Google Summer of Code 2015
Student's Panel

- Students and Mentors
GsoC Projects 2015

Improve the sidebar
Improving Automated Error Checking
Expert Config dialog rework
Haskell UNO Binding
Draw Textbox Chaining
Rolling update for LibreOffice
Gtktiledviewer for GNOME-Documents
Cleanup drawing units in Calc
Improve CMIS UX
More and Better Tests
GSoC 2015
Review of sidebar and its functionality

- by Rishabh Kumar
- mentors: Katarina Behrens, Yousuf Philip
Rearrange Calc properties panel

before

after
Styles panel for Writer
Shadow panel for Impress/Draw

![Shadow panel for Impress/Draw](image)
Improve area panel

before

after
Improve line panel
New controls in Wrap panel
Work in progress

- Slide background panel
- Page format panel
- Improved custom animation panel
Improved Automated Error Checking

Student: Benjamin Ni

Mentors: Markus Mohrhard, Katarina Behrens
Motivation

- Validity / error checking features available, but limited
Discontinuous Formula Groups

- Rationale: identify formula errors, especially in large spreadsheets

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>1</td>
<td>'=B1'</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>2</td>
<td>'=B2'</td>
<td>2</td>
<td></td>
<td></td>
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<tr>
<td>3</td>
<td></td>
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<td>'=B3'</td>
<td>3</td>
<td></td>
<td></td>
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<tr>
<td>4</td>
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<td>4</td>
<td>'=B3'</td>
<td>3</td>
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<tr>
<td>5</td>
<td></td>
<td>5</td>
<td>'=B4'</td>
<td>4</td>
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<tr>
<td>6</td>
<td></td>
<td>6</td>
<td>'=B5'</td>
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<td>7</td>
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<td>7</td>
<td>'=B6'</td>
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<td>8</td>
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<td>'=B7'</td>
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<td></td>
<td></td>
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<tr>
<td>9</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Column D Subtotal 48
Discontinuous Formula Groups

• Implementation:
  • `FormulaGroupIterator` to count number of formula groups on spreadsheet
  • Currently prints number of formula groups in Statistics dialog
  • Can be integrated into a formula group checking mode, that could alert user in changes of formula groups count due to a user action (e.g. cut-paste)
Subformulae in Formula Wizard

• Rationale:
  • Offers quick and easy glance of formula structure
  • Easily identify root cause of errors
Subformulae in Formula Wizard

- **=SUM(B2:B20)+SUM(B22:B40)+SUM(B42:B60)**

**Function Wizard**

- **SUM**
  - Structure:
    - SUM = 908.8
    - B2:B20 = [50.25; 72.33; 14]
- **Returns the sum of all arguments.**
  - number 1 (required)
  - Number 1, number 2, ... are 1 to 30 arguments whose total is to be calculated.

**Formula**

- **=SUM(B2:B20)+SUM(B22:B40)+SUM(B42:B60)**

**Result:** #NAME?
Unit Feature

• Check for unit consistency in formulae
  • Cells can be assigned units
  • Mathematical operations on cell values must make sense

• To be moved to ScInterpreter
  • Use of new FormulaToken class to encode unit
Rework the Expert Configuration dialog

Mihaly Palenik
### Very old style

<table>
<thead>
<tr>
<th>Preference Name</th>
<th>Property</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Visible</td>
<td>boolean</td>
<td>true</td>
</tr>
<tr>
<td></td>
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<td>string</td>
<td></td>
</tr>
<tr>
<td></td>
<td>oolnetHTTPProxyPort</td>
<td>void</td>
<td></td>
</tr>
<tr>
<td></td>
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<td>string</td>
<td></td>
</tr>
<tr>
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<td>oolnetHTTPSProxyPort</td>
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<tr>
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<td>oolnetNoProxy</td>
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<td>string</td>
<td>named-and-derived</td>
</tr>
<tr>
<td></td>
<td>ServiceName</td>
<td>string</td>
<td>com.sun.star.filter.pdfexport.</td>
</tr>
<tr>
<td></td>
<td>Port</td>
<td>long</td>
<td>389</td>
</tr>
<tr>
<td></td>
<td>Server</td>
<td>void</td>
<td></td>
</tr>
<tr>
<td></td>
<td>UserObjectClass</td>
<td>void</td>
<td></td>
</tr>
<tr>
<td></td>
<td>UserUniqueAttribute</td>
<td>void</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Command</td>
<td>.uno:SelectAll</td>
<td></td>
</tr>
</tbody>
</table>
Old style

<table>
<thead>
<tr>
<th>Preference Name</th>
<th>Property</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>/org.openoffice.VCL/Settings/org.openoffice.VCL:ConfigurableSettings[WM']</td>
<td>ShouldSwitchWorkspace</td>
<td>string</td>
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<tr>
<td>/org.openoffice.VCL/Settings/org.openoffice.VCL:ConfigurableSettings[Menu']</td>
<td>SuppressAccelerators</td>
<td>string</td>
<td>false</td>
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<tr>
<td>/org.openoffice.VCL/Settings/org.openoffice.VCL:ConfigurableSettings[Transfer']</td>
<td>SelectionTimeout</td>
<td>string</td>
<td>3</td>
</tr>
<tr>
<td>/org.openoffice.VCL/Settings/org.openoffice.VCL:ConfigurableSettings[PrintDialog']</td>
<td>Collate</td>
<td>string</td>
<td>true</td>
</tr>
<tr>
<td>/org.openoffice.VCL/Settings/org.openoffice.VCL:ConfigurableSettings[DesktopManager]</td>
<td>DisablePrinting</td>
<td>string</td>
<td>false</td>
</tr>
<tr>
<td>/org.openoffice.VCL/DefaultFonts/org.openoffice.VCL:LocalizedDefaultFonts['am']</td>
<td>UI_SANS</td>
<td>string</td>
<td>Nyala;Abyssinian</td>
</tr>
<tr>
<td>/org.openoffice.VCL/DefaultFonts/org.openoffice.VCL:LocalizedDefaultFonts['am']</td>
<td>CTL_TEXT</td>
<td>string</td>
<td>Nyala;Abyssinian</td>
</tr>
<tr>
<td>/org.openoffice.VCL/DefaultFonts/org.openoffice.VCL:LocalizedDefaultFonts['am']</td>
<td>CTL_DISPLAY</td>
<td>string</td>
<td>Nyala;Abyssinian</td>
</tr>
<tr>
<td>/org.openoffice.VCL/DefaultFonts/org.openoffice.VCL:LocalizedDefaultFonts['am']</td>
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<td>Nyala;Abyssinian</td>
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<td>string</td>
<td>Nyala;Abyssinian</td>
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<tr>
<td>/org.openoffice.VCL/DefaultFonts/org.openoffice.VCL:LocalizedDefaultFonts['am']</td>
<td>CTL_SPREADSHEET</td>
<td>string</td>
<td>Nyala;Abyssinian</td>
</tr>
<tr>
<td>/org.openoffice.VCL/DefaultFonts/org.openoffice.VCL:LocalizedDefaultFonts['am']</td>
<td>CTL_PRESENTATION</td>
<td>string</td>
<td>Nyala;Abyssinian</td>
</tr>
<tr>
<td>/org.openoffice.VCL/DefaultFonts/org.openoffice.VCL:LocalizedDefaultFonts['as']</td>
<td>UI_SANS</td>
<td>string</td>
<td>Tahoma;Traditions</td>
</tr>
<tr>
<td>/org.openoffice.VCL/DefaultFonts/org.openoffice.VCL:LocalizedDefaultFonts['as']</td>
<td>CTL_TEXT</td>
<td>string</td>
<td>Tahoma;Lucida</td>
</tr>
<tr>
<td>/org.openoffice.VCL/DefaultFonts/org.openoffice.VCL:LocalizedDefaultFonts['as']</td>
<td>CTL_DISPLAY</td>
<td>string</td>
<td>Tahoma;Lucida</td>
</tr>
<tr>
<td>/org.openoffice.VCL/DefaultFonts/org.openoffice.VCL:LocalizedDefaultFonts['as']</td>
<td>CTL_HEADING</td>
<td>string</td>
<td>Tahoma;Lucida</td>
</tr>
<tr>
<td>/org.openoffice.VCL/DefaultFonts/org.openoffice.VCL:LocalizedDefaultFonts['as']</td>
<td>SANS_UNICODE</td>
<td>string</td>
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<tr>
<td>/org.openoffice.VCL/DefaultFonts/org.openoffice.VCL:LocalizedDefaultFonts['as']</td>
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<td>string</td>
<td>Tahoma;Lucida</td>
</tr>
<tr>
<td>/org.openoffice.VCL/DefaultFonts/org.openoffice.VCL:LocalizedDefaultFonts['as']</td>
<td>UI_SANS</td>
<td>string</td>
<td>Lohit Assamesi</td>
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<tr>
<td>/org.openoffice.VCL/DefaultFonts/org.openoffice.VCL:LocalizedDefaultFonts['as']</td>
<td>CTL_TEXT</td>
<td>string</td>
<td>Lohit Assamesi</td>
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<tr>
<td>/org.openoffice.VCL/DefaultFonts/org.openoffice.VCL:LocalizedDefaultFonts['as']</td>
<td>CTL_DISPLAY</td>
<td>string</td>
<td>Lohit Assamesi</td>
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<td>UI_SANS</td>
<td>string</td>
<td>Lohit Assamesi</td>
</tr>
</tbody>
</table>
Problem and ideas

- Lot of configuration entries
- Slow with a11y
- Load dynamically

Ideas
- Load which visible
- Tree view
# Final result

## Expert Configuration

<table>
<thead>
<tr>
<th>Preference Name</th>
<th>Property</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>UserDirectory.UserDirectory</td>
<td>SearchUser</td>
<td>string</td>
<td>f</td>
</tr>
<tr>
<td>UserDirectory.UserDirectory</td>
<td>SearchPassword</td>
<td>void</td>
<td></td>
</tr>
<tr>
<td>UserDirectory.UserDirectory</td>
<td>UserObjectClass</td>
<td>void</td>
<td></td>
</tr>
<tr>
<td><strong>ServerDefinition</strong></td>
<td></td>
<td>Port</td>
<td>389</td>
</tr>
<tr>
<td>ServerDefinition.ServerDefinition</td>
<td>BaseDN</td>
<td>void</td>
<td></td>
</tr>
<tr>
<td>ServerDefinition.ServerDefinition</td>
<td>Server</td>
<td>void</td>
<td></td>
</tr>
<tr>
<td>UserDirectory.UserDirectory</td>
<td>UserUniqueAttribute</td>
<td>void</td>
<td></td>
</tr>
</tbody>
</table>

- `org.openoffice.Setup`
- `org.openoffice.System`
- `org.openoffice.Office.Ui`
- `org.openoffice.ucb.Store`

### ContentProperties


### Values

- `TargetDirURL`
  - `com.sun.star.ucb.DefaultHierarchyDataSource/templates/en-US/My%20Term State` long 0
  - `com.sun.star.ucb_DEFAULT_HIERARCHY_DATASOURCE/templates/en-US/My%20Term Value` string $(brandbaseuri)
  - `com.sun.star.ucb_DEFAULT_HIERARCHY_DATASOURCE/templates/en-US/My%20Term Handle` long -1
  - `com.sun.star.ucb_DEFAULT_HIERARCHY_DATASOURCE/templates/en-US/My%20Term Attributes` long 129
New problems

- Search
- Use preferences box's entries
- Old name/new name
- Alternating row
Haskell UNO Language Binding

Using the UNO API from Haskell

Participant: Jorge Mendes
Mentors: Michael Stahl, Stephan Bergmann
<table>
<thead>
<tr>
<th>Haskell</th>
<th>UNO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purely-functional programming language</td>
<td>Universal Network Objects</td>
</tr>
<tr>
<td>Statically typed</td>
<td>Component model in LibreOffice</td>
</tr>
<tr>
<td>Lazy evaluation</td>
<td>Relies on services and interfaces</td>
</tr>
<tr>
<td>Concurrency-friendly</td>
<td>Existing bindings for:</td>
</tr>
<tr>
<td>Many 3rd-party packages</td>
<td>- C++, Java, and Python</td>
</tr>
</tbody>
</table>
Developing Programs

- Based on Cabal
  - “Common Architecture for Building Applications and Libraries”
- Requires modifying the usual package configuration process
  - add generation of required API code
- Development purely in Haskell
  - current version requires some Foreign Function Interface (FFI) code for features not yet implemented
- Simple steps to create a new UNO program:
  - create a new Cabal package
  - add the Haskell UNO binding as a dependency
  - create the program in Haskell!
Haskell UNO Binding

We have:
- API code generator
- because of the static type system
- Binding package
- bootstrapping
- type marshalling
- Examples
- macro expander
- document loader
- swriter

Available at:
https://github.com/jorgecunhamendes/haskell-uno-binding
Flow of Text from Box to Box in Draw

Matteo Campanelli
A first long paragraph!
A quite longer second one.
And finally a super long third
A first long paragraph!

A quite longer second one.

And finally a super long third.
NOTE:

this year's work is a continuation of what I started during GSoC14.

Status before GSoC 2014:

Writer had its own fancy version of text flow (and still does: no Writer feature was harmed during the making of this project!)

It had been a feature request for Draw since OpenOffice times.

Status after GSoC 2014:

Basic prototype: could transfer overflowing paragraphs to next box.

Too "stiff" to be used:

Could not transfer single words, only whole paragraphs (plus: user must get out of the box first)

No other semi-basic feature (more on this later).

That was last year. And this year??
Demo 1 - Let's have a look (status at GSoC15 midterm)
Main desired features

- **Transfer of text while editing** #15
  - Also: cursor motion. #15
- **Transfer of text after box is resized** #15
- **Handling of underflow of text** #15
  - (i.e. what if you get some space in 2nd box?)
- **Recursive transfer** #14
  - (i.e. what if 2nd box is not enough?)
- **Support of Cutting/Pasting** #14
- **Load box chain structure from file** #15
- **Undo/Redo support** :( 
- **GUI** :( 

**Legend:**

#14 - Feature appeared after GsoC 14.
#15 - Feature appeared after GsoC 15.
:( - Feature still absent.
Current state of the project

- **This year:** code rewritten to be modular and non-invasive.
  - (Last year's code smelled of frustration and desperate experiments. Also, rum.)

- **Almost all features from previous slide are there.**
  - ...but some of them stopped working (after merging to master last week).
Demo 2 - Some other cool stuff (also lovely fresh bugs)
Conclusions

● **Thanks to mentors**
  ● Thorsten & Fridrich were fundamental, both morally and technically.

● **The project is almost there:**
  ● A few FIXME-s after merging
  ● We still lack Undo/Redo support
    ● Anyone with editeng/svx experience wanna help?
Reuse Mozilla's rolling update mechanism for LibreOffice

Nathan Yee

- Currently the update just checks, and offers new download

- The project included:
  - Stripping down the Mozilla update code & integrating it with LibreOffice
    - To build & use .mar's
  - Building the .mar themselves
  - Update the update mechanism to actually use it
  - https://wiki.documentfoundation.org/Development/Online_Update
Integrating LO with your applications/gnome-documents

- Pranav Kant (pranavk)
- Mentors
  - Michael Meeks
  - Miklos Vajna
This summer

Mozilla → LibreOffice → GNOME
LOKDocView - Architecture

LOKDocView

TileBuffer

LibreOfficeKit

GThreadPool (single thread)

GtkDrawingArea
LOKDocView inside LO tree

- libreofficekit/
  - source
    - gtk
      - lokdocview.cxx
      - tilebuffer.cxx
      - tilebuffer.hxx
    - qa
      - gtktiledviewer
        - gtktiledviewer.cxx (test-bed)
Use from any g-i language bindings

Thanks to GObject Introspection

```javascript
// Build the application's UI
_testViewer: function () {
    this._window = new Gtk.ApplicationWindow {
        application: this.application,
        title: "LOK Document Viewer",
        default_height: 600,
        default_width: 800,
    };
    this._sw = new Gtk.ScrolledWindow({
        hexexpand: true,
        vexpand: true
    });
    this._window.add (this._sw);
    this._window.add (this._sw);
    this._view = LOKDocView.View.new (inst_path, null, null);
    this._sw.add (this._view);
    this._view.open_document (doc_path);
    this._window.show_all();
}
```

Using from javascript
Cleanup of internal drawing units in Calc

Krisztian Pinter

- Calc rendering is a mess
  - Partially in pixels, partially in logic units (HMM)
- Problem for tiled rendering and UX in general
- The project was to change all the rendering in pixels to logic units
Improve user experience with CMIS

Szymon Kłos
e-mail: eszkadev@gmail.com
IRC: eszka

mentors: Jan Holesovsky, Cedric Bosdonnat
Problems - visibility

- Feature is not visible to the average user
- CMIS is only accessible through LibreOffice’s custom file dialogs, which isn’t turned on by default
Problems - complexity

- Fields with unchangeable value (binding URL – Gdrive)
- Gdrive needs only user name, but all fields are shown
- Popular CMIS services as subtypes
Guidelines

- Access from start center (to promote this)
- New dialog because integration with system's ones is very limited
Guidelines – Remote Files Dialog

- Dropdown to select the predefined service that contains of type plus name
- Breadcrumb, folder view, and file list for navigation
- File name with autocompletion
Guidelines – Add service

• A selection for the type first
• Types are organized and sorted user-centric
• Dialog’s complexity depends on the connection type
Bugs – Failed authorization

- Two caching mechanisms:
  - ucb/cmis session cache
  - SimpleAuthenticationRequest - password storing

Session doesn't exist → SimpleAuthenticationRequest → init session → cache session
Bugs – Different users, one repo

- CMIS session cache:
  - old key: Repo URL
  - new key: Repo URL + user name
More and Better Tests

Varun Dhall, GSoCer

2015-09-23
Overview

1) Introduction
2) Goals of the project
3) Achievement
4) Future Scope
Introduction

I am Varun, a Computer Science and Engineering undergraduate from India.

I hacked this summer with LibreOffice and it was a great learning experience for me, it was really fun to work on various modules under the guidance of my mentors.

I got two cool, experienced and supporting mentors for my project:

- Michael Stahl, Red Hat
- Bjoern Michaelsen, Canonical
Goals of the Project

- Too few unit tests were available in existing codebase for 'Writer' or 'sw/'
- Old tests were written in Java (JUnit)
  - its important to write tests in C++ (CPPUnit) to make debugging easier for developers
- Some old APIs that were no more in use often makes the debugging difficult for developers
- The count of regression bugs/patches to those bugs was much greater than the number of unit tests available for those bugs
  - often result in multiple duplicate bugs
Achievement

- Added 27 unit tests for regression bugs in Writer
  - 21 unit tests in sw/../uiwriter.cxx
  - 3 unit tests in sw/../odfexport.cxx
  - 2 unit tests in sd/../export-tests.cxx
  - 1 unit test in sw/../odfimport.cxx
- Added UNO test coverage for SwXFlatParagraph, SwXParagraph, SwXTextDefaults and SwXTextSearch
- Added script to remove thumbnail images from existing .odt files, reducing size of test documents
Future Scope

- As per the discovery of new bugs, new tests will be required from time to time.
- The script written for removing thumbnail images from '.odt' files can be attached to git, to remove the extra data saving bandwidth and million bytes of data.
- Existing tests in Java can be ported to C++.
- Test coverage of existing source files can be increased to uncover hidden flaws (if any).
Thanks a lot for your attention

Thank you GOOGLE for sponsoring!!!

Thank you mentors for your time & encouragement

Spread the word, encourage students to apply next year!