Menus: The Liberty BASIC Menu Bar

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Adding a menu to your software program allows your user to easily make selections with just a few keyboard presses or clicks of the mouse. Menus provide shortcuts to frequently used actions. A very common menu offers the user file choices such as

- **NEW**
- **LOAD**
- **SAVE**

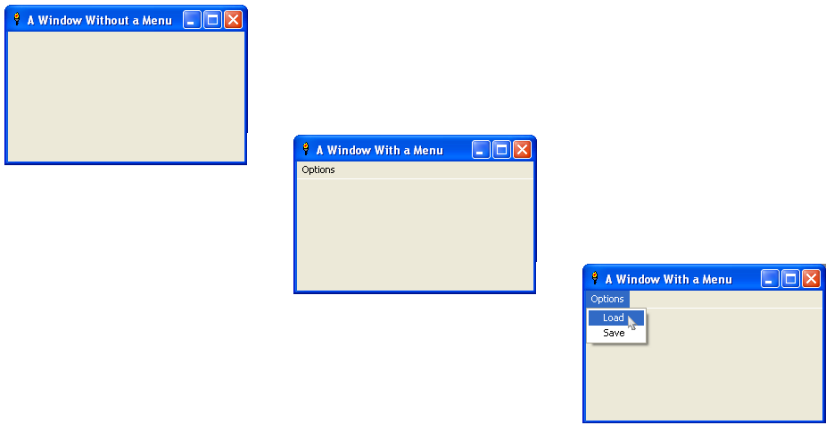
as well as a way to properly exit the program.

- **EXIT**

Menu Bar

The most common graphical user interface (GUI) menu is the Menu Bar. The menubar appears just below

the GUI caption. The menu bar allows users to navigate throughout the program using either keyboard presses or mouse clicks.



The Liberty BASIC command for inclusion of a menu bar is, appropriately, **`MENU`**. The command line for the above depicted menu is

```
MENU #main, "Options", "Load", [loadFile], "Save", [saveFile]
```

`MENU` is *case-insensitive*, meaning you can write **`MENU`** or **`menu`** or **`Menu`** or any other combination of upper and lower case letters. Menus are defined *before* the window is opened. The other parameters are

`#main`, the handle of the window to be opened

`"Options"`, the menu title visible on the menu bar itself

`"Load"`, the first listing of the opened menu

`[loadFile]`, the block of code to be executed if **`Load`** is clicked

`"Save"`, the second listing of the opened menu

`[saveFile]` the block of code to be executed if **`Save`** is clicked

The correct terminology for any separate menu appearing on the menu bar, e.g., **Options**, is *Sub Menu*. For the purposes of simplicity, any reference to *menu* in this article refers to the *sub menu*. Items which appear in the drop down list when that *sub menu* is opened are referred to as *menu items*.

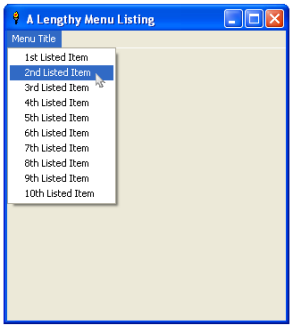
Menus and Window Types

Dialog windows do not support menus. A dialog window may support context menus.

Menu Listings

```
    MENU #main, "Menu Title", "1st Listed Item", [BranchTo1],
"2nd Listed Item", [BranchTo2], _
        "3rd Listed Item", [BranchTo3],
"4th Listed Item", [BranchTo4], "5th Listed Item", _
        [BranchTo5], "6th Listed Item", [BranchTo6],
"7th Listed Item", [BranchTo7], "8th Listed Item", _
        [BranchTo8], "9th Listed Item", [BranchTo9],
"10th Listed Item", [BranchTo10]
```

There is really no limit to the number of listed items a menu can contain. If there are many listings, it may be advisable to use Liberty BASIC's *line continuation character*, which is the underscore, to break up the listing onto multiple lines.



Multiple Menus

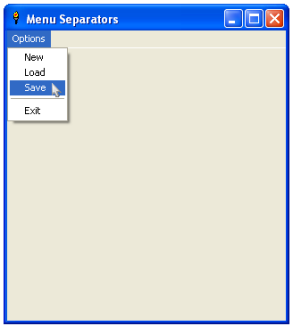
```
    MENU #main, "File", "1st Listed Item", [BranchTo1],
"2nd Listed Item", [BranchTo2]
    MENU #main, "Color", "Color 1", [color1], "Color 2", [color2],
"Color 3", [color3]
    MENU #main, "Size", "Small", [sizeSmall], "Medium", [
sizeMedium], "Large", [sizeLarge]
```

A window can have more than one menu. The menus appear in the order in which they're defined.

Menu Separators

```
    MENU #main, "Options", "New", [newFile], "Load", [
loadFile], "Save", [saveFile],|, "Exit", [EndProgram]
```

Similar menu items can be grouped by inserting a menu separator (horizontal) line. Instead of a listing and its associated branch label, insert a pipe **|**.



Accelerator or 'Hot Key' Selection

```
    MENU #main, "&File", "&New", [newFile], "&Load", [
loadFile], "&Save", [saveFile],|, "E&xit", [EndProgram]
```

The ampersand (**&**) key is a special key when added to any menu title or item. This allows menu selection by keypress rather than mouse click. A menu with the title **&File** will open when the **ALT** is kept depressed while the **F key** is pressed. This key combination is known as **ALT-F**. The associated alphanumeric key is case-insensitive. Any alphanumeric key can be combined with the **ALT** key for menu selection. The **&** character doesn't appear on the menu; instead, the associated alphanumeric key appears underlined when activated. Once the menu has been opened, the **ALT** is no longer necesssary. Just the letter following the **&** character needs to be pressed. Often the **&** precedes the first character in the menu title or item, but that isn't required. **E&xit**, or **X**, is frequently used as a menu item to close a window and quit an application.

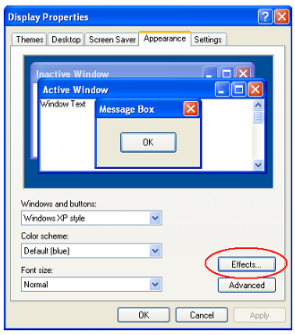
Hotkeys and Windows XP, Windows 2000

If the hotkey underlining is not immediately visible, you may need to change your default settings. The following information for Windows XP can be found at Microsoft TechNet: Windows XP Professional Resource Kit//

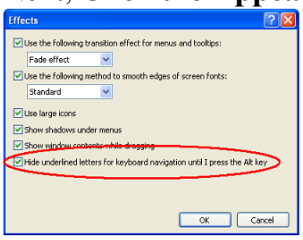
- Windows indicates keyboard shortcuts by underlining the shortcut letter on menus and buttons. By default, Windows XP Professional does not underline keyboard navigation indicator letters until the ALT key is pressed. You can override this default and always display the underlines.

//
To change this setting, click **Start > Control Panel > Appearance and Theme**

This will bring up the Display Properties



Next, **Click the Appearance Tab, then the `Effects...` button**



Check (or Uncheck) Hide underlined letters for keyboard navigation until I press the Alt key

Users of Windows 2000 can find similar information at [Microsoft TechNet: Appendix A - Accessibility for People with Disabilities]//

- By default, Windows 2000 does not underline keyboard navigation indicator letters. There are three ways to override this default and reinstate the underlines.

//The three methods are similar to the method outlined above for XP.

Branch Events and Subs

Menu selection directs the code execution to the area specified by the branch label. Copy and paste the following code into your Liberty BASIC editor.

```
NOMAINWIN

MENU #main, "&Files", "E&xit", [EndProgram]
MENU #main, "Fill &Color", "&1 - White", [fill1],
```

```
"&2 - Black", [fill2], "&3 - Gray", [fill3]

    OPEN "Accelerated 'Hot Keys'" for Graphics as #main
    PRINT #main, "TRAPCLOSE [EndProgram]"

WAIT

[fill1]
    PRINT #main, "CLS"
    PRINT #main, "DOWN"
    PRINT #main, "FILL WHITE"
    PRINT #main, "FLUSH"
WAIT

[fill2]
    PRINT #main, "CLS"
    PRINT #main, "DOWN"
    PRINT #main, "FILL BLACK"
    PRINT #main, "FLUSH"
WAIT

[fill3]
    PRINT #main, "CLS"
    PRINT #main, "DOWN"
    PRINT #main, "FILL LIGHTGRAY"
    PRINT #main, "FLUSH"
WAIT

[EndProgram]
    CLOSE #main
    END
```

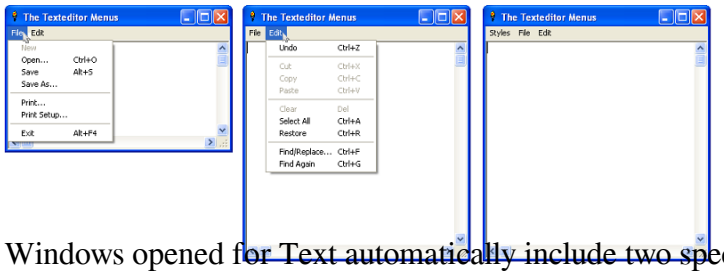
When code is directed to branch labels, that complete block of code must end with a **WAIT** statement. If there is no **WAIT** statement, code execution will continue through the lines in succession until a **WAIT** statement is reached, the **END** statement is reached, or the code encounters an error.

Subs can be used instead of branch labels. Do not insert a **WAIT** within the subroutine. Just simply **END SUB**. Unlike mouse events and buttons, menu items do not pass a handle. As such the designated sub will not support this or any parameters. This becomes especially important when subs are being used to exit a program in both the menu and the trapclose statement. Each will need its own unique sub, the menu item sub *without* a passed handle, and the trapclose sub *with* a passed handle. The following is the same program as above, but directing selected menu items to subs rather than branch labels.

```
    NOMAINWIN
```

```
    MENU #main, "&Files", "E&xit", EndProgramM
    MENU #main, "Fill &Color", "&1 - White", fill1,
"&2 - Black", fill2, "&3 - Gray", fill3

    OPEN "Accelerated 'Hot Keys'" for Graphics as #main
    PRINT #main, "TRAPCLOSE EndProgramT"

WAIT

SUB fill1
    PRINT #main, "CLS"
    PRINT #main, "DOWN"
    PRINT #main, "FILL WHITE"
    PRINT #main, "FLUSH"
END SUB

SUB fill2
    PRINT #main, "CLS"
    PRINT #main, "DOWN"
    PRINT #main, "FILL BLACK"
    PRINT #main, "FLUSH"
END SUB

SUB fill3
    PRINT #main, "CLS"
    PRINT #main, "DOWN"
    PRINT #main, "FILL LIGHTGRAY"
    PRINT #main, "FLUSH"
END SUB

SUB EndProgramM
    CALL EndProgramT "#main"
END SUB

SUB EndProgramT handle$
    CLOSE #handle$
END SUB
```

The Texteditor Menus



Windows opened for Text automatically include two special menus: Files and Edit. Each additional menu placed by the coder will force these two automatic menus one position to the right.

Code for the left and center images above

```
    OPEN "The Texteditor Menus" for Text as #main
    PRINT #main, "!Trapclose [EndProgram]"

WAIT

[EndProgram]
    CLOSE #main
    END
```

Code for the right image above

```
    MENU #main, "&Styles", "Style &1", [style1], "Style &2", [style2]
    OPEN "The Texteditor Menus" for Text as #main
    PRINT #main, "!Trapclose [EndProgram]"

WAIT

[EndProgram]
    CLOSE #main
    END
```

Opening a regular window with an embedded texteditor will remove the automatic Files menu while retaining the automatic Edit menu. For a more comprehensive discussion of manipulating the texteditor's automatic Edit menu, see Texteditors with Eddie.

Other Types of Menus

Menus on the menu bar are not the only types of menus used in programs. Liberty BASIC supports context menus, also known as ***popup menus***. The placement of the popup menu is dependent upon the placement of the mouse cursor. See the Popup Menu Tutorial for more information.

A custom menu gaining popularity is the Pie Menu. Custom menus can be easily coded into your Liberty BASIC program using a **Dialog_Modal** window that contains a **`graphicbox`**.

More complex menussuch as cascading menus, folding menus, menus with bitmaps, etc., require knowledge of API and DLL calls.

If you have a Pie Menu or other custom menu you'd like to share, please consider submitting an article.