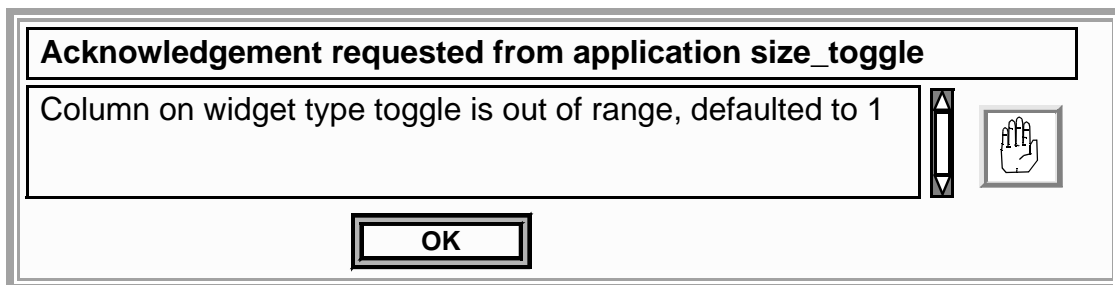

EXERCISE 4

Error Management System



Objectives:

- Understand general error handling techniques.
- Understand how to create errors in the form builder.



Exercise Description:

Now that a new widget has been created, it is important to handle the new errors that could occur with the data for this widget. Since no new errors were found, we will make an error up for this exercise. Assume that a toggle data cannot be stored by the data manager in the 3rd column of a form. Column 3 will temporarily be invalid for this exercise. We need some way to handle the error so that the display manager will not crash. This will be shown through this exercise.

Exercise Procedure:

1. Go to `ex4` directory.
2. Delete `test.plb` from the directory if the file exists.
3. The first step is to find an error that needs to be handled.

There are many possible run time errors; one of which is data out of range. In this exercise we will test for a toggle positioned in column 3 which temporarily is invalid for our application. Other possible errors that might be more realistic are limits on the names that a toggle can have. These limits should be imposed in the form management system.

4. After finding an error, find a way to test for that error.

In this example the method used to find the error is a default on a switch, indicating that instead of the expected values, a value outside the accepted range was used.

5. After a test has been devised, come up with a reasonable name to call that error in the code.

For this exercise use `ERROR_IN_TOGGLE_COLUMN`.

6. Have the function return with the error status defined by the above `#define`.
7. Edit the file `fb_error.p` and include this new `#define` in the proper list.

In this case the error will occur in the display manager, so this error should be attached to the end of the display manager definitions. Save this file and copy it into the `include` directory.

8. Edit the file `error.pcl` in the data manager and add an appropriate text message so that the user will know what mistake has been made.

It is also possible, and sometimes very useful, to have errors that the user will not understand but that will help the programmer understand what has gone wrong. You will see this many times in production level code such as Patran.

9. Run the session file called `compile.ses`.

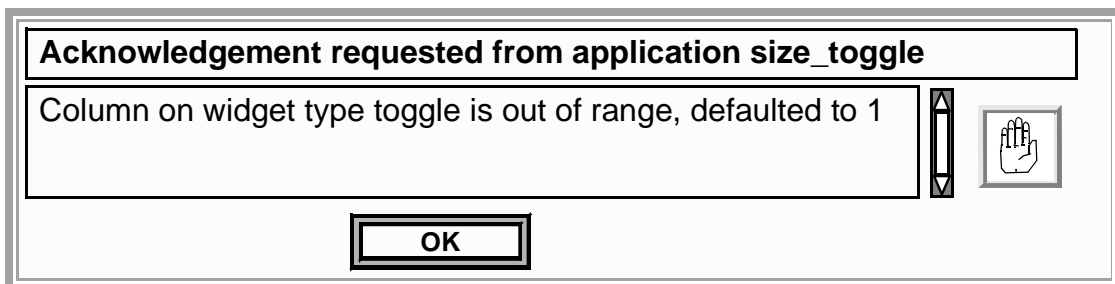
Start up MSC/PATRAN and create a form.

Action:	<input type="text" value="Create"/>
Widget:	<input type="text" value="Form"/>
Form Width:	<input type="text" value="Wide"/>
Form Label:	<input type="text" value="Test_Error"/>
<input type="button" value="Apply"/>	

Create a toggle next at the third column location. An error message should come up on screen.

Action:	<input type="text" value="Create"/>
Widget:	<input type="text" value="Toggle"/>
Parent:	◆ Form
Widget X Location	◆ Col 3
Label:	<input type="text" value="error"/>
<input type="button" value="Apply"/>	

The following is the window containing the error message:



10. Quit PATRAN and delete `test.plb` from the directory `ex4` before continuing to the next exercise.

Exercise Templates:

```
MAKER.PCL

CLASS fb_form_maker
.
.
.
FUNCTION size_the_toggle(col_num,x_loc)

    INTEGER COL_NUM
    REAL X_LOC

/*
 * This error is unrealistic, but let us assume that
 * the column number does not have to be between
 * 1 and 3 at this point. Therefore it would be
 * very important to check to the column number.
 */

    SWITCH (col_num)
        CASE (1)
            x_loc = uil_form_sizes.form_margin( 1 )
$           FORM_L_MARGIN
        CASE (2)
            x_loc = uil_form_sizes.button_x_loc2( 1 )
$           BUTON_FULL_X_LOc1_COL2
/*
 * Set up the default case switch if none of the above is valid (default = col 1)
 */
***** 1 *****
***** 2 *****
***** 3 *****
    END SWITCH
    RETURN 0
END FUNCTION /* size the toggle */

END CLASS /* fb_form_maker */
```

EXERPT FROM FB_ERROR.P

```
/* size manager errors */
#define FB_SIZE_ERR FB_ERROR + 200
#define FORM_LOC_ERROR_X FB_SIZE_ERR + 1
#define FORM_WIDTH_ERROR FB_SIZE_ERR + 2
#define FORM_LOC_ERROR_Y FB_SIZE_ERR + 3
#define FORM_HGT_ERROR FB_SIZE_ERR + 4
#define BUTTON_DATA_ERROR FB_SIZE_ERR + 5
#define BUTTON_WID_ERROR FB_SIZE_ERR + 6
#define BUTTON_LOC_ERROR_X FB_SIZE_ERR + 7
#define FRAME_WID_ERROR FB_SIZE_ERR + 8
#define DBOX_DATA_ERROR FB_SIZE_ERR + 9
#define DBOX_WID_ERROR FB_SIZE_ERR + 10
#define INVALID_DBOX_WIDTH FB_SIZE_ERR + 11
#define FILE_WID_ERROR FB_SIZE_ERR + 12
#define SWITCH_DATA_ERROR FB_SIZE_ERR + 13
#define ICON_DOES_NOT_EXIST FB_SIZE_ERR + 14
#define LISTBOX_WID_ERROR FB_SIZE_ERR + 15
#define LISTBOX_DATA_ERROR FB_SIZE_ERR + 16
#define OPTIONMENU_DATA_ERROR FB_SIZE_ERR + 17
#define SCROLL_FRAME_WID_ERROR FB_SIZE_ERR + 18
#define SCROLL_FRAME_HGT_ERROR FB_SIZE_ERR + 19
#define SDBOX_WID_ERROR FB_SIZE_ERR + 20
#define SFRAME_WID_ERROR FB_SIZE_ERR + 21
#define SEPARATOR_WID_ERROR FB_SIZE_ERR + 22
#define SLIDER_WID_ERROR FB_SIZE_ERR + 23
#define SLIDER_DATA_ERROR FB_SIZE_ERR + 24
#define TBOX_WID_ERROR FB_SIZE_ERR + 25
#define TBOX_DATA_ERROR FB_SIZE_ERR + 26
#define FILE_PARENT_WID_ERROR FB_SIZE_ERR + 27
/*
 * Define the error status
 */
***** 4 *****
```

EXCERPT FROM ERROR.PCL

```
/* size manager errors */
CASE(NONEXISTENT_WIDTH_QUERY)
    dummy = "Attempt to access width of nonexistent widget"

CASE(FORM_LOC_ERROR_X)
    dummy = "Error in data, problem with FORM's X location"

CASE(FORM_WIDTH_ERROR)
    dummy = "Error in data, problem with FORM's width"

CASE(FORM_LOC_ERROR_Y)
    dummy = "Error in data, problem with FORM's Y location"

CASE(FORM_HGT_ERROR)
    dummy = "Error in data, problem with FORM's height"

CASE(BUTTON_DATA_ERROR)
    dummy = "Error in data, problem with button's highlight value"

CASE(BUTTON_WID_ERROR)
    dummy = "Error in data, problem with button's width"

CASE(BUTTON_LOC_ERROR_X)
    dummy = "Error in data, problem with button's X location"

CASE(FRAME_WID_ERROR)
    dummy = "Error in data, problem with frame's width"

CASE(DBOX_DATA_ERROR)
    dummy = "Error in data, problem with databox's label position"

CASE(DBOX_WID_ERROR)
    dummy = "Error in data, problem with databox's width"

CASE(INVALID_DBOX_WIDTH)
    dummy = "Error in data, width and label length are incompatible"

CASE(FILE_WID_ERROR)
    dummy = "Error in data, problem with file's width"

CASE(FILE_PARENT_WID_ERROR)
    dummy = "Error in data, problem with file's parent's width"

CASE(SWITCH_DATA_ERROR)
    dummy = "Error in data, problem with switch's column numbers"

CASE(ICON_DOES_NOT_EXIST)
    IF ( str1 != "" ) THEN
        string_write("Error in data, problem finding requested icon file: %A%"@
            , status, reall, str1, dummy )
    ELSE
        dummy = "Error in data, problem finding requested icon file"
    ENDIF

CASE(LISTBOX_WID_ERROR)
    dummy = "Error in data, problem with listbox's width"

CASE(LISTBOX_DATA_ERROR)
```

```

        dummy = "Error in data, unknown problem with listbox's data"

CASE(OPTIONMENU_DATA_ERROR)
    dummy = "Error in data, problem with optionmenu's label location"

CASE(SCROLL_FRAME_WID_ERROR)
    dummy = "Error in data, problem with scroll frame's width"

CASE(SCROLL_FRAME_HGT_ERROR)
    dummy = "Error in data, problem with scroll frame's height"

CASE(SDBOX_WID_ERROR)
    dummy = "Error in data, problem with select databox's width"

CASE(SFRAME_WID_ERROR)
    dummy = "Error in data, problem with select frame's width"

CASE(SEPARATOR_WID_ERROR)
    dummy = "Error in data, problem with separator's width"

CASE(SLIDER_WID_ERROR)
    dummy = "Error in data, problem with slidebar's width"

CASE(SLIDER_DATA_ERROR)
    dummy = "Error in data, problem with slidebar's show value logical"

CASE(TBOX_WID_ERROR)
    dummy = "Error in data, problem with textbox's width"

CASE(TBOX_DATA_ERROR)
    dummy = "Error in data, problem with textbox's editable value"

/*
 * Write the error message for the error defined in this exercise
 */
***** 5 *****
***** 6 *****

```

```

*1* DEFAULT
*2* x_loc = nil_form_sizes.form_margin( 1 )
*3* RETURN ERROR_IN_TOGGLE_COLUMN
*4* #define ERROR_IN_TOGGLE_COLUMN FB_SIZE_ERR + 28
*5* CASE(ERROR_IN_TOGGLE_COLUMN)
*6* dummy = "Column on widget type toggle is out of range, defaulted to 1"

```