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/*-----*
 * File Name: IntegrateColumnsAndCreateReport.c *
 * Creation: ER, 01/24/05 *
 * Purpose: Programming Example *
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 * *
 * Modification Log: *
 *-----*/

#include <Origin.h>

////////////////////////////////////
// This example shows how to integrate the data in all Y columns of a worksheet
// and create a report worksheet with the results.
//
void integrate_columns_and_create_report()
{
    // Declare worksheet using active layer and check validity
    Worksheet wksData = Project.ActiveLayer();
    if(!wksData){
        out_str("Active layer is not a worksheet!");
        return;
    }

    // Create a results worksheet
    Worksheet wksResult;
    wksResult.Create();
    // Get the page for this worksheet and set its label and show the label
    WorksheetPage wpg = wksResult.GetPage();
    wpg.Label = "Integration results for '" + wksData.GetPage().GetName() + "' worksheet";
    wpg.TitleShow = WIN_TITLE_SHOW_BOTH;

    //Declare datasets in results worksheet and set column names and widths
    // First delete all columns in result worksheet and start adding new columns
    while(wksResult.DeleteCol(0));
    int nIndex;
    int nWidth = 15;
    // 1st column: name of Y column from data worksheet
    nIndex = wksResult.AddCol();
    wksResult.Columns(nIndex).SetLabel("Source Col Name");
    wksResult.Columns(nIndex).SetWidth(nWidth);
    // 2nd column: peak x location
    nIndex = wksResult.AddCol();
    wksResult.Columns(nIndex).SetLabel("Peak X Location");
    wksResult.Columns(nIndex).SetWidth(nWidth);
    // 3rd column: peak y value
    nIndex = wksResult.AddCol();
    wksResult.Columns(nIndex).SetLabel("Peak Y Value");
    wksResult.Columns(nIndex).SetWidth(nWidth);
    // 4th column: integrated area
    nIndex = wksResult.AddCol();
    wksResult.Columns(nIndex).SetLabel("Integrated Area");
    wksResult.Columns(nIndex).SetWidth(nWidth);
    // Turn on column label display
    wksResult.ShowLabels();
    // Set designation of 1st col to label
    wksResult.Columns(0).SetType(OKDATAOBJ_DESIGNATION_L);

    // Loop over all columns of data worksheet and integrate y columns
    int nCount = 0;
    foreach(Column ColData in wksData.Columns)
    {
        if( OKDATAOBJ_DESIGNATION_Y == ColData.GetType() )
        {
            // Get name of data column and store in result wks at current row, 1st col
            wksResult.SetCell(nCount, 0, ColData.GetName());

            // Declare curve object from data column
            Curve crvData(wksData, ColData.GetIndex());

            // Perform integration and store results at current row in subsequent cols
            IntegrationResult irResult;
            BOOL bRet = Curve_integrate(&crvData, &irResult);
            if(bRet)
            {
                wksResult.SetCell(nCount, 1, irResult.xPeak);
                wksResult.SetCell(nCount, 2, irResult.yPeak);
                wksResult.SetCell(nCount, 3, irResult.Area);
            }
            nCount++;
        }
    }
}

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// If no y columns were processed, delete the report worksheet and quit
if( 0 == nCount )
{
    out_str("Did not find any Y columns in data worksheet!");
    wksResult.Destroy();
    return;
}
else
    printf("%d columns were processed\n", nCount);
}
////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////
```