SEP #46: Scilab Desktop

Title: Scilab Desktop
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Abstract

This SEP proposes to create a Scilab Desktop. The implementation of this working environment passes by the improvement of Scilab's window docking management (introduced in Scilab 5.0).
For practical and ergonomic reasons Scilab Desktop will evolve through new features.
We will distinguish 2 types of features:

- graphical features
- command line features

This SEP will be dedicated for the **graphical features**. Command line features will be handled in another SEP.

Scilab Docking system

Scilab Docking system is based on FlexDock (version 0.5.1) which is a Java docking framework used in cross-platform Swing applications. The offered features are:

- Tabbed and Split Layouts
- Drag-n-Drop capability
- Floating windows
- Collapsible Containers

SCILAB DESKTOP: GRAPHICAL FEATURES

Graphical features will offer to the user a new organization and layout of Scilab's windows. We will see point by point these features:

Scilab Desktop windows at the opening
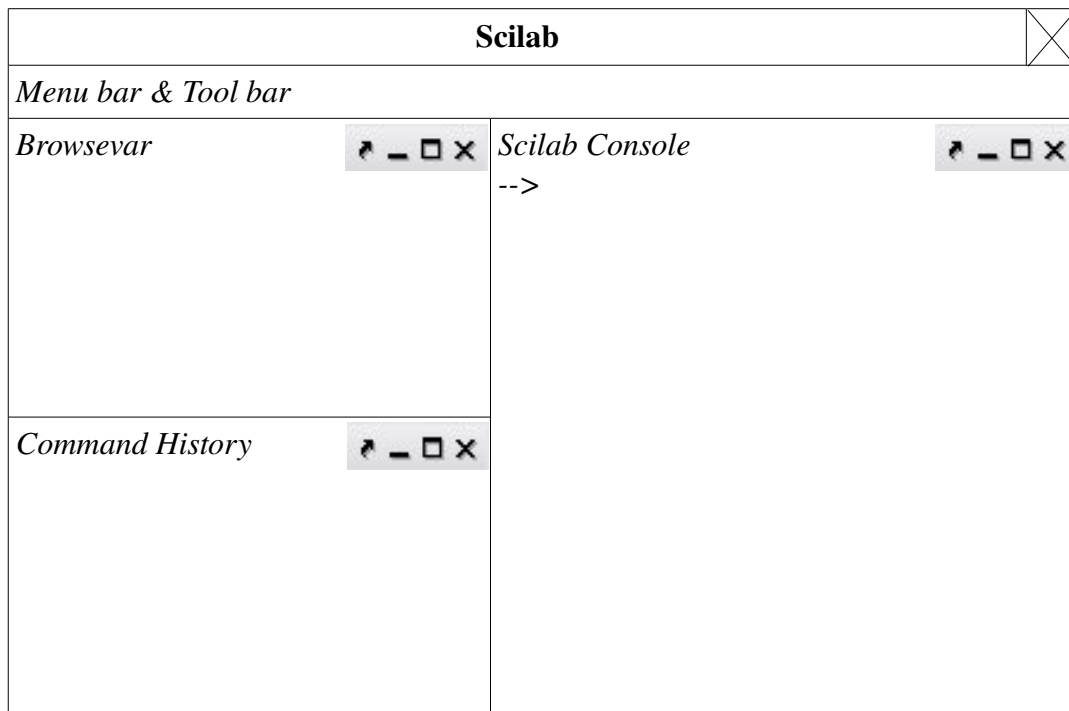
The default layout at the opening of a new Scilab session is defined in the following way:

Scilab	⊠
Menu bar & Tool bar	
Browsevar *Command History*	*Scilab Console* -->
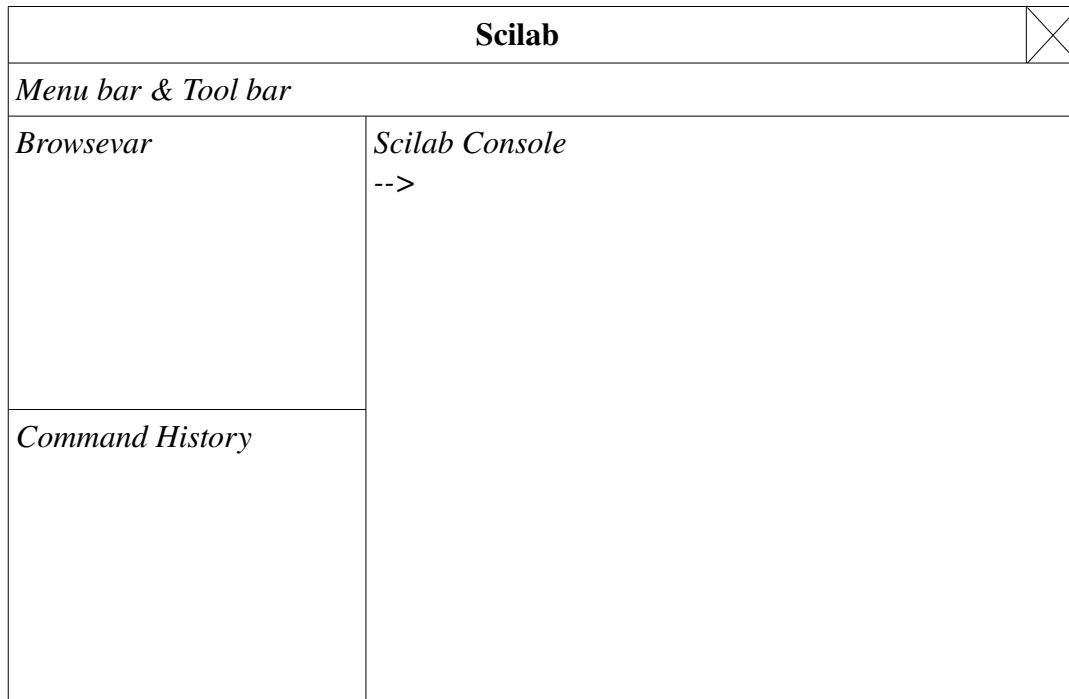
Window's Docking bar

The new docking bar will enable to:

- Dock and Undock a window
- Minimize a window
- Maximize a window
- Close a window

Scilab		
Menu bar & Tool bar		
Browsevar ⤴ — ☐ ✕	*Scilab Console* ⤴ — ☐ ✕ -->	
Command History ⤴ — ☐ ✕		

Layout persistence

Layout persistence is the possibility to save automatically the Scilab Desktop while we quit Scilab. While the user will start Scilab for the next time windows layout will be the same of the last Scilab session.

For this we need to save automatically for each sessions which windows were shown and hidden but also their positions.

For the window docking management 2 menus called **Desktop** and **Window** will be added to Scilab's menu bar. The first one is to manage the Scilab Desktop and the second will handle properties on the focused window.

Menu Desktop

Desktop
Desktop Layout   >
Save Layout...
Organize Layouts...
Next Window
Previous Window
✔ Console
✔ Command History
✔ Variable Browser
Help
Editor
Xcos
Variable Editor
Graphical Editor
Toolbars   >
✔ Windows Titles

Switch to next or previous window (Scilab tool)

Shows all the main Scilab tools.
If we check or uncheck one of those items we respectively show or hide the tool

Features (Hot key)	Actions
Desktop Layout	Allows to organize Scilab Desktop in a defined way **[1]**.
Save Layout... (Ctrl + Maj + S)	Saves the current Scilab Desktop layout **[2]**.
Organize Layouts... (Ctrl + Maj + O)	Organizes saved layouts **[3]**. This menu item appears only if at least one saved layout exists.
Next Window (Ctrl + Tab)	Switch to next X window (next Scilab tool) **[4]**.
Previous Window (Ctrl + Maj + Tab)	Switch to previous X window (previous Scilab tool) **[4]**.
Console	Show or hide Console.
Command History	Show or hide Command History.
Variable Browser	Show or hide Browsevar.
Help	Show or hide Help.
Editor	Show or hide Editor.
Xcos	Show or hide Xcos.
Variable Editor	Show or hide Editvar.
Graphical Editor	Show or hide Graphical Editor.
Toolbars	Show or hide toolbars **[5]**.
Windows Titles (Ctrl + Maj + W)	Show or hide Windows Titles **[6]**.

[1] Desktop Layout menu item:

Desktop Layout >	Default
	Console Window Only
	History and Console Window
	All Tabbed
	All but Console Window Maximized

Default

Scilab	⊠
Menu bar & Tool bar	
Browsevar	*Scilab Console* -->
Command History	

Console Window Only

Scilab	⊠
Menu bar & Tool bar	
Scilab Console -->	

History and Console Window

Scilab	⊠
Menu bar & Tool bar	
Command History	*Scilab Console* -->

All Tabbed

Scilab	✕
Menu bar & Tool bar	

Scilab Console	✕	*Command History*	✕	*Browsevar*	✕

-->

All but Console Window Maximized

Scilab	✕
Menu bar & Tool bar	

Scilab Console
-->

Command History	Browsevar
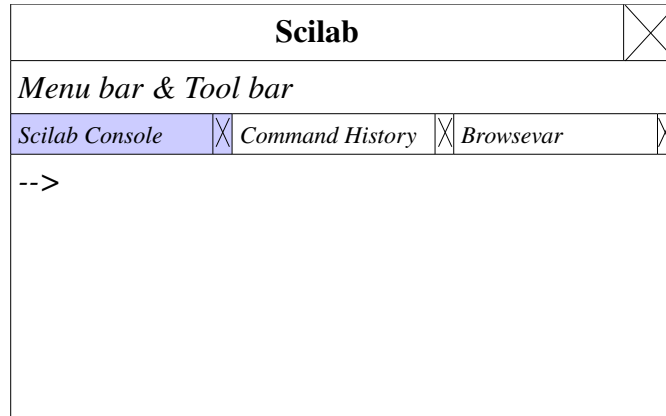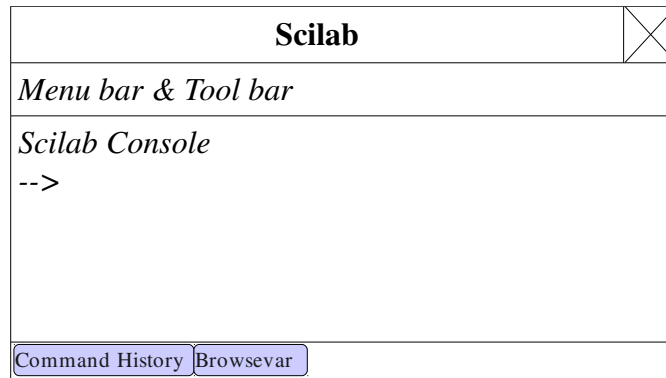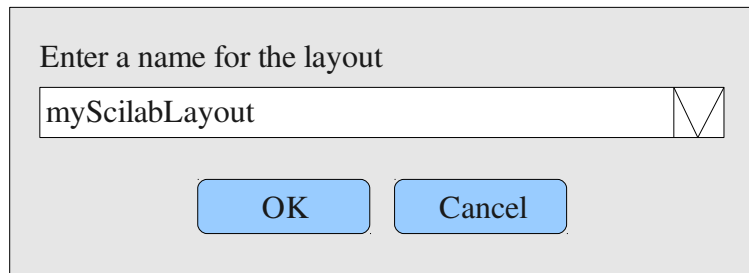
[2] Example of saving a layout:

Will open a window which allow the user to save his Scilab Desktop layout.

```
┌─────────────────────────────────────────┐
│                                         │
│   Enter a name for the layout           │
│   ┌──────────────────────────────┬───┐  │
│   │ myScilabLayout               │ ▽ │  │
│   └──────────────────────────────┴───┘  │
│                                         │
│      ┌──────────┐    ┌──────────┐       │
│      │    OK    │    │  Cancel  │       │
│      └──────────┘    └──────────┘       │
│                                         │
└─────────────────────────────────────────┘
```

Note: The user through the editable combo box will enter the name of the layout to save.
The combo box will display all the existing layout saved by the user.

Once the layout saved, this one will be available in the Desktop Layout menu item:
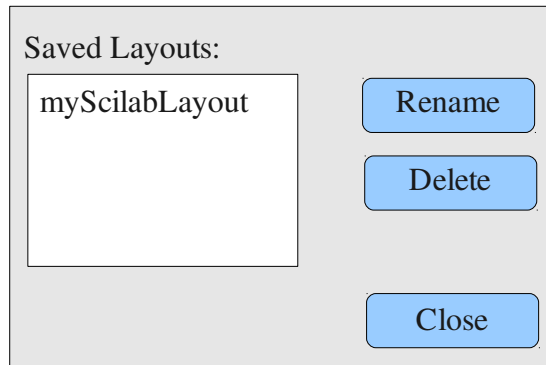
Desktop Layout >	Default
	Console Window Only
	History and Console Window
	All Tabbed
	All but Console Window Maximized
	myScilabLayout

The user can load his saved layout through the Desktop Layout.

[3] Example of organizing layouts:

Will open a window which allow the user to organize his saved layouts.

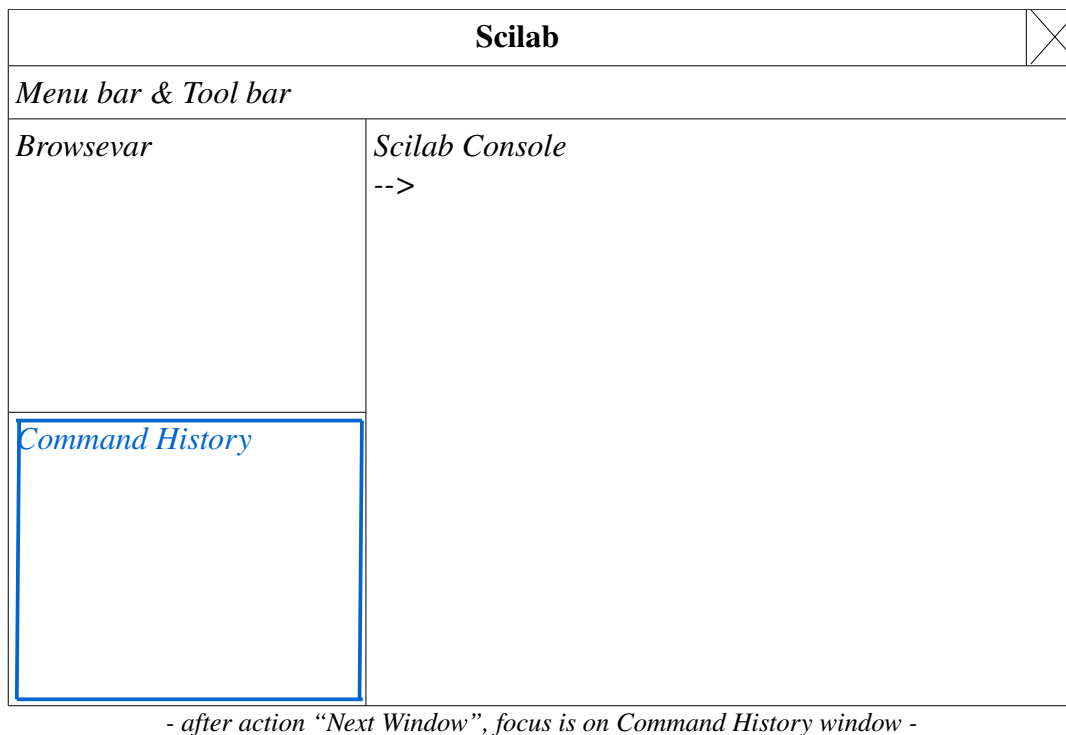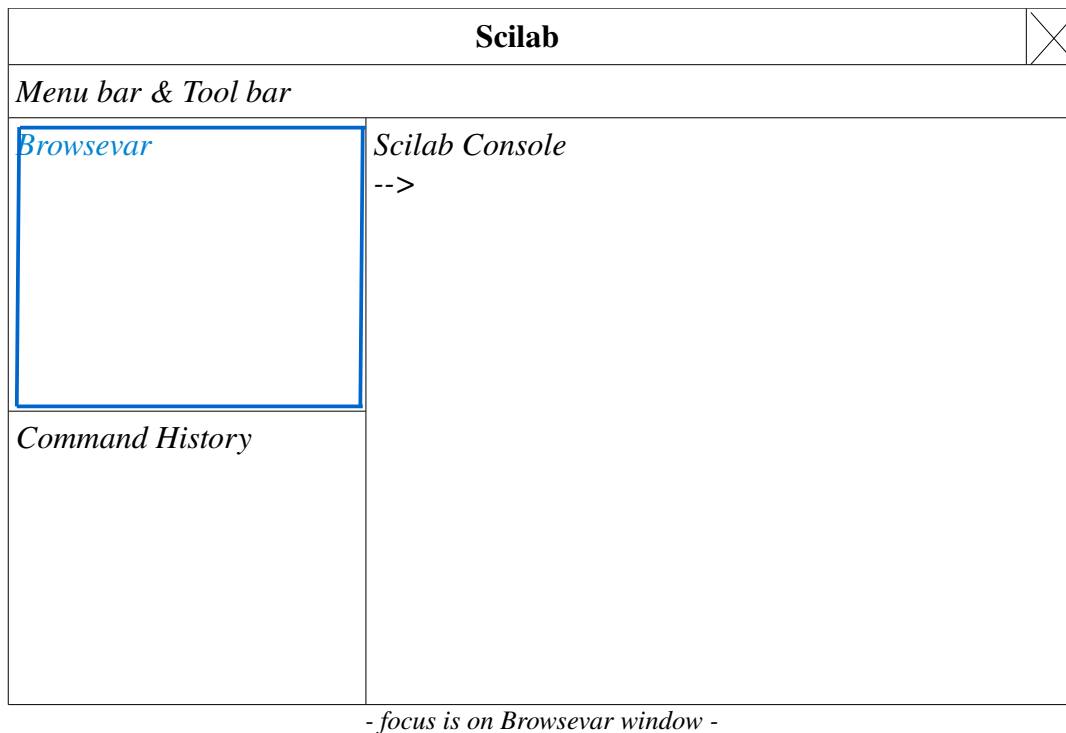Note: The user can rename or delete a saved layout. All changes will respectively update Desktop Layout menu item.

If none item is selected, buttons "Rename" and "Delete" are disabled.

	Left Double-click	**Right Click**
Item of the saved layouts list	Puts the selected in edition mode, the user can directly rename the item.	**On selection mode:** A contextual menu will propose to "Rename" or "Delete" the selected item. **On edition mode:** A contextual menu will propose to "Cut", "Copy", "Paste" or "Select All" on the selected item.

[4] Example of "Next Window" action:

Scilab	⊠

Menu bar & Tool bar

Browsevar	*Scilab Console*
	-->
Command History	

- focus is on Browsevar window -

Scilab	⊠

Menu bar & Tool bar

Browsevar	*Scilab Console*
	-->
Command History	

- after action "Next Window", focus is on Command History window -

Note:

The next action "Next Window" will put the focus on Scilab Console window.

In the same way action "Previous Window" will (if the focus is on Browsevar window) put the focus on Scilab Console window.

[5] Toolbars menu item:

Toolbars	>	✔ Scilab
		✔ Command History
		✔ Variable Browser

Note: Will appear only windows displayed in Scilab Desktop.

All the displayed toolbars are active even if the window is not focused.
Example: If the focus is on the Scilab Console and the user clicks on the button "copy" of the Editor's toolbar, the focus will be given to Editor and action "copy" will be executed.
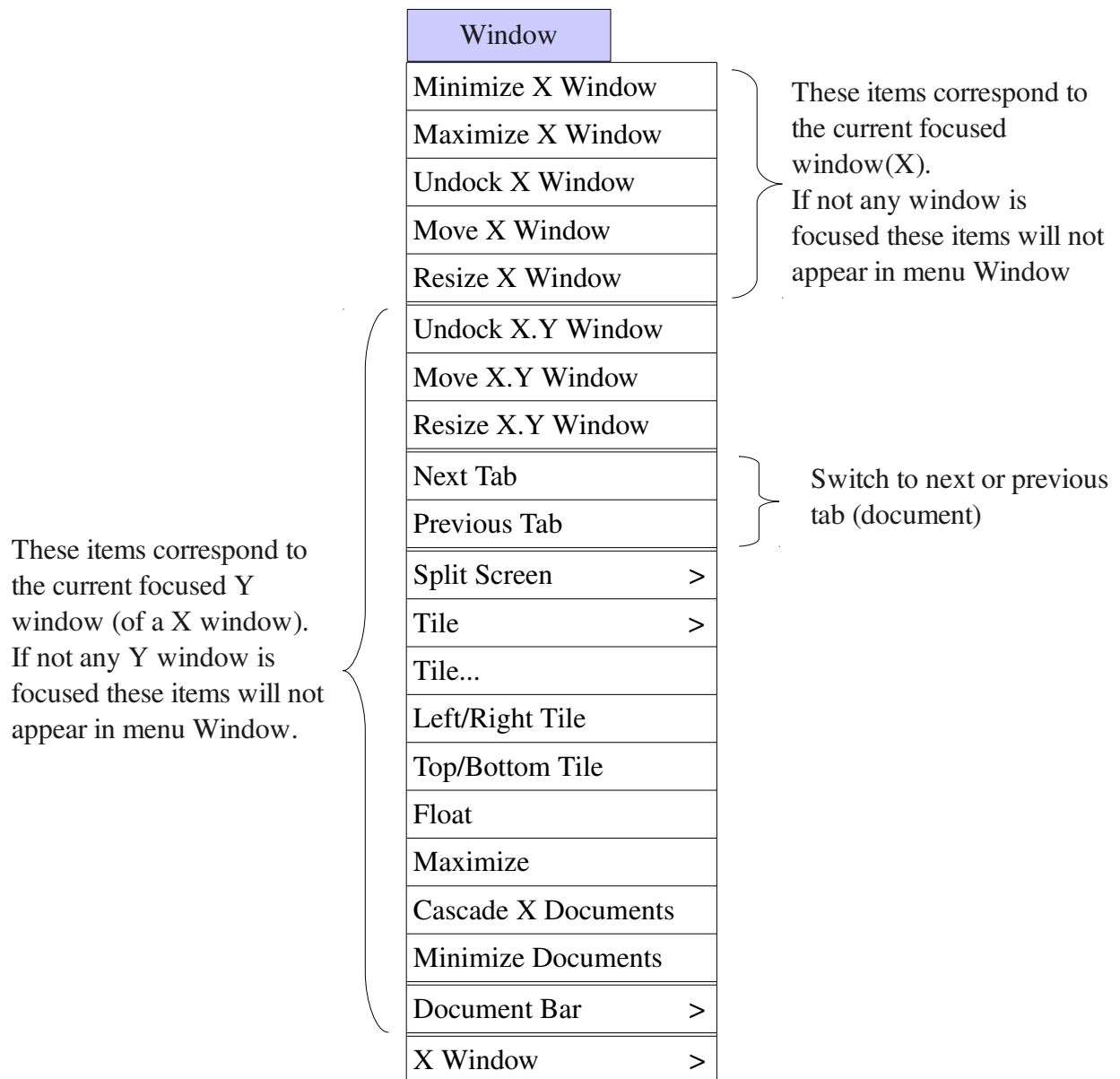
[6] Show or hide window title on Scilab Console:

Scilab	✕
Menu bar & Tool bar	
Scilab Console	↗ − ☐ ✕

-->
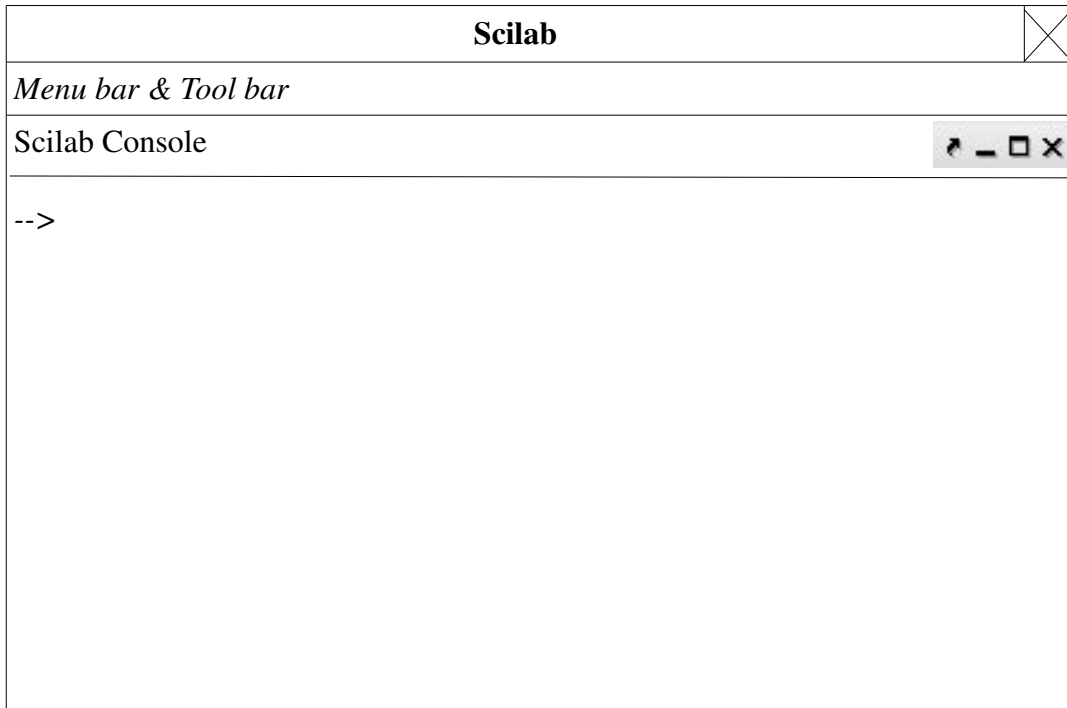
- Scilab Console with window title displayed -

Scilab	✕
Menu bar & Tool bar	

-->
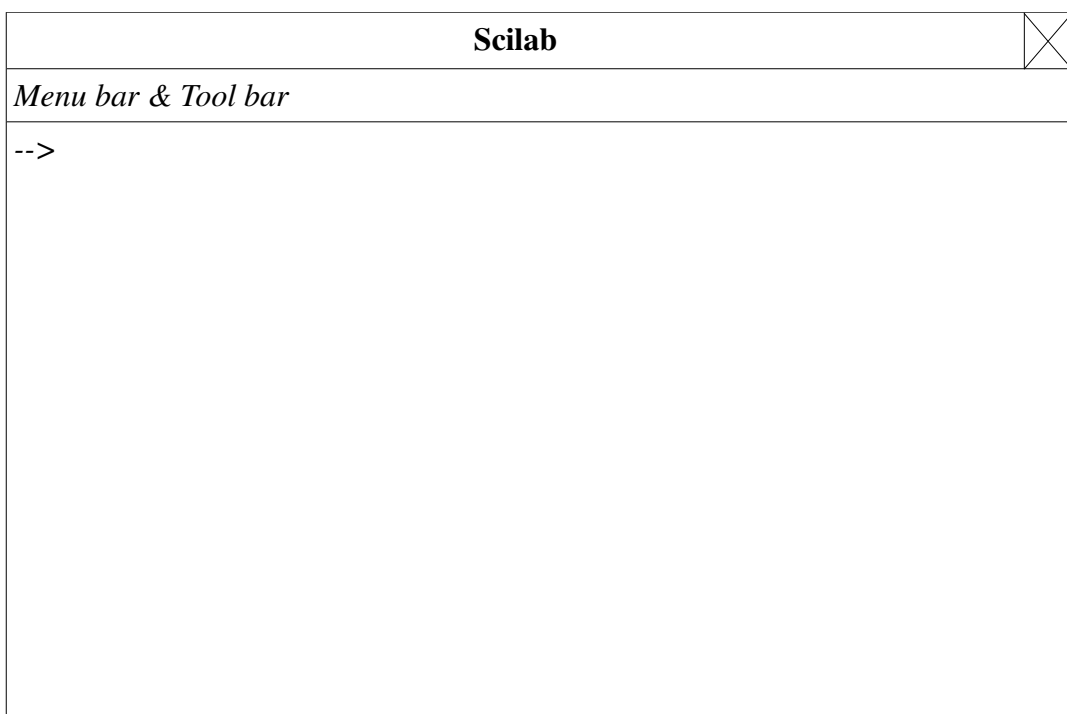
- Scilab Console with window title hidden -

Menu Window

Window
Minimize X Window
Maximize X Window
Undock X Window
Move X Window
Resize X Window
Undock X.Y Window
Move X.Y Window
Resize X.Y Window
Next Tab
Previous Tab
Split Screen   >
Tile   >
Tile...
Left/Right Tile
Top/Bottom Tile
Float
Maximize
Cascade X Documents
Minimize Documents
Document Bar   >
X Window   >

These items correspond to the current focused window(X).
If not any window is focused these items will not appear in menu Window

Switch to next or previous tab (document)

These items correspond to the current focused Y window (of a X window).
If not any Y window is focused these items will not appear in menu Window.

Note: When we talk about X.Y windows or documents, it corresponds to the tools of Scilab which allow to open several windows or documents at the same time, such as:

- graphical windows
- editor
- Xcos
- Scilab help

<u>Note</u>:

If the X window is minimized, items in menu **Window** will be:
- Restore X window
- Maximize X Window
- Undock X Window
- Move X window (disabled)
- Resize X Window

If the X window is maximized, items in menu **Window** will be:
- Minimize X Window
- Restore X window
- Undock X Window
- Move X window (disabled)
- Resize X Window (disabled)

If the X window is undocked, this one will have a menu **Window** in which we will have:
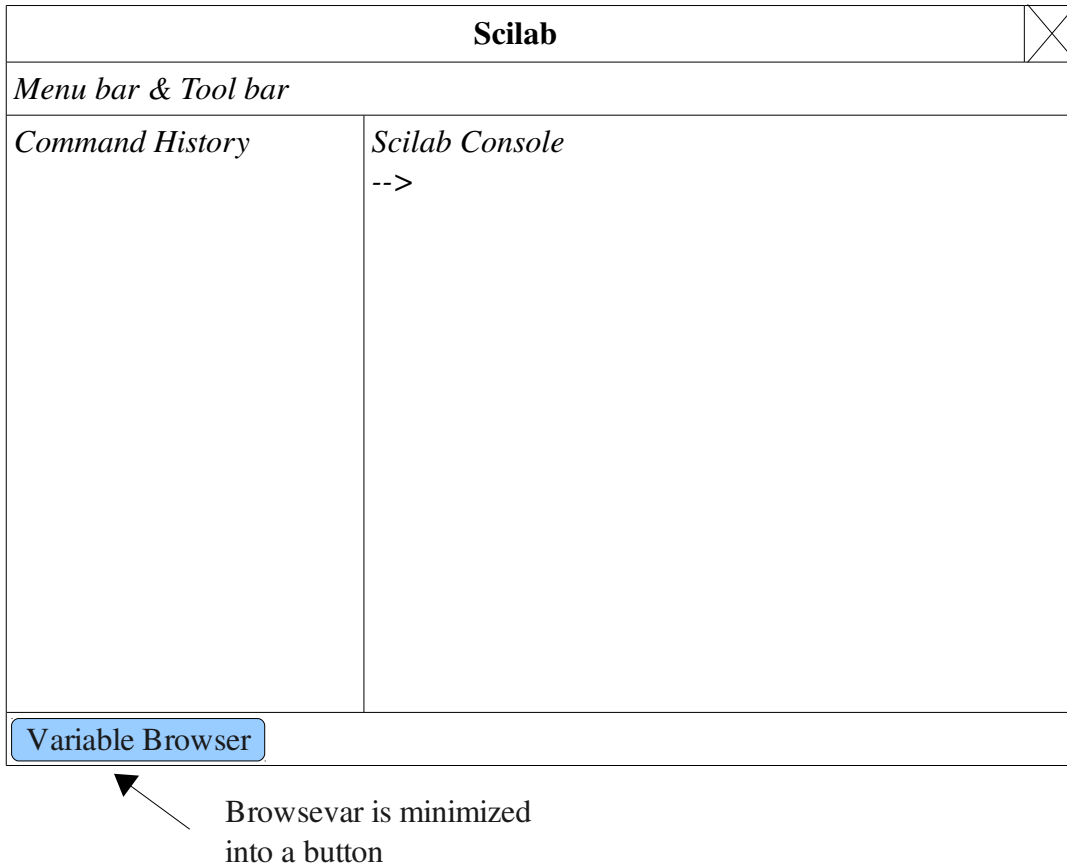- Dock X window

Same behavior for X.Y windows.

Features *(Hot key)*	Actions
Minimize X Window	Minimizes focused window **[1]**.
Maximize X Window	Maximizes focused window **[2]**.
Dock/Undock X Window *(Dock: Ctrl + Maj + D)* *(Undock: Ctrl + Maj + U)*	Dock or undocks focused window from the Scilab desktop **[3]**.
Move X Window	Enables to move focused window to an allowed position by the docking system. If we select an area outside of the Scilab Desktop the window will be undocked.
Resize X Window	Enables to resize focused window. Resizing a focused window (docked window) can impact size of other docked windows. Resize action is done with mouse pointer.
Dock/Undock X.Y Window *(Dock: Ctrl + Alt + D)* *(Undock: Ctrl + Alt + U)*	Dock or undocks focused Y window from the X window (and the Scilab desktop).
Move X.Y Window	Enables to move focused Y window to an allowed position by the docking system (internal to the concerned tool). If we select an area outside of the Scilab Desktop the Y window will be undocked. In tile organization, if we move a Y window above another, the below Y window will be hide by the moved Y window.
Resize X.Y Window	Enables to resize focused Y window. Resizing a focused Y window (docked Y window) can impact size of other docked Y windows. Resize action is done with mouse pointer.
Next Tab *(Alt + Tab)*	Switch to next X.Y window (next document).
Previous Tab *(Alt + Maj + Tab)*	Switch to previous X.Y window (previous document).
Split Screen	Splits a document in two screen **[4]**.
Tile	Organizes documents of X window in tiles **[5]**.
Tile... *(Ctrl + Maj + T)*	Organizes and configures tiles organization according to documents of X window **[6]**.
Left/Right Tile *(F3)*	Organizes X window in left/right tiles **[7]**.
Top/Bottom Tile *(F4)*	Organizes X window in top/bottom tiles.
Float *(Ctrl + Maj + F)*	Organizes documents of X window in float style **[8]**.
Maximize	Maximizes focused document of X window **[9]**.

Cascade X Documents *(Ctrl + Maj + C)*	Displays documents of X window in float style and organize them in cascade. Order of the cascade organization will be sorted according to documents title.
Minimize X Documents *(Ctrl + Maj + M)*	Minimizes all the documents of the X window **[10]**.
Document Bar	Allows to do actions on Document Bar **[11]**.
X Window	Shows the current focused window. If the current window has X.Y window(s) opened the menu item will display these X.Y window(s) **[12]**.

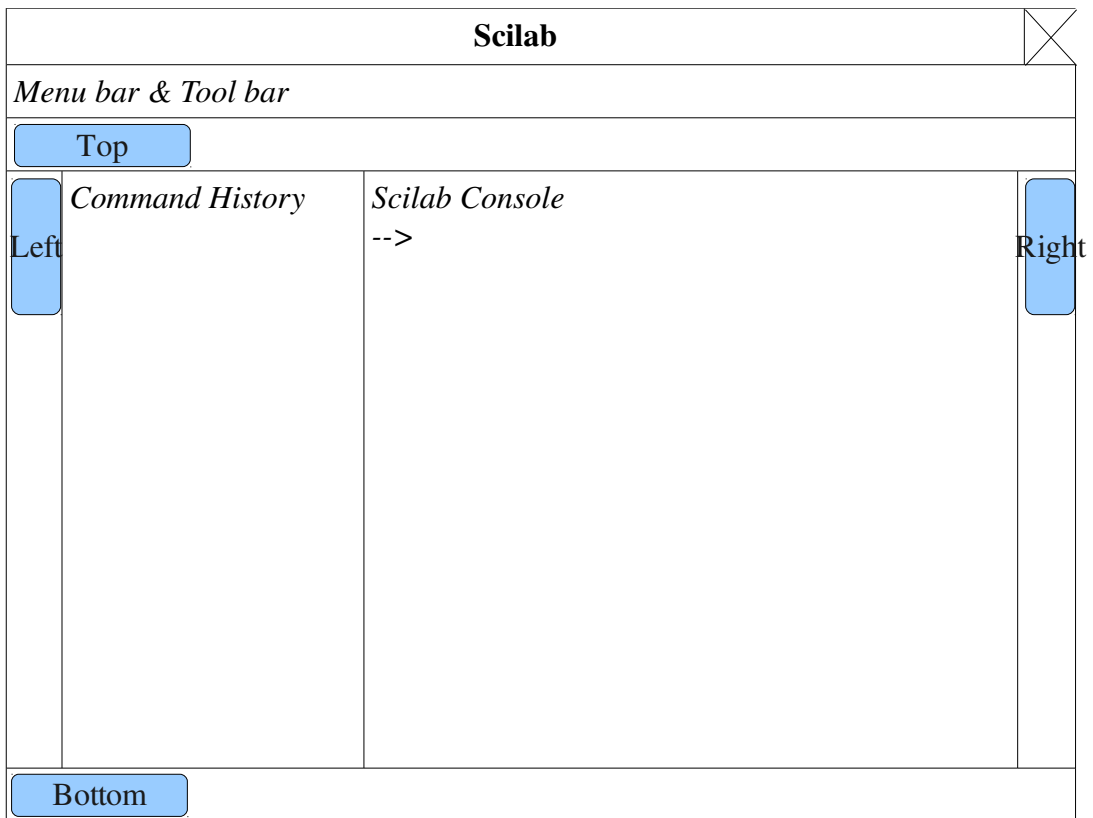**[1]** Example of minimizing a window. Here Browsevar has been minimized.

Scilab	⊠
Menu bar & Tool bar	

Command History	*Scilab Console* -->

Variable Browser

Browsevar is minimized
into a button

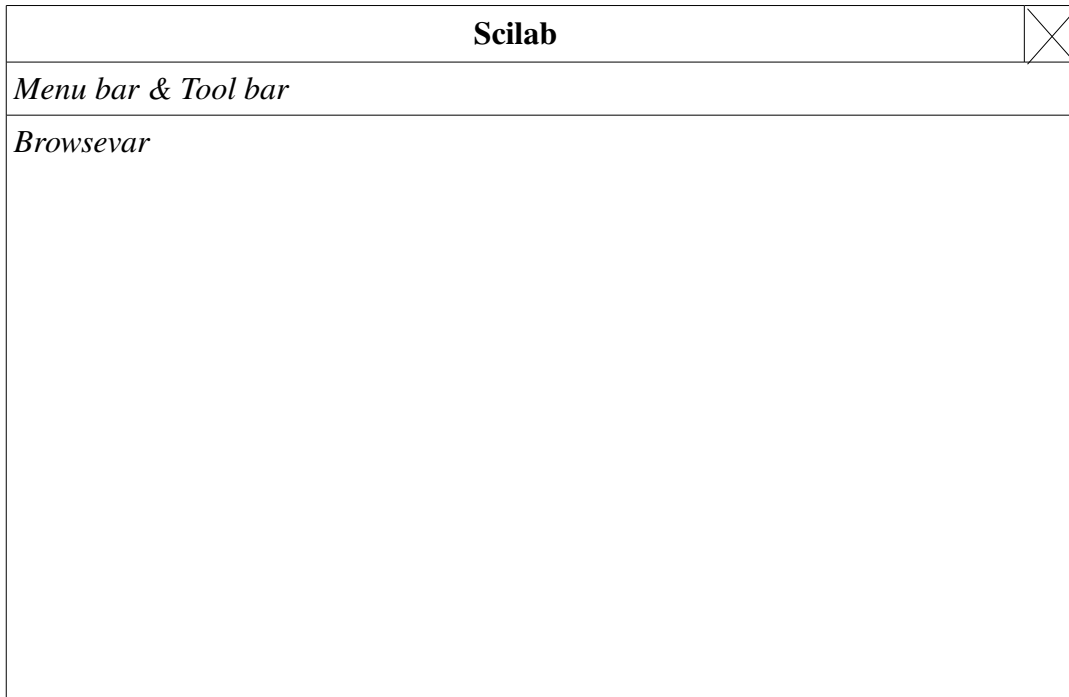|	Mouse entered/exited	Left Click	Left Double-click	Right Click
Button Variable Browser	Mouse pointer entered on the button: Displays a sliding Browsevar window. Mouse exited: When mouse pointer exits the button or the displayed sliding Browsevar window this one minimizes itself automatically.	1st click on the button: Displays and get the focus on a sliding Browsevar window. 2nd click on the button: The sliding Browsevar window minimizes itself. 2nd click on another window: Focus is lost, the sliding Browsevar window will minimize itself automatically.	Restores Browsevar window to it's original position (before minimizing)	opens a context menu **[a]**

[a] Context menu on button Browsevar

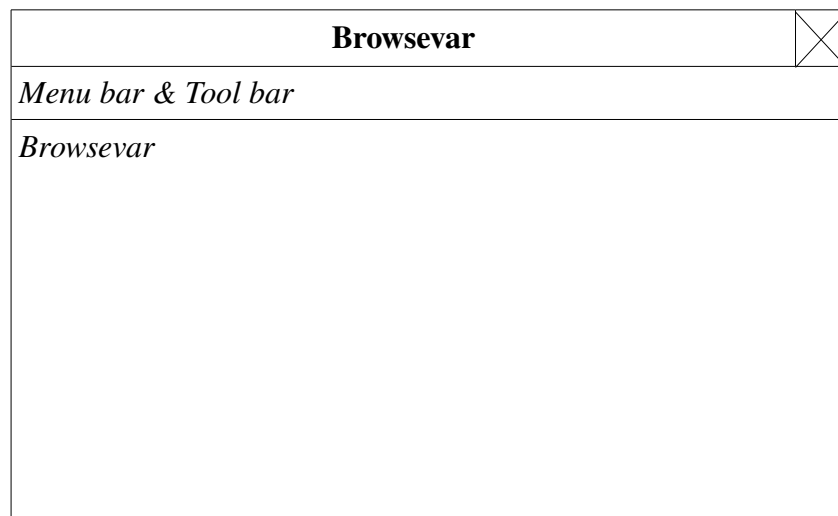| |
|---|
| Restore Variable Browser |
| Undock Variable Browser |
| Close Variable Browser |
| Move to Top Edge |
| • Move to Bottom Edge |
| Move to Left Edge |
| Move to Right Edge |

Position of the button in Scilab Desktop **[b]**

[b] Available positions for the button

Scilab	
Menu bar & Tool bar	

Top

Command History	*Scilab Console*
Left	-->

Right

Bottom

[2] Example of maximizing a window. Here Browsevar has been maximized.

Scilab	⊠
Menu bar & Tool bar	
Browsevar	

[3] Example of undocking a window. Here Browsevar has been undocked.

Scilab	⊠
Menu bar & Tool bar	

Command History	*Scilab Console* -->
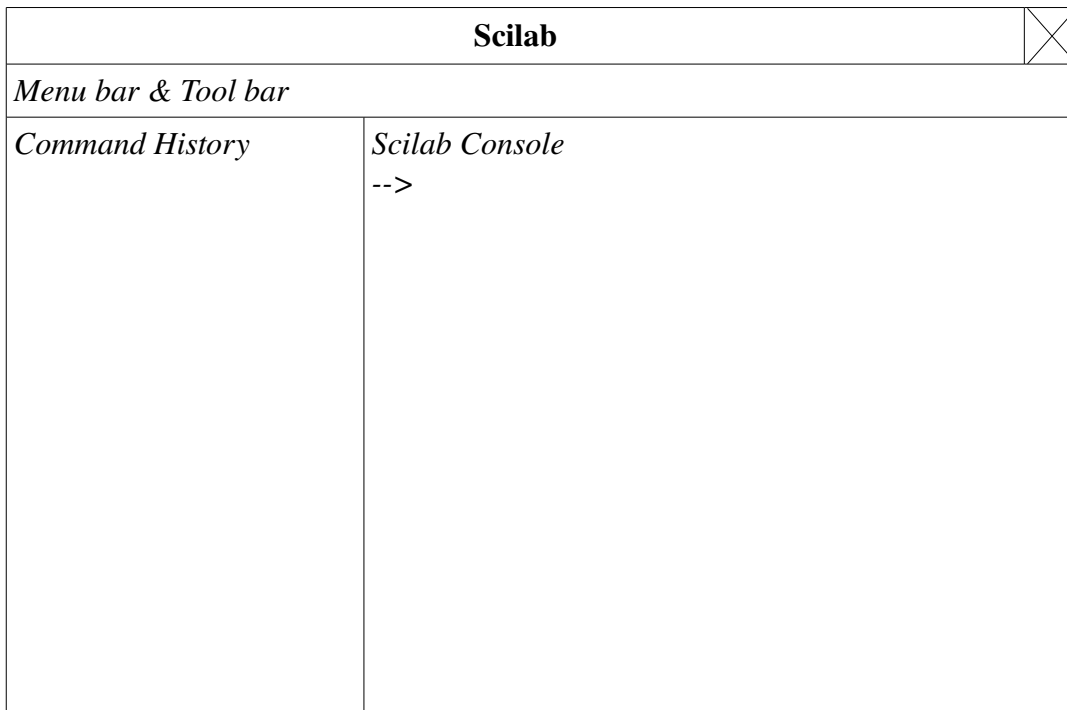
- Scilab Desktop in which Browsevar has been undocked -

Browsevar	⊠
Menu bar & Tool bar	
Browsevar	

- undocked Browsevar window -

These functions allow to share the Scilab Desktop in different block. The blocks organization is determined by the user. Tile and float possibilities are pertinent in the case of using :

- graphical windows
- editor
- Xcos
- Scilab help

All these functions can be opened on several windows, so to make these functions more user-friendly an tile or cascade organization can be useful.
Thus, Scilab menus **Window** and **Desktop** will have new options for the quoted functions.

[4] A document can be split in 2 ways:

| Split Screen	>	✔ Horizontally
		Vertically
		Off

Example of splitting (horizontally) a document. Here a document of Editor has been split.

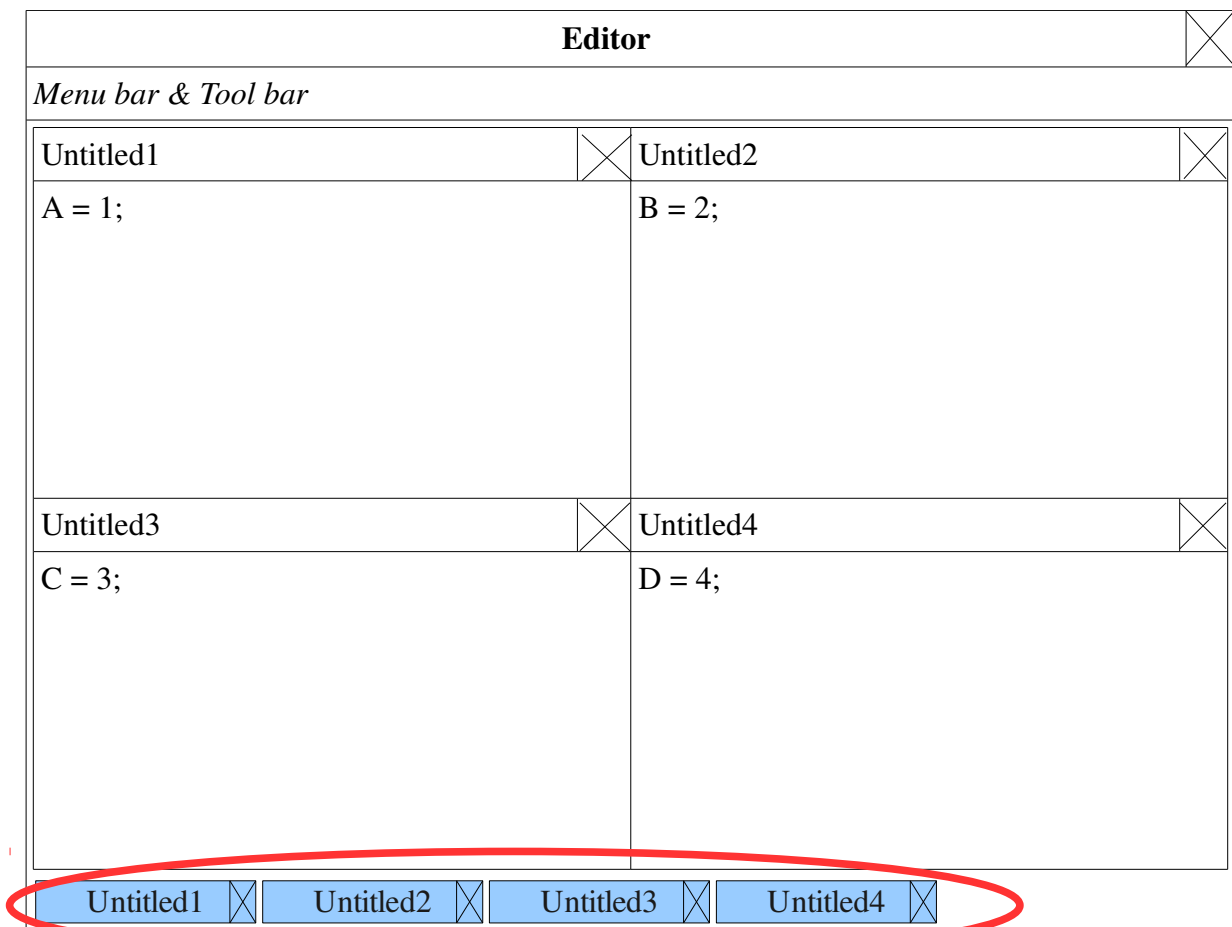| **Editor**	✕
Menu bar & Tool bar	
Untitled1	✕
A = "Long life to Scilab";	
A = "Long life to Scilab";	

Note: The split action is only available on a document (Untitled1) not for the function window (Editor).

   We can also split a document in "Vertically" mode and disable splitting with "Off".

[5] Example of organizing a X window in tile mode:

Tile	>				

Cancel
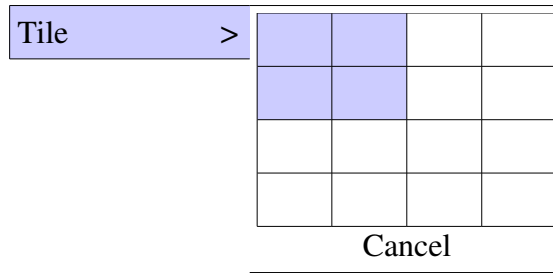
Example of a tile action on a X window (in this example the X window is Editor). Here Editor has been organized in 4 tiles.

Editor	⊠

Menu bar & Tool bar

Untitled1 ⊠	Untitled2 ⊠
A = 1;	B = 2;

Untitled3 ⊠	Untitled4 ⊠
C = 3;	D = 4;

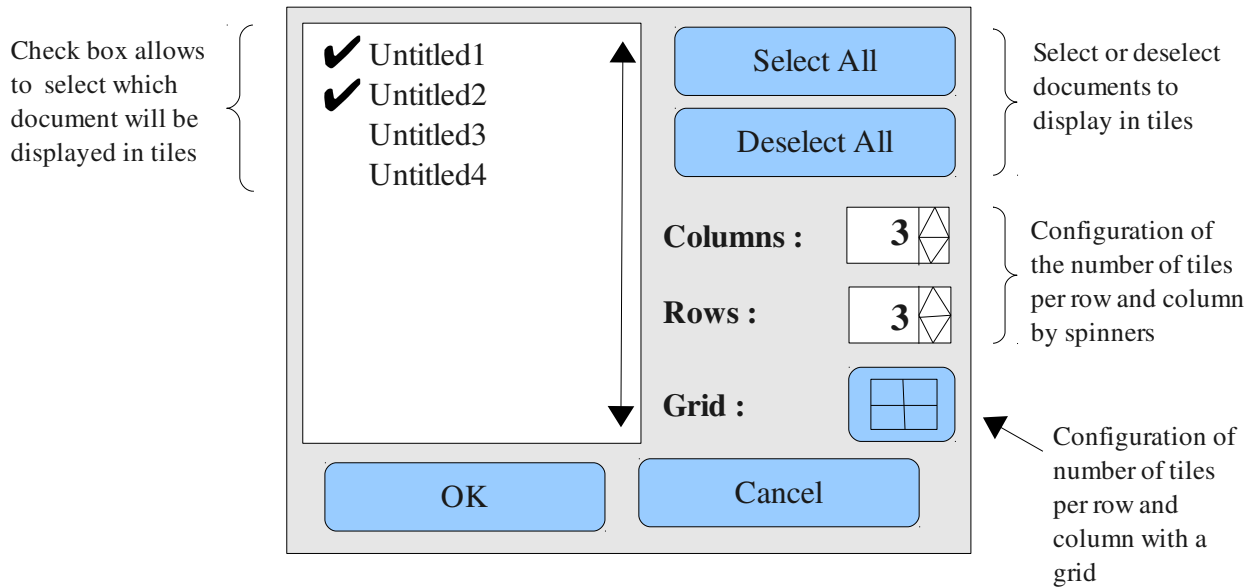| Untitled1 ⊠	Untitled2 ⊠	Untitled3 ⊠	Untitled4 ⊠

Watch section "*Document Bar*"

<u>Note</u>: A tile can be empty (without any document), it will appear as a plain tile.

We can also split an empty tile into many others tiles who will become themselves full-fledged tiles. To be made we need to **right-click on a plain tile** and we will be able (by a contextual menu) to split it in "Top/Bottom Tile" or "Left/Right Tile".

[6] Example of configuring a tile organization for a X window:

When we click on "*Tile...*" of the **Menu Window** the following configuration box will appear.

Check box allows to select which document will be displayed in tiles

Select or deselect documents to display in tiles

Configuration of the number of tiles per row and column by spinners

Configuration of number of tiles per row and column with a grid

Note: Configuration of tiles with a grid is made in the following way:
when we click on the grid button, a grid will appear. It allows to select graphically the number of row and column. To select a disposition we must keep the mouse button pressed, otherwise the selection will not be taken in account and the grid will disappear.
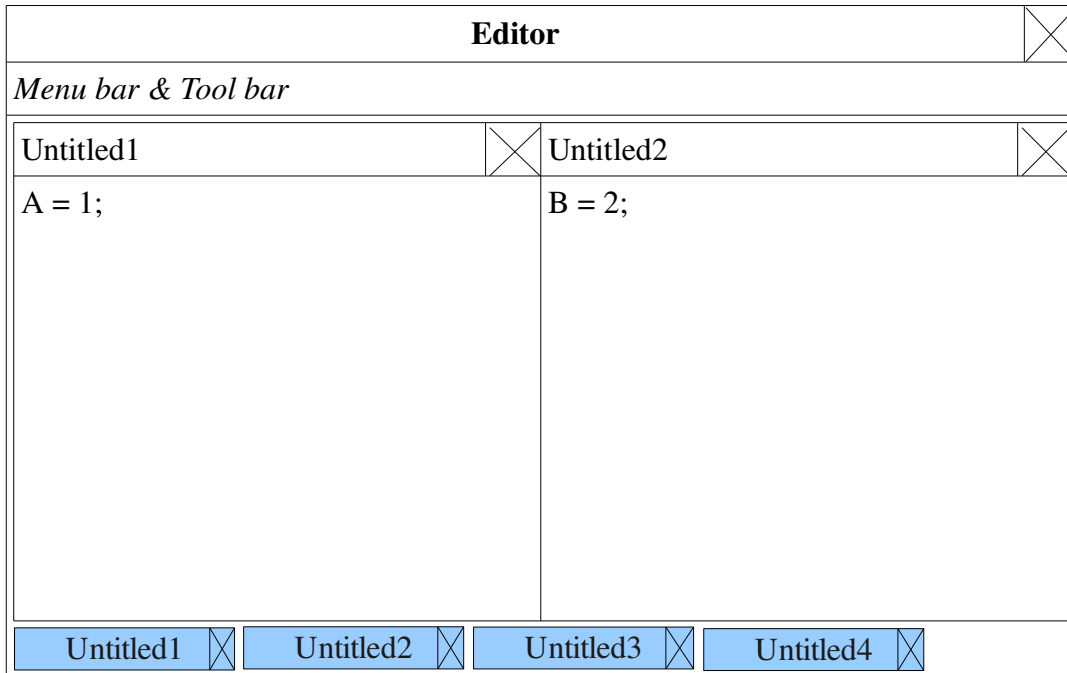One the selection is made, the above spinners will be updated automatically.
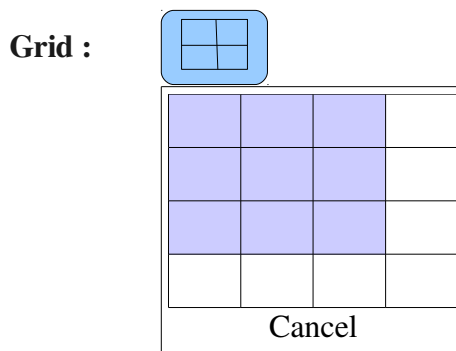
Result of the configuration:

Editor	⊠
Menu bar & Tool bar	

Untitled1 ⊠	Untitled2 ⊠	
A = 1;	B = 2;	

| Untitled1 ⊠ | Untitled2 ⊠ | Untitled3 ⊠ | Untitled4 ⊠ |

[7] Example of left/right tile on Editor:

Editor

Menu bar & Tool bar

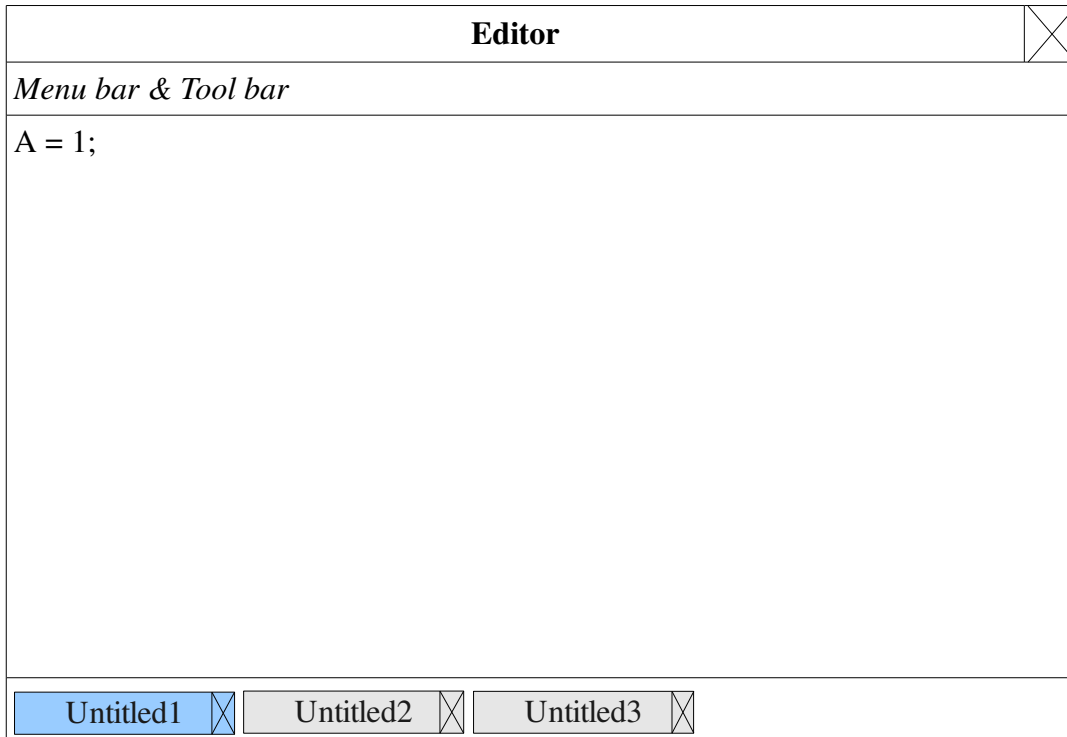| Untitled1	Untitled2
A = 1;	B = 2;

Untitled1	Untitled2	Untitled3	Untitled4

Note: Top/Bottom Tile will split Editor's screen horizontally.

[8] Example of organizing documents in float style in Editor:

Editor	⊠
Menu bar & Tool bar	

Untitled1 ⊠

Untitled2 ⊠

Untitled3 ⊠

| Untitled1 ⊠ | Untitled2 ⊠ | Untitled3 ⊠ |
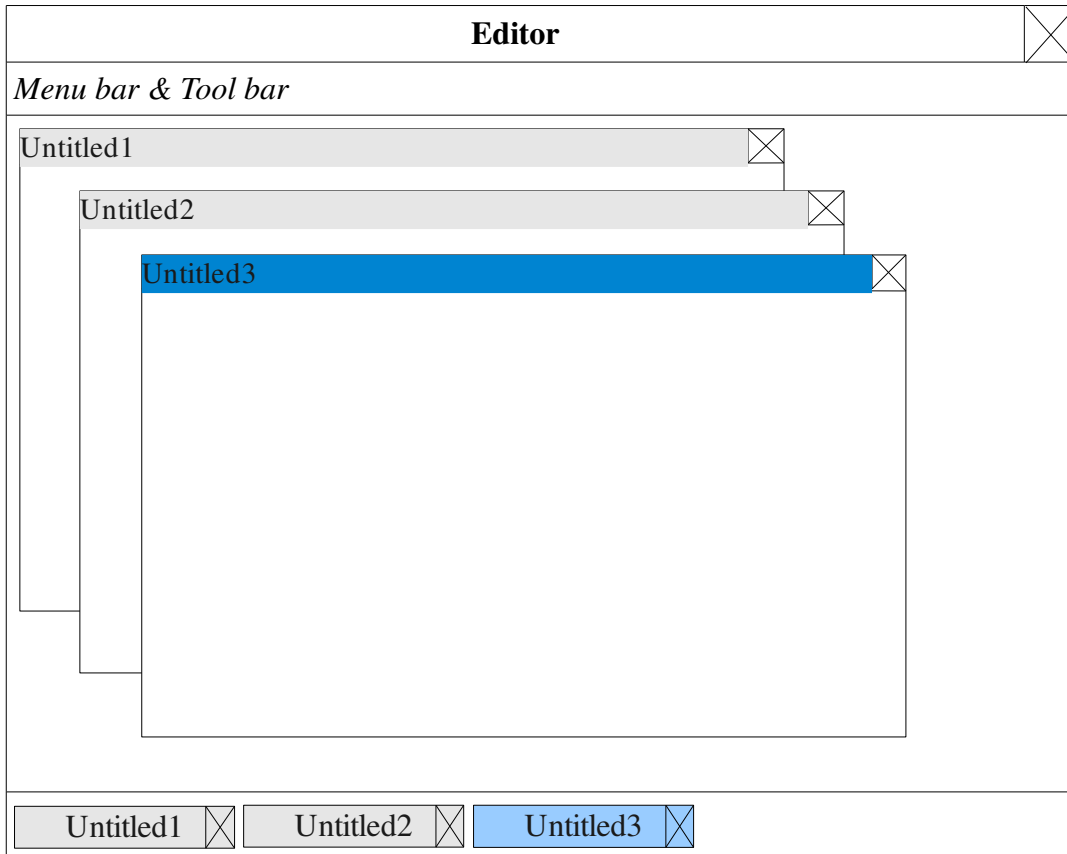
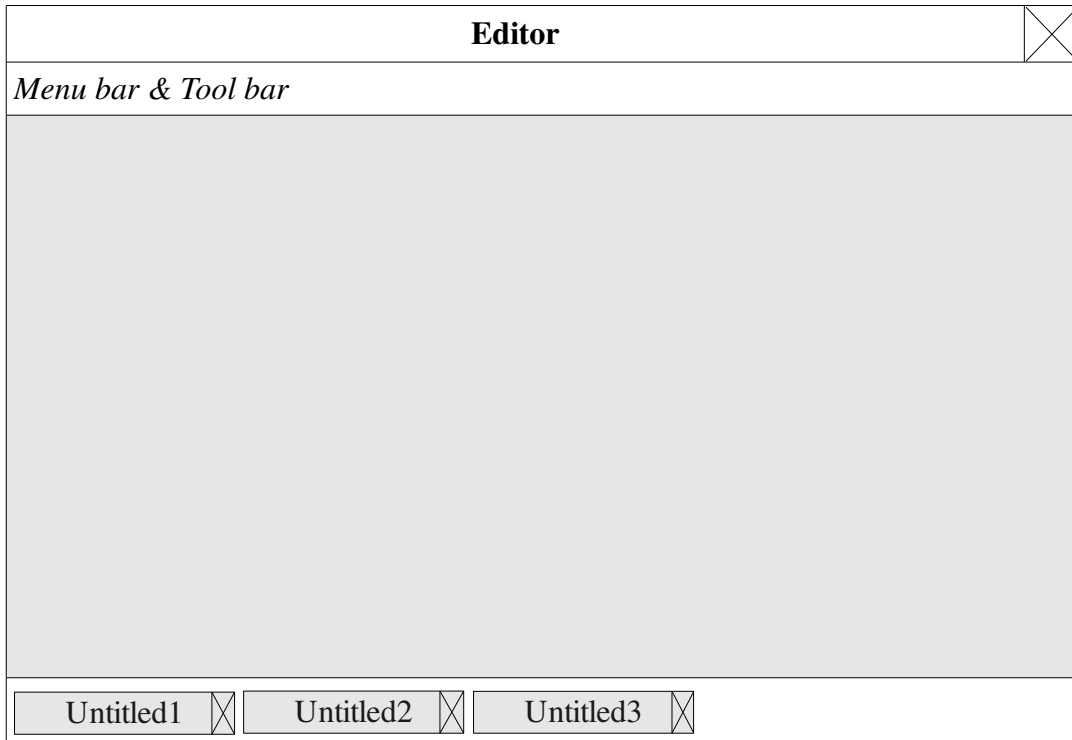<u>Note</u>:   We can move and resize documents inside the Editor window.

[9] Example of maximizing a document in Editor:

Editor	☒
Menu bar & Tool bar	

A = 1;

Untitled1 ☒	Untitled2 ☒	Untitled3 ☒

[10] Example of minimize action in Editor:

Editor	⊠
Menu bar & Tool bar	

| Untitled1 ⊠ | Untitled2 ⊠ | Untitled3 ⊠ |

[11] Document Bar:

Editor	⊠
Menu bar & Tool bar	

Untitled1 ⊠	Untitled2 ⊠
A = 1;	B = 2;
Untitled3 ⊠	Untitled4 ⊠
C = 3;	D = 4;

Untitled1 ⊠	Untitled2 ⊠	Untitled3 ⊠	Untitled4 ⊠

Document Bar

Document Bar	>	✔ Sort Alphabetically	
		Bar Position	>

	Top
✔	Bottom
	Right
	Left
	Hide
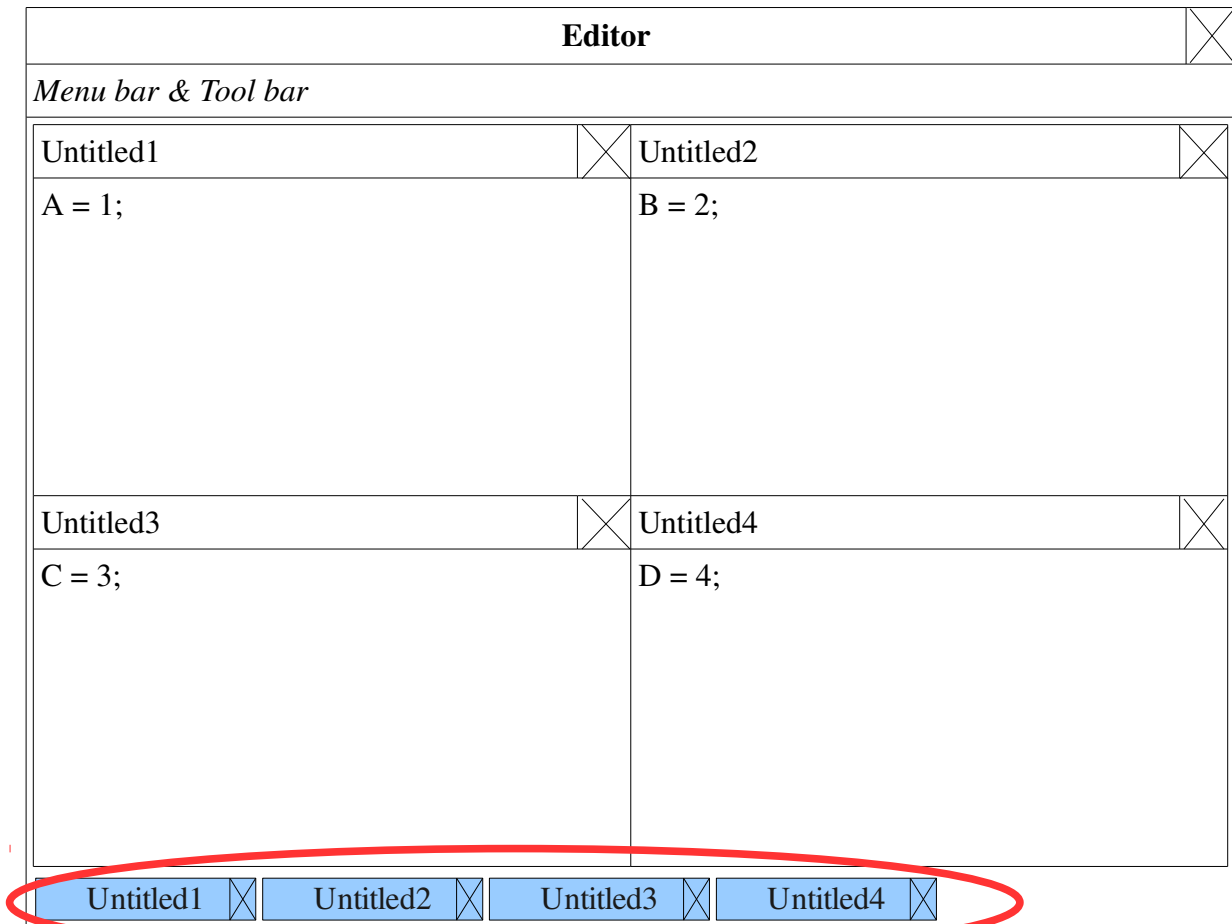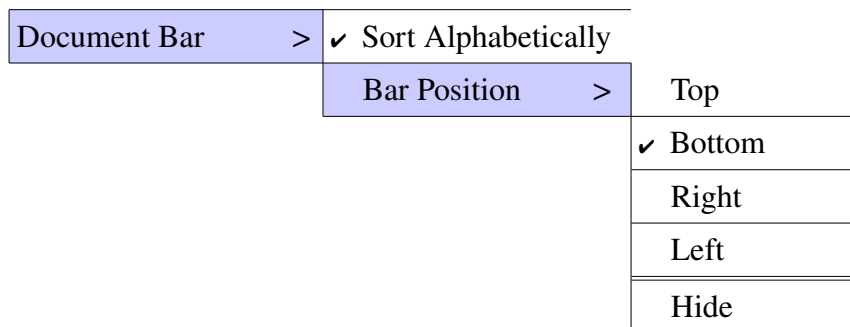
Note: Sort Alphabetically will sort items of the document bar alphabetically.

We can set the position of the Document Bar (Top, Bottom, Right a,d Left) in the X window. We can also hide the Document Bar.
We can change the position of Document Bar with the menu above or directly with the mouse (drag and drop action).

Contextual menu on Document Bar **[a]**.
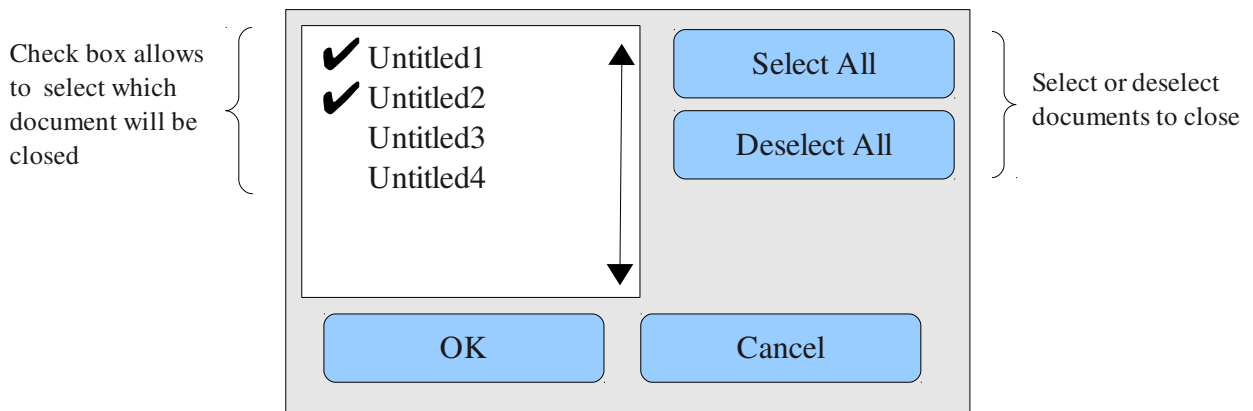
[a] Contextual menu on Document Bar.

Right-click on the Document Bar will display the following contextual menu.

Close All
Close...
✔ Sort Alphabetically
Bar Position   >

Top
✔ Bottom
Right
Left
Hide

Note : "Close All" action will have the same effects of the menu:
   Window => Close X Documents

Action "Close..." will open the following box:

Check box allows to select which document will be closed

✔ Untitled1
✔ Untitled2
Untitled3
Untitled4

Select All

Deselect All

Select or deselect documents to close

OK   Cancel

[12] Example of X window and X.Y window(s):

Editor >	MyFile1.sci
	MyFile2.sci
	MyFile3.sci

Note: If we click on "MyFile1.sci" the focus is given for the corresponding X.Y window.

If none X window or X.Y window is in focus this menu item will not appear.

If a X window does not have X.Y window(s) will appear only the name of the X window (example: Browsevar).

Updates on menu File

In case of X windows which do not open several X.Y windows (*example: Browsevar*), a menu item "**Close X window**" will be added in the menu **File**.
This menu item will close the current focused X window.

In case of X windows which open several X.Y windows (*example: Editor*), the following menu items will be added:

- **Close X window**: will close the X window and its X.Y window(s).
- **Close...**: will have the same behavior of the "Close..." of the Document Bar.
- **Close X.Y window**: will close the current focused X.Y window.

Example Usage

Changelog

1.0 – Sylvestre Koumar <sylvestre.koumar@scilab.org> Initial version

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