

Mth 160: Mathematical Numerical Analysis

myX.c – A simple X-windows programming interface for C/C++

1. Include file `#include "myX.h"`
Compilation `cc myfile.c myX.c -lm -lX11`
2. Creating a window:

```
myXwin *wp;                    /* create a window pointer */  
  
...  
  
wp=myXopen("win_name",0.4,0.6,0.2,0.3); /* create a window for wp */
```

This command opens a window, called “win_name” on the computer screen. Within the C program, the window works like a file stream, like FILE *fp, with pointer name wp. The other parameters in myXopen are

wp=myXopen(name,width,height,xcorner,ycorner)

Width and height are doubles, that give the size of the window as a percentage of the whole screen size, $0 \leq \# \leq 1$. Xcorner, Ycorner are the screen-coordinates of the upper lefthand corner of the window as a percentage of the screen height and width, $0 \leq \# \leq 1$. For screen coordinates, (0,0) is the upper left corner of the screen, and (1,1) is the lower right corner of the screen.

Within the window, the coordinates in the drawing area are given by $0 \leq (x,y) \leq 1$, like the first quadrant in the (x,y) plane.

3. myXline(wp,x1,y1,x2,y2) draws a line between points (x_1, y_1) and (x_2, y_2) in window wp.
4. myXdrawto(wp,x,y) draws a line from the previous drawing-point to (x, y) . If there is no previous drawing-point, then it moves the “pen” to (x, y) to start further drawing from there.
5. myXpoint(wp,x,y) draws a point at (x, y) .
6. myXprint(wp,x,y,string) prints the character string string at (x, y) in the window.
7. myXsetcolor(wp,color) sets the drawing-color to one of: White, Black, Red, Green, Blue, Magenta, Cyan. You may type in these words for the color, or the corresponding integers [0, 1, ...6].
8. myXsetline(wp,linetype) sets the drawing-linetype to one of: 1 solid line or 0 dashed lines.
9. myXsetmode(wp,mode) sets the drawing-mode, either 0 or 1, where 0 means “eraseable” and 1 means “permanent” (see myXerase, myXclear below).
10. myXpenup(wp) resets the previous drawing-point and “lifts the drawing-pen” in window wp. This command allows you to stop drawing one curve, move somewhere else in the window and start drawing a new curve.
11. myXclear(wp) erases EVERYTHING in window wp.

12. myXerase(wp) erases all “erasable” drawings (see myXsetmode), and leaves “permanent” drawings un-touched. Permanent drawings are useful as background for doing animation of erasable drawings.
 13. myXupdate(wp) updates drawings in window wp, like the file command fflush().
 14. myXdump(wp, "filename") prints a postscript version of the drawings in the window to file “filename”.
 15. int action=myXmouse(wp, &x, &y) returns information about mouse input in the window. If some action has taken place, then the coordinates in the window where it happened, $0 \leq (x, y) \leq 1$, will be updated. The possible actions are action=

<u>MouseLeft</u>	=	1	Left button pressed
<u>MouseMiddle</u>	=	2	Middle button pressed
<u>MouseRight</u>	=	3	Right button pressed
<u>MouseMove</u>	=	0	Mouse moved to new position
<u>MouseNOP</u>	=	-1	No action (no operation)
 16. myXclose(wp) closes the window.
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