

CS3283 Assignment #2

21st February 2004

Due by 5pm on Friday, March 12, 2004
Delivered to Hugh

You may work in groups of (upto) three students. Do not bother asking for a group of four. The group members do not have to be from your tutorial group, and it is up to you to ensure that everyone contributes equally. Email Hugh with your group members before Friday 27th February 2004.

This assignment is worth 35% of your assignment mark. It consists of the development of a Tcl/Tk program, with some documentation.

Your task...

Your task is to implement and document a Tcl/Tk user interface for a graphical editor similar to tkpaint. The user of your menued application will be using a main screen which allows him or her to create new objects out of the basic Tk canvas objects, and then manipulate these new constructed objects, in the same way that tkpaint can move the *basic* Tk objects.

Your application should manage at least the following *basic* objects:

- rectangles
- ovals (both circular and elliptical)
- polygons
- text
- images

The *basic* objects should be able to be modified in each of the following ways:

- resized
- change of fill colour
- moved
- placed on top of or below other objects (perhaps by an explicit level specification)

After modification, the objects can be glued into a single *compound* object which can be modified in each of the following ways:

- moved
- placed on top of or below other objects (perhaps by an explicit level specification)
- unglued

Each displayed object may be queried at any time by (perhaps) clicking on it, and a new **info** window will pop up, showing both fixed and editable information about that object. The fixed information should include:

- The date and time the object was first entered into the system

The editable information should include

- A scrollable text box with (say) 5 visible lines of text, containing a brief user-supplied description for the object,

The graphical view displayed should be easy to navigate.

Notes:

The following points form part of the functional specification of the user interface.

1. At any time you should be able to save and restore the state in a database (i.e. the system is persistent)
2. The program should be safe on failure - that is - if some part of your program dies for some reason, you can re-run the program, and get back to where-you-were.
3. The minimum flow of operation of the interface is that you can
 - (a) add new objects, and import new databases by name
 - (b) move existing objects, delete them, copy, paste, and so on,
 - (c) resize *basic* objects,
 - (d) glue *basic* into *compound* objects, and unglue *compound* objects back into *basic* objects,
 - (e) edit the **info** object information for both *basic* and *compound* objects,
 - (f) save and load new databases by name,
 - (g) print out the diagram to a postscript file.

Tips:

I'm just guessing here, but

1. You probably have to maintain a database file containing the state of the display, and the names, locations and **info** descriptions of the elements in the display.
2. It may be to your benefit to learn how to use database/configuration files that are themselves written in Tcl/Tk (that is you just use **source filename** to load and use the information in **filename** directly).

Things that will earn you extra marks:

- History maintained (so you can back up to a previous state)

Deliverables:

You are to present your assignment as a single (zipped) file containing the sourcecode and a README file outlining how to run your program, along with an electronic version of the documentation in PDF format. The documentation must also be presented on paper, and should contain:

- A title page containing your names and matriculation numbers.
- Table of contents...
- A one page introduction describing the application function in a brief non-technical style.
- A one to three page section describing the system, (such as how you store the database, how you store the assets, floor plans, file formats and so on). If there are limits on the system, include a brief summary of these constraints.
- A one to three page section describing the interface design (what are the screens, what is the general flow of operation of each screen.
- A user manual for the program

Note that this assignment *does* require you to *implement* the application, and it must be implemented in Tcl/Tk, or some other Tk version (perl/Tk), and runnable either on the cygwin version of Tcl/Tk, or the one on the Suns.

Assessment:

The assessment is as follows:

Documentation	25%
Code style/quality	25%
Operation of the interface	50%

Try to achieve clarity in your writing and take care in the structuring of the document.

COOPERATING VERSUS CHEATING

You are allowed to discuss the problems with your friends, and to study any background material with them, but the assignment *should be your own group's work*. **Copying** and **cheating** will be grounds for failing the assignment.