

CMPSCI 145
Bézier Madness
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Go to the class Web site, and download version 5.2 beta of the BezierMadness program. Unpack the .ZIP file and store the .EXE file into a special folder. I recommend *against* unpacking this program onto the desktop directly, as it also comes bundled with a .PDF documentation file. You will create two drawings and two images for submission, and each file needs to be saved somewhere; the folder where the program is stored is as good a place as any (the folder containing the program, the .PDF, and the data files could go on your desktop). The program will also create an .INI configuration file in C:\DATA\INIT automatically.

Practice

Read the .PDF documentation, then run the BezierMadness program (or run the program and hit **F1** to bring up the documentation). The first use of the program will bring up a warnings panel; turn off warnings by clicking Options-Show Warnings on Startup to clear the checkmark. Play with the program, testing the various features. Beat the tar out of it! Bear in mind that this is still very much in development, and you may find bugs. I want to know about them all!

Create a bunch of objects and drag them around the screen (*left-click* a handle to move just that handle; *right-click* a handle to move the entire object). Change the order of objects in the list (i.e., use the Promote and Demote toolbar buttons to change which objects are above which others. Practice selecting an object and then edit its outline, interior, or text in the popup dialog (use **F2** to bring up the editing dialog, or use the specific toolbar buttons for editing outlines, interiors, or text). Practice changing the size of the drawing with the Workspace Size tracks Manual Settings button. Practice saving the drawing as a .BEZ file, and then reload it. Practice saving the final drawing as a .BMP or .GIF file to get use to selecting the color palette (don't use .JPG for this assignment, and saving as either .PNG or .TIF files is not yet implemented).

Depending on the width of your computer's screen, you may find that all of the tool bar panels cannot fit on one line of the tool bar (everything fits if your screen is at least 1280 pixels wide). If so, use Options-Show Toolbars to turn off one or more of the panels. I recommend that you turn off the New Object Toolbar first, since it is the widest of all, and new objects can be created through the Add menu entry (or through the appropriate shortcut keys).

When you are all done, exit the program and restart it to insure that all session settings are restored. Examine in Windows Notepad the contents of the .BEZ file(s) you saved.

Specific Instructions (do this two separate times)

1. Click the New (Erase Current Design) button. Discard any current design.
2. Click the Workspace Size tracks Manual Settings button and set the drawing to *exactly* 800×600 pixels. Get this right; you'll be graded on it!

3. Draw something pretty! In *at least one case in each drawing* you **must** join several Bezier Curves (and/or Quadratic Splines) end-to-end to create a long "wiggly" curve where the curves blend smoothly into one another (no sharp turns). You must use text, lines (of various types, line sizes, and colors), and filled shapes (also of various types, line sizes, and colors). Have some fun with this! **Make the drawing something recognizable, not just random objects.** Do NOT use images for this assignment.
4. At the end of your drawing, select a background color *other than yellow* (click the Set Colors for all Screen Items button in the toolbar). Also select No Grid, set Show/Hide Points to hide the points, and select Show Curves Only.
5. Save the result as a .BEZ file with *your last name, an underscore, the initial letter of your first name, and a sequence number*. The sequence number distinguishes one drawing from another: you will submit exactly three separate drawings. I would save the drawings as the files VERTS_W1.BEZ and VERTS_W2.BEZ, for example. Capitalization doesn't matter.
6. Click on the Save Current Image to .BMP / .JPG / .GIF file button in the toolbar, select the folder where your files are stored, and save each result as a .BMP file with the same name as the .BEZ file (in my examples I would save VERTS_W1.BEZ as the image VERTS_W1.BMP). In the popup dialog, make sure that the Maximum Colors drop-down list is set to 16M Colors, and then click OK.

Note that if you get any error message complaining about you saving the file with the grid, drag points, control lines, or convex hull turned on, stop the save immediately and go back to step 4.

Final Steps

1. In Windows Notepad or Microsoft Word please type a single-spaced, one-paragraph, half-page essay that answers thoughtfully the following questions:

What advantages or disadvantages does the .BEZ representation of a drawing have relative to its equivalent .BMP representation? When would I use either one?

Make sure your name appears in the file at the top, then save the essay with *the string BEZIER, your last name, an underscore, and the initial letter of your first name* as the filename, along with the appropriate extension (.TXT for Notepad files, .DOC or .DOCX for Word files). For example, I would create either BEZIER_VERTS_W.TXT or BEZIER_VERTS_W.DOCX for my essay.

2. Create a .ZIP archive with *the string BEZIER, an underscore, your last name, another underscore, and the initial letter of your last name* as the file name (I would create BEZIER_VERTS_W.ZIP, for example), and copy your .BEZ drawings into this archive, along with the corresponding .BMP image files and your essay file.

To do this in Windows XP, Windows Vista, or Windows 7, *right-click* the mouse where you want the archive and pick **New-Compressed (zipped) Folder** from the pop-up menu. Change the name appropriately. Note: do you see file extensions for files on screen, or do you see just the filename without the extension? If you normally see extensions, then you must manually include `.ZIP` as the file's extension when you change the name. If you do not see extensions then do not enter the extension yourself as it will be supplied by Windows automatically.

Once the archive has been created, adding the `.BEZ`, `.BMP`, and essay files requires that you merely *left-click-drag* each one onto the icon for the `.ZIP` archive. Do not copy the `.EXE` program file into the archive. When finished, open the archive by *double-clicking* its icon to verify that it contains all the files you need to submit. Close the archive.

3. Email the `.ZIP` file as an attachment to **`literacy@cs.umass.edu`**, with "CMPSCI 145 Bezier" as the subject line of the message. Do NOT mail this to my personal account! Please make sure the body of your message contains your name, as it is often difficult to tell just from the return address. I will let you know if there was any problem with unpacking the `.ZIP` archive, displaying the `.BEZ` drawings, the `.BMP` images, or the `.TXT/.DOC/.DOCX` essay. (You may wish to `CC:` yourself to make sure the package was sent correctly.)

Grading Policy

For grading, we will be looking at each of the two drawings to see if...

1. ...it is exactly 800×600 pixels.
2. ...it contains NO grid, point handles, or control lines.
3. ...it has a background color other than yellow.
4. ...it contains multiple cases of text, line, and shape objects.
5. ...it contains at least one ***obvious*** example where Bézier Curves and/or Quadratic Splines are smoothly joined.
6. ...it was correctly bundled into the `.ZIP` archive (both `.BEZ` and `.BMP` files of the same drawings) and sent to the correct address. We will take off points if you include the `.EXE` program in the `.ZIP` archive, or if you email `.BMP` files (or any of the other individual files) separately from a `.ZIP` archive.
7. Your essay must be present in the `.ZIP` archive, contain your name, and must properly address the posed questions.

We will not be grading on artistic ability!