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# A Handy Ncurses Cheatsheet

A handy cheatsheet for programmers working with ncurses library by GNU. Complete inshort documentation and usage details. This is a reference doc which will help you in the process of building up great interactive command line projects using the ncurses library by GNU.

## How to install ncurses

Well installing ncurses library is an easy task, you just have to follow the steps listed below:

### Installing ncurses on Debian/Ubuntu Linux

1. `sudo apt-get install libncurses5-dev libncursesw5-dev`

### Installing ncurses on Mac OS X

1. Install Homebrew (if not already): `/usr/bin/ruby -e "$(curl -fsSL https://raw.githubusercontent.com/Homebrew/install/master/install)"`
2. Install ncurses package: `$brew install homebrew/dupes/ncurses`

## How to link ncurses with project

Command structure: `g++ ${file} -o ${file_path}/${file_base_name} -lncurses`

Example: `gcc main.cpp -o main -lncurses`

## Initialization Functions

| Functions | Discription |
|---|---|
| initscr() | Initializes the terminal in cursor mode. It must be called first to do any manupulation with ncurses package. |
| refresh() | Tell the curses system to dump the contents on the screen. It checks the window and updates only the portion which has been changed. |
| wrefresh() | Tell the curses system to dump the contents on the given window. It checks the given window and updates only the portion which has been changed. |
| endwin() | Ends the terminal cursor mode. |
| raw() | Disable inline buffering. Control characters are directly passed to the program without generating a signal. |
| cbreak() | Disable inline buffering. Control characters are interpreted as any other character by the terminal driver. |
| echo() | Switch on echo. |
| noecho() | Switch off echo. |
| keypad(stdscr,TRUE) | Enable reading of fucntion keys. |

| Functions | Discription |
|---|---|
| halfdelay() | Enable the half−delay mode, it waits for 'X' tenths of a second for input and then returns ERR, if no input is available |

## Miscellaneous Functions

| Functions | Discription |
|---|---|
| clear() | Clear the stdscr window. |
| wclear() | Clear the given window. |
| move(y,x) | Move the cursor to the x,y position on the window. |
| wmove(win,y,x) | Move the cursor to the x,y position on the given window. |
| getmaxyx(stdscr,y,x) | Get the boundaries of the screeen i.e. number of rows and columns |
| getyx(stdscr,y,x) | Get the current cusor position |

## Output Functions

| Functions | Discription |
|---|---|
| **addch()** | **Print a character with given attributes at the current cursor position and advance the position of the cursor.** |
| mvaddch() | Move the cursor to a given position and then print as by addch(). |
| waddch() | Print a character as by addch() but into the given window. |
| mvwaddch() | Move the cursor to a given position and then print as by addch() but into the given window. |
| **printw()** | **Print similar to printf() but at any position on the window i.e. current cursor position and advance the position of the cursor.** |
| mvprintw() | Move the cursor to a given position and then print as by printw(). |
| wprintw() | Print as by printw() but into the given window. |
| mvwprintw() | Move the cursor to a given position and then print as by printw() but into the given window. |
| **addstr()** | **Print a character string with given attributes at the current cursor position and advance the position of the cursor.** |
| mvaddstr() | Move the cursor to a given position and then print as by addstr(). |
| waddstr() | Print a character string as by addstr() but into the given window. |
| mvwaddstr() | Move the cursor to a given position and then print as by addstr() but into the given window. |

## Input Functions

| Functions | Discription |
|---|---|
| **getch()** | **Input a character with given attributes from the current cursor position and advance the position of the cursor.** |
| mvgetch() | Move the cursor to a given position and then input as by getch(). |
| whetch() | Input a character as by getch() but from the given window. |
| mvwgetch() | Move the cursor to a given position and then input as by getch() but into the given window. |
| **scanw()** | **Takes input similar to scanf() but from any position on the window i.e. current cursor position and advance the position of the cursor.** |
| mvscanw() | Move the cursor to a given position and then input as by scanw(). |

| Functions | Discription |
|---|---|
| wscanw() | Takes input as by scanw() but from the given window. |
| mvwscanw() | Move the cursor to a given position and then input as by scanw() but from the given window. |
| **getstr()** | **Input a character string with given attributes from the current cursor position and advance the position of the cursor.** |
| mvgetstr() | Move the cursor to a given position and then input as by getstr(). |
| wgetstr() | Input a character string as by getstr() but from the given window. |
| mvwgetstr() | Move the cursor to a given position and then input as by getstr() but from the given window. |

## Attribute Functions

| Functions | Discription |
|---|---|
| **attron()** | **Switches on attribute(s) given to it.** |
| wattron() | Switches on attribute(s) given to it, in the given window. |
| **attrset()** | **Fully overrides whatever attributes the window previously had and sets it to the new attribute(s).** |
| wattrset() | Fully overrides whatever attributes the given window previously had and sets it to the new attribute(s). |
| **attroff()** | **Switches off the attribute(s) given to it.** |
| wattroff() | Switches off the attribute(s) given to it, in the given window. |
| **standend()** | **Turns off all attributes and brings you to normal mode.** |
| **attr_get()** | **Gets the current attributes and color pair of the window.** |
| wattr_get() | Gets the current attributes and color pair of the given window. |
| **chgat()** | **Change attribute(s) for characters that are already on the screen.** |
| mvchgat() | Move the cursor to the given position and then perform the work as by chgat(). |
| wchgat() | Perform the work done as by chgat() on the given window. |
| mvwchgat() | Move the cursor to the given position and then perform the work as by chgat() on the given window. |

## Attributes List

We can **OR(|)** any number of above attributes to get a combined effect.

| Functions | Discription |
|---|---|
| A_NORMAL | Normal display (no highlight). |
| A_STANDOUT | Best highlighting mode of the terminal. |
| A_UNDERLINE | Underlining. |
| A_REVERSE | Reverse video. |
| A_BLINK | Blinking. |
| A_DIM | Half bright. |
| A_BOLD | Extra bright or bold. |
| A_PROTECT | Protected mode. |
| A_INVIS | Invisible or blank mode. |
| A_ALTCHARSET | Alternate character set. |
| A_CHARTEXT | Bit−mask to extract a character. |
| COLOR_PAIR(n) | Color−pair number n. |

## Color Functions

| Functions | Discription |
|---|---|
| start_color() | Needed to be called before using colors. |
| has_colors() | Check whether terminal has color capabilities. |
| init_pair() | Initiate a color pair number n with foreground and background color, which can be used in COLOR_PAIR(n). |
| init_color() | Change the rgb values for the colors defined by curses initially. |
| can_change_color() | Check whether the terminal has the capability of changing color. |

## Colors

The following colors are defined in curses.h. You can use these as parameters for various color functions.

| Colors | Code |
|---|---|
| COLOR_BLACK | 0 |
| COLOR_RED | 1 |
| COLOR_GREEN | 2 |
| COLOR_YELLOW | 3 |
| COLOR_BLUE | 4 |
| COLOR_MAGENTA | 5 |
| COLOR_CYAN | 6 |
| COLOR_WHITE | 7 |

## Windows Functions

| Functions | Discription |
|---|---|
| box() | Draw border around windows. |
| newwin() | Creates a new Window. |
| create_newwin() | Creates a new window with newwin() and displays a border around it with box(). |
| delwin() | Deallocate memory related to the window. |
| destroy_win() | Erases the window from the screena dn then delete it by calling delwin() |
| wborder() | Draws a border around the window by the characters given to it. |