a field ID in the view_response column, where that field holds the value of a username (You may use Quick Edit tab for this). In that case, records carrying the current user's username will be accessible. If you leave the same blank, then the record that are created by the user will be shown. User can create only one record of user_form.

View Select
This is a subform. Records are filtered from a form according to the given mapping with the values in the header form same as fo the form type, **view**

The user can selct the required records by clicking a checkbox. then the sums, averages of the specifield field values of the selected rows can be set to the header level fields.

Also it is possible to add data fields to this form itself as usual (limited to count and text data field types). Those fields too will be there per each line and the user can enter velues for them. Simply define new fields for this form (Similar

to fields for 'any' form type). You can specify thier default values by using the calculation formula ferering to view form and perent form field ids. These fields are not saved but can be used to update in the Update string to update altering form.

Enter the **Select String**to update field values in the parent form uppon slecting records by the user.

Select String Formula : **function $ subform field $ header field ^ ....**

function	The agregate function such as sum,average,count
subform field	The subform field id which to get the value to agregate function if the user selcts the record.
header field	The header form field id where the agregate value is set to. This value is not saved (The value is shown in the client only). To save this value an operation should be called.

Enter the **Update String**to specify what should happen to selected records upon saving the header form (in edit mode).

Update String explains what should happen to each instance selected upon saving. It can have functions connected by 'AND': new, replaceThis and addThis.

Update String Formula : **new $ Altering form $ Altering form fields $ View/parent/This form fields $ getParent parameters AND addThis/replaceThis $ field in the view form $ View/parent/This form fields $ should calculate (1 or 0)**

eg: new $ 53 $ 351,352,353,354,356,355,361,360 $ 343,345,344,337,338,525,336,@Reserved $ 123,343^124,345 AND addThis $ 340 $ 525 $ 1

For new functions

new	The function can be 'new'. This indicates entering a new line to altering form.
Altering form	The form for new/update records
Altering form fields	The field ids of the altering form seperated by commas.
View/parent/This form fields	View field ids, parent fields Ids and this field ids can be given seperated by commas. These values are taken to execute the Function to the Altering form. The number of field ids should be equal to the number of field ids in given for Altering form fields and the respective fields should be in the same order. It is possible to give @user for user, @today for the today's date and @constant for the value 'constant'
get parent parameters	If altering form is a subform, these parameters are used to find the parent of the Altering form record. Parent Field ID, View/parent/This form fields ^ .....

For addThis and replaceThis functions

addThis / replaceThis	The function can be
Field in the view form	The field in the view form which will be changed. (either the value will replaced or added to this fied depending on the functions addThis or replaceThis)
View/parent/This form field	View form's, parent form's or this form's field id that the replacing or adding value is taken. It is possible to give @user for user, @today for the today's date and @constant for the value 'constant'
Should calculate	Indicates wheather the form calcualations and its header form calculations should take place upon update. Value is either 1 or 0.

View List

Show the list without tabs.

How to

Set the form type to view_list. Setup is similar to View forms.

Shadow Sub

Shadow Subforms are used to enter new records and edit records of another subform(the base form) of the same parent form. Shadow forms shows lines from a different form(list form) records. Also some of the base form fields are combined to the same line and they are editable. When you edit those fields which are shadowed from the base form ,a new record will be entered automatically to the base form. If there has been a matching record in the base form then, that record will be altered accordingly.

Shadow string

list form $ list fields $ list form filter $ mapping base fields to list fields

eg: 50 $ 336,337,339,340 $ 335,1530,= and 339,@0,> $ 1578,1573,,

list form filter = list field,parent field,logi_op ^ list field, parent field, logi_op

Select string

Selecting matching base records with list records (if exists). Write the list of base fields and respective list fields that are equal to be identical.

base fields $ list fields

1578,1573 $ 336,337

Update String

Update string gives the base form and base form fields that shooud be shown together whith list fields in the shadow form.

base form $ base fields

eg: 45 $ 1356^350,1320

(In this example, base form is 45. show the value of 1356 from the base form from the mapping record if exists(according to the Select string), else the value is from list form field 350. For the next column take the value from the base field 1320 if a mapping record exists, else leave it blank.)

Data Types

Number
Text
Options
Options Search
Fetch Options
Fetch today
Fetch sum
Calculation
Fetch match
Sequence
Fetch Image
Fetch calculation
Date calculation
Date Difference
Date difference(years)
Fetch date difference
User
Inherit from header
Inherit number from header
Sum( )
File attach
Image attach
This entity
Concat
Text area
Today

Explanation

Options

Notes:
If a default value is given, that value will be selected by default, if the same value has been entered for options by the user.

Options can be improved so that the possible values will be filtered upon typing in the input field. To do that enter 'dropmenu' in the addeitional column for the field using the quick edit.

Options Search

This is a searchable List of Values. The search will show the filtered results in a window and user can select one of those values as the input value to the field. This is similar to the options field but with the searchable option and fetching the other values requered from the same reord to this form. Ideal for large list of values.

Enter the correct calculation formula to get values for this field and the other fields from the same record. The calculation formula comprises of 5 parameters. Each parameter is seperated by '$' sign.

form id $ display fields in the list $ hidden fields $ value mapping $ filter conditions

25$108,109,110$155$2=232,3=234,4=243$109={183},48!=0

form id - reference form

display fields in the list - Display fields to be shown in the LoV seperated by commas. The first field value will be assigned to this field.

hidden fields - These fields will not be displayed in the LoV but can be used to fetch values from the same record to the other fields.

value mapping - take the fields in order of both display fields and hidden fields and mention to which field of this form those values should be assigned to.

filter criteria - This indicates how the list should be filtered.

Entity of the source - By default, acesndant or same level entity which the form belongs to will be taken. Optionally, it is possible to get values from all entities or siblings of the current entity. Specify "allEntities" or "siblings" or "children" as the 6th parameter.

25$108,109,110$155$2=232,3=234,4=243$109={183},48!=0$siblings

Note:In the options_search query part, fetch_match fields can be used to filter records

Using SQL queries in Options Search

For advanced queries, you can use sql queries.

Sql select query $ Hidden fields $ value mapping.

Sql select query - Sql select query should include the hidden feild columns as well. Follow the syntaxes under query value data type

Hidden field Ids - Same as in the general formula for options search

value mapping - Same as in the generala formula. The order is taken from the sql select query (also for hidden fields).

Fetch today

Fetch today data type fetches the today's date. Every time the record is reffered, the currnent date is given.

in particular, Fetch today data type is usefull in validations (for example, in conditional formatting) such as to identify what are the records that are overdue, what are the records that are due today,..etc.

Fetch Sum Data Type

Fetch Sum data type is used to calcluate agreagate value of a field in anywhere in the application. You can use one of the the following functions for a field with the Fetch Sum data type.

- sum
- average
- count

- max
- min
- sum if
- count If

You can decide the criteria for selecting records to consider. For example, you can take the average of age field values in form 'Employee' where the country field value is equal to the fixed value 'Sri Lanka' or it is equal to the value entered in the country field in the current form.

Notes:

- If you are using more than one fetch sum fields from the same form for the current form, make sure all fetch sum fiels from the same form have the same mapping conditions. If you need to have different queries for foetch sum fields taken from the same form please use 'sum if' and 'count if' conditions while using what is common for all as the mapping condition.

Calculation

{x}+{y}
* Use leter 't' to indicate that the value is text. (eg : {tx}).

If you want to get a value from another form for calcualations, instead of a field id, you can give a fetch_match formula inside the curly rackets.

{"25^356^108,200,="}*{340}

Needlu Calculation Functions

- year({date})
- month({date})
- day({date}) - Returns the day (number from 1 to 31) of the {date}
- age({date}) - Returns number of days to today from {date}.
- financialYear({date}) - Returns the financial year starting from 04/01 in the format "23-24".

Fetch_Match

This retreives the value from a different form. The following syntax should be followed to enter Fetch_Match data type. Reference form, reference field ID and mapping criteria is included in the syntax.

This value is not saved for the existing form. Instead, it always retreives the value from the reference form. The benefit is, the edotor don't have to worry about changes in the reference field as this form retrieves the existing value from the reference field.

syntax : fm^fd^rf1,tf1,lo1 and rf2,tf2,lo2 ^ Entity Level Type
fm-form number of which value is required.

fd- field number of which value is required.

rf1 - reference field of mapping.

tf1 - this field ID of mapping. Instead of a field ID, if you need to give a constant, enter @constat (eg: @planned). Also note that you may use @entity, @user and @today for this entity , this user and today's date respectively.

lo - Logival operation (=, <,>, <=,>=).

Entity Level Type - Entity Level Type can get two values: **ascendant** or **siblings**

- ascendant - Ascendant entities or this entity.
- siblings - Sibling entities (or this).

Notes:

- The same syntax is used for operation values as well.
- The values cannot be inherited to line level.

Sequence

In general, sequence data types are used to generate a system defined automatically increasing sequencing text for each record of the same form. You can provide prefix, number of digits, and filling character for precedents (for example, 0), and the starting number.

There are two types of Sequences depending on how the value is increased when there are multiple entities in the same level. Entity specific sequence will increase per entity while general sequence will increase irrespective of the entity.

For entity specific sequence type, you can either define prefix, number of digits, suffix and the next number separately for each entity or else you can leave it to be the general format for all entities (You must define the general sequence format).

How To:
To make a sequence data type entity specific, you may set changer column value to “entity” in the Quick Edit/Fields.

Fetch Image

These data types fetch an image attached via image_attach data type in a different form. The Logic to identify the respective image should be given using a matching statement (Same syntax as in the fetch_match data types.)

syntax : fm^fd^rf1,tf1,lo1 and rf2,tf2,lo2
fm-form number of which value is required.

fd- field number of which value is required.

rf1 - reference field of mapping.

tf1 - this field ID of mapping.

lo - Logival operation (=, <,>, <=,>=).

Notes:

- The same syntax is used for operation values as well.
- The values cannot be inherited to line level.

Fetch calculation

The fetch calculation is the data type of the result of a calculation. This value is not saved for the existing form. Instead, it always retreives the value from the references. It can affect the performance of the application.

Here, the fields used to calculation should be one of the type fetch sum or fetch match.

Date calculation

The Date Calculation function add or subtract numbers of days from a date. This should be given in the calculation formula.

{date field id} + or – Num of Days or {number field id}

{date field id} + (Number)

{date field id} + (-Number)

eg: (2023-01-10) + (10)

2023-01-20

Date Difference

This Calculate the difference between two dates. This should be given in the calculation formula.

{first date field id}-{second date field id}

eg:(2023-01-30) – (2023-01-20)

10 days

Fetch date difference

This gives the number of from the second date to first date. This should be given in the calculation formula.

{first date field id}-{second date field id}

Here, the two fields used to calculation should be of the types Date, Today, Fetch today or Date calcaulation.

User

This data type can be used to show the logging user.

Inherit from header

it is possible to inherit fields for the sub form from the parent form.

Sum ()

The sum() function calculates the sum of a set of values in sub form.

Notes:
You can use one of the the following functions for a field with the Fetch Sum data type.

- sum
- count
- max
- min
- sum if
- count If

File attach

Any type of file of can be attached here.

Image attach

This can be used to upload an image.

This entity

This data type can be used to show the logging entity.

Concat

the concat function adds two or more values together.

syntax: {fd1}, “ ” ,{fd2},“ ” ,{fd3}
eg: {fd1} = NEEDLU

{fd2} = School

{fd3} = 2023

Result: NEDDLU School 2023

Text area

If we need to write large text, such as addresses, we can use this.

Today

Today data type retrieves current date from a database.

Operations

Operations Overview
You have learnt how to do calculations and retrieve values based on entered values by the user using variouse data types. On the other hand, you might need need to update and/or enter new records upon user action. In that case, you can use NEEDLU operations. This overview explains how NEEDLU operations work.

Operations are called via Operation Group. An Operation Group can be called following these user actions.

A button click
Selecting a menu option
New record save
Editing a record
Deleting a record
Operation Group is a sequence of operations carried out in the given order. An operation necessarily consists of Primary operation and optionally consists of one or more secondary operations.

Operation

Primary Operation

An operation has the following components

This Form

The form which operation is created.

Altering Form

This Form which values will be altered or displayed.

Entity

The eneity which the altering form belong to when carrieng out the operation. It can be either a fixed entity, same entity or an ascendant level entity.

Mapping conditions

The conditions which explains the how to find out the instance(s) that the values shoud be updated.

Impact

What should be done to the mapping instnces of the altering form.

Operation group

Operation Group

Operations are groups together to execute them. Even if you need to execute one operation, you have to make an operation group of that operation. Operation Groups can be executed in following manner.

1. On submit
2. Menu option
3. Button
4. Link Button
5. Function Button

How to

On submit, Menu Option, Button
Prerequisites : You must have entered one or more operations except for Link Button operation groups.

1. Select the form and go visit Operations tab.
2. Make sure you have entered operations (not required for Link Buttton).
3. Click Add Operation Group button.
4. Enter following values
    1. Group Name - This will be shown in the system as a menu option or button.
    2. List of Operations - Enter the operation IDs seperated by commas. Operations will be executed in the order you enter them.

Link Button

You can create a button in a form which upon click a new tab is opened for a given url.

How to

Enter a Group Operation with the display type link_button. Enter the link in the List of Operations. You can refer to field values in the form by including a calcuation formula in the url between <cal> and <cal/> tags. For example you can have a link button which open whatsApp chat with the mobile number stored in the field ID, 123 by; *https://wa.me/<cal>{123}</cal>?text=Hi, Please use this link to register. http://localhost/NEEDLU-2.0/register_form.html*

Function Button

You can associate a javascript function to be executed when the button is clicked. Enter the functin name at the Operations/Link/Function field. No brackets should be entered.

Secondary Operation

When an (primary) operation is added, the criteria to select instances of the updated form to updated is given. If you want to execute operations to update the same instances, it is possible to use secondary operations.

Secondary operations updates the same instaces as the primary operations. You can select update values to be either same as the update value in the primary operation or another value from the source form or a fixed value.

There are four operation types for the secondary operation

1. Add
2. Substract
3. Replace
4. Group
5. New Record

New Record

New Record operation under the secondary operation is different to that of primary operations. In this case, you can source values from both source form and destination form in the primary operation. If the primary operation is add_until, sustract_until or replace_until operation then update value in the destination can also be used as a source, if required. Follow the explain formula and enter yours in the source value field for New Record secondary operarions.

New Form $ Source Form Fields $ Destination Form Fields $ General Values $ New Form Fields $ New Form's Parent

New Form - New Form ID

Source Form Fields - Field Ids of the source form, from which values are required to be sourced, seperated by commas.

Destination Form Fields - Fields of the destination form, from which values are required to be sourced, seperated by commas

General Values - Here you may specify either none, one or more values "updval,user, today" to be entered in the new record. updval means the value that update the destination form in the primary operartion. This might be usfull when the primary operation is one of the add_until, sustract_until or replace_until operation.

New Form Fields - Updating field Ids in the new form in order according the given fields in the Source Form Fields, Destination Form Fields and General values

New Form's Parent - Form ID of the new form's parent form. If new the form is not a subform, enter the value 0.

Eg: 53$229,328,231$337,338,$updval$351,352,353,356,354,355$0

Skip operation

Menu Operation

Operation on submit

Sub-operation

Sub-operations are used to excute operations in the child form from an operation call from the header form. Sub-operations are executed over all the subinstances of the instace of the header form.

To include Sub-operations, simply include operations of the subforms in the operation string but sepearate them bu '-' instead of ',' (comma).

ex : 2,3-10-11-12,4,5

In this example, 10,11,12 can be of subforms. If they are operations from subforms, then the operations will be executed for all the respective subinstances of the header instance. If they are operations of the form which operations are called, then they will be executed as without any difference.

Authorization Category

Authorization categories are defined per operation group.

The operation group can be executed only by the users who are belonged to that authorization categary.

To set the authorization category for an operation group:

1. Select the form
2. Select the edit in the operation group
3. Type the authorization category in the Authorization Category field
   Note: Users for the operation group should be granted by the admin or organizer.

Operation Types

Conditional Update

1. add
2. substract
3. replace
4. replace many
5. add or insert
6. queryNew
7. batch queryNew
8. add until
9. substract until
10. replace until
11. new until

New Record

* If the new record is a duplication of keys, then no new rocord will be created. User will not be informed about that and rest of the opeations in the sequence will be carried out.

Setting values in operation

syntax : fm^fd^rf1,tf1,lo1 and rf2,tf2,lo2
fm-form number of which value is required.

fd- field number of which value is required.

rf1 - reference field of mapping.

tf1 - this field ID of mapping.

lo - Logical operation (=, <,>, <=,>=).

Study and write what are suboperations. Look at the method executeOperations_menu in common_functions.php.

Replace Many

Update (replace) many values in records that satisfy the filer conditions

`target Field Ids $ source field Ids` **Example**
26,27,28$56,57,58

Visit

Visits an (different or the same) existing form instace which is mapped by the given mapping.

Open

Opens a (different or the same) new form with the given initial values.

Group

A group operation let the system to execute an operation group set for a different form (reference form). Instances from the reference form are filtered by the given mapping and the given operation group is applied for those instances.

Group operations can be used as seconday operations as well. In that case, group operations consider the each resultant instance of the primary operation as its source instance and mapping for the secondary group operation is done taking the values from the resultant instance(s) of the primary operation.

queryNew

Creates multiple lines in a form (destination form) taking the values from this form and a third form. In this operation, three forms are involved.

This form - The form which the operation is created.

Destination form - The form which new records are entered to

Query form - A third form where multiple records are selected to create new records in the destination form.

The records from the query form are selected based on the a given filter criteria using values in This form. A new record is created in the destination form per each filtered record in the query form.

First create a queryNew operation. Provide the mapping values from this form to destination in the value mapping area. Then Click edit and enter the formula to filter records from query form and field values to be taken from the filtered records to the new records in destination form. The formula should be entered in the Fixed Value field.

syntax : qfm^qf1,tf1,lo1 $ qf2,tf2,lo2^qv1,dv1$qv2,dv2 or qfm@siblings^qf1,tf1,lo1 $ qf2,tf2,lo2^qv1,dv1$qv2,dv2
qfm-form number of the query form (third form). if query should be expanded to sibling entities then use 'qfm@siblings'

qf1- field number of the query form.

tf1- field number of this form

lo1- logical operation (=, <,>, <=,>=)

qv1 - field in the query form to get value.

dv1 - field number of the destination form where qv1 is taken as value.

If the record number should be shown in order as a value in each new record in the destination form, you can use @iteration. (eg:25^345,460,=^@itearion,461$350,462)

If a constant is required in the query form mapping criteria use the constant after the '@' sign. (qfm^345,@0,>^qv1,dv1$qv2,dv2)

If new records should be created for all the records in the query form, then enter "ALL" instead of query form mapping criteria. (qfm^ALL^qv1,dv1$qv2,dv2)

Batch QueryNew

Batch QueryNew should be used instead of QueryNew if a lot of new lines are expected. Batch QueryNew is more efficient in peformance-vise compared to querynew. However, Batch QueryNew:

- Does not execute calculations in the destination. Instead calculations should be handled in the query itself.
- Does not support the secondary operations.
- If exists, Parent instance is unique for the all new instances created by the operation. (In QueryNew, it is possible to have different parent instances)
  If the there aren't any requirement for secondary operations and the parent instance is unique for the new records, then Batch QueryNew is a better option than queryNew as its performance is much better than QueryNew.

```
79^475,2771,=^690,477,476,2343 ^ c477*2^480,481,692,2344,2239^define^80^483,483,=

79^475,2771,=^c690,c477,c476,c2343,c477*2,c358 FROM t79 LEFT JOIN t25 ON c108=c476 AND t25.entity=@formEntity(25)^sql^480,481,692,2344,2239,499^define^80^483,483,=
```

new until

Creates new operations untill certain number of iteration. The number of iterations is given by the value in the source field.

The values for the new record is are given in the conditions sections as in the case of New Record Operations. The value for a field int the new reocord can be either of the following.

1. Value from a source form field
2. Fixed value
3. Calculation formula
4. Iteration Number in the until loop (Set the fixed value to '@iteration').

5. Values in the previouse line - formula = @prev$formula using the values in the previouse line $ formula for the first line using the source form fields.

Secondary Operation

When an (primary) operation is added, the criteria to select instances of the updated form to updated is given. If you want to execute operations to update the same instances, it is possible to use secondary operations.

Secondary operations updates the same instaces as the primary operations. You can select update values to be either same as the update value in the primary operation or another value from the source form or a fixed value.

There are four operation types for the secondary operation

1. Add
2. Substract
3. Replace
4. Group
5. New Record

New Record

New Record operation under the secondary operation is different to that of primary operations. In this case, you can source values from both source form and destination form in the primary operation. If the primary operation is add_until, sustract_until or replace_until operation then update value in the destination can also be used as a source, if required. Follow the explain formula and enter yours in the source value field for New Record secondary operarions.

New Form $ Source Form Fields $ Destination Form Fields $ General Values $ New Form Fields $ New Form's Parent

New Form - New Form ID

Source Form Fields - Field Ids of the source form, from which values are required to be sourced, seperated by commas.

Destination Form Fields - Fields of the destination form, from which values are required to be sourced, seperated by commas

General Values - Here you may specify either none, one or more values "updval,user, today" to be entered in the new record. updval means the value that update the destination form in the primary operartion. This might be usfull when the primary operation is one of the add_until, sustract_until or replace_until operation.

New Form Fields - Updating field Ids in the new form in order according the given fields in the Source Form Fields, Destination Form Fields and General values

New Form's Parent - Form ID of the new form's parent form. If new the form is not a subform, enter the value 0.

Eg: 53$229,328,231$337,338,$updval$351,352,353,356,354,355$0

Operation Group

Operations are groups together to execute them. Even if you need to execute one operation, you have to make an operation group of that operation. Operation Groups can be executed in following manner.

1. On submit
2. Menu option
3. Button
4. Link Button
5. Function Button

How to

On submit, Menu Option, Button
Prerequisites : You must have entered one or more operations except for Link Button operation groups.

1. Select the form and go visit Operations tab.
2. Make sure you have entered operations (not required for Link Buttton).
3. Click Add Operation Group button.
4. Enter following values

1. Group Name - This will be shown in the system as a menu option or button.
2. List of Operations - Enter the operation IDs seperated by commas. Operations will be executed in the order you enter them.

Link Button
For Link Button

Link Button
Function Button
You can associate a javascript function to be executed when the button is clicked. Enter the functin name at the Operations/Link/Function field. No brackets should be entered.

Reserve Operation

Map sorting order syntax:
* f1-A,f2-D

* This means sort the mapped values by field f1 by ascending order then by field f2 by descending order.

Link Button

You can create a button in a form which upon click a new tab is opened for a given url.

How to

Enter a Group Operation with the display type link_button. Enter the link in the List of Operations. You can refer to field values in the form by including a calcuation formula in the url between <cal> and <cal/> tags. For example you can have a link button which open whatsApp chat with the mobile number stored in the field ID, 123 by;
https://wa.me/<cal>{123}</cal>?text=Hi, Please use this link to register. http://localhost/NEEDLU-2.0/register_form.html

Page Design