SciSheets Design Overview
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February 14, 2017

Agenda

Focus on hierarchical tables UI.

- UI essentials

- Class structure

- Code structure

Formulas will be a separate discussion.

UI Essentials

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UI Essentials

node_0 (Table File: scisheet_table)

| row | node_1 | node_8 | node_10 | | node_14 | | | node_18 | [node_20] | |
			node_9	node_12	node_13	node_22	node_23		row	node_19
1	82	15	1	44	82	77	40	47	1	36
2	94	45	18	49	18	29	5	86	2	11
3	54	40	2	28	9	48	1	72	3	95
4	91	42	26	92	98	62	11	32	4	44
									5	55

- **Cell**: Container of a data object
- **Column**: Collection of one or more cells
- **Table**: Collection of columns and tables
  - Columns of a table have the same number of cells
  - Attached (sub) tables have columns with the same number of cells
- **Row**: cells at the same position in a table (and its attached subtables)
- **Sheet**: Container of tables and columns

UI Essentials

Column header

Sheet caption

node_0 (Table File: scisheet_table)

node_10				node_14				[node_20]	
row	node_1	node_8	node_9	node_12	node_13	node_22	node_23	node_18	row	node_19
1	82	15	1	44	82	77	40	47	1	36
2	94	45	18	49	18	29	5	86	2	11
3	54	40	2	28	9	48	1	72	3	95
4	91	42	26	92	9	62	11	32	4	44
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Row for outer-most Table

Table header

Row for table node_20

cell

- Every collection of attached tables has a "name column" called "row"

5

Popup Menus

- Each UI element has its popup menus accessed by a left click
  - Sheet: caption
  - Table: Table header
  - Column: Column header
  - Row: cell in "row" column
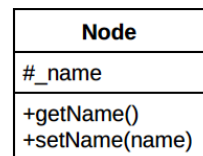 - Cell: cell (brings up edit menu)

Example of a pop-up menu - Table

Clicking on the header causes it to be highlighted and brings up the menu.

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Class Structure

Node

#_name

+getName()
+setName(name)

0..*

Relates names of nodes (Table, Column) to position in the Tree implied by a hierarchical table.

Tree

#_children
#_parent
#is_always_leaf = False

+addChild(child)
+findChildrenWithName(name, is_from_root, is_recursive)
+findPathFromRoot()
+getChildren(is_from_root, is_recursive)
+getChildrenNames(is_from_root, is_recursvie)
+getLeaves(is_from_root)
+getParent()
+isAlwaysLeaf()
+removeTree()
setParent(tree)
toString()

Knows about data in a collection of Cells.

Knows about rows and name columns

Manipulates Trees.

PositionTree

+addChild(child, position)
+getChildAtPosition(position)
+getPosition()
+getPositionOfChild(child)
+moveChildToPosition(child, position)
+toString()

NamedNode

Column

#is_always_leaf = True

0..*

Manages the positions of nodes relative to their parent.

Manages a collection of columns.

ColumnContainer

Table

0..*

Process UI Commands

UITable

"Renders" sheets for JavaScript

DTTable

W

Code Structure

JavaScript Directories

mysite

  mysite

    static

       scitable – js for UI

       js_test – tests for UI

    templates

       scitable.html – base template

       scitable_data.html – template for data

Common Directories

mysite

  mysite

     url.py – map URL to python code

     settings.py – parameterization of Appl

     helpers

        tree.py – Node, Tree, PositionTree

        named_tree.py - NamedTree

SciSheets Directories

mysite

   scisheets

      views.py – where URLs are mapped

      helpers

         scisheets_views.py – URL processing

      ui

         ui_table.py – UITable

         dt_table.py – DTTable

      core

         table.py – Table

         column_container.py – ColumnContainer

         column.py - Column