

308-304B – Object-Oriented Design

Assignment 3

Due date: Wednesday March 20, 2002 before 23:55

Practical information

- $1 \leq \text{team size} \leq 2$
- Each team submits only one full solution. Include name(s) and ID(s) in *every* submitted file. Use the `index.html` template provided on the assignments page. The other team member (if any) *must* submit a single `index.html` file containing coordinates of both team members. This will allow us to put in grades for both team members in WebCT.
- Your submission must be in the form of a simple HTML file (`index.html`) with explicit references to all submitted files as well as inline inclusion of images.
- The submission medium is WebCT.
- You will use Python/Tkinter. Both are installed on all SOCS FreeBSD machines.

References are:

- Fredrik Lundh's Introduction to Tkinter
- Bruno Dufour's presentation and examples
- New Mexico Tech Tkinter reference (pdf)

Just reading `drawingTool.py` presented in class as well as the code this assignment starts from should already teach you most of what you need.

Starting point

`application.py` (see Figure 1) implements the controlling part of a prototype spreadsheet application. It allows one to open Grid View windows, Plot View (dummy implementation) windows, as well as quit the application.

`SSGridView.py` (see Figure 2) implements the core classes for the Grid View.

The functionality of the application was demonstrated in class and is described briefly in the source.

↳ [shift](#)↳ [click](#)↳ the links above to download the files.

Assignment

Extend the above with:

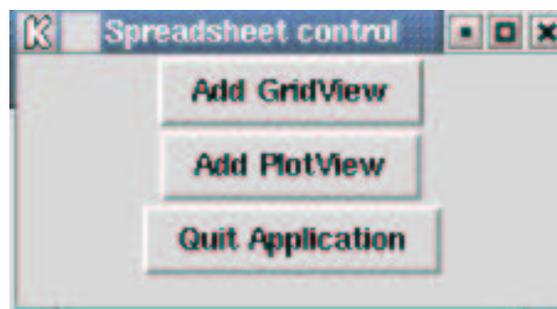


Figure 1: Root (control) window of the spreadsheet application.

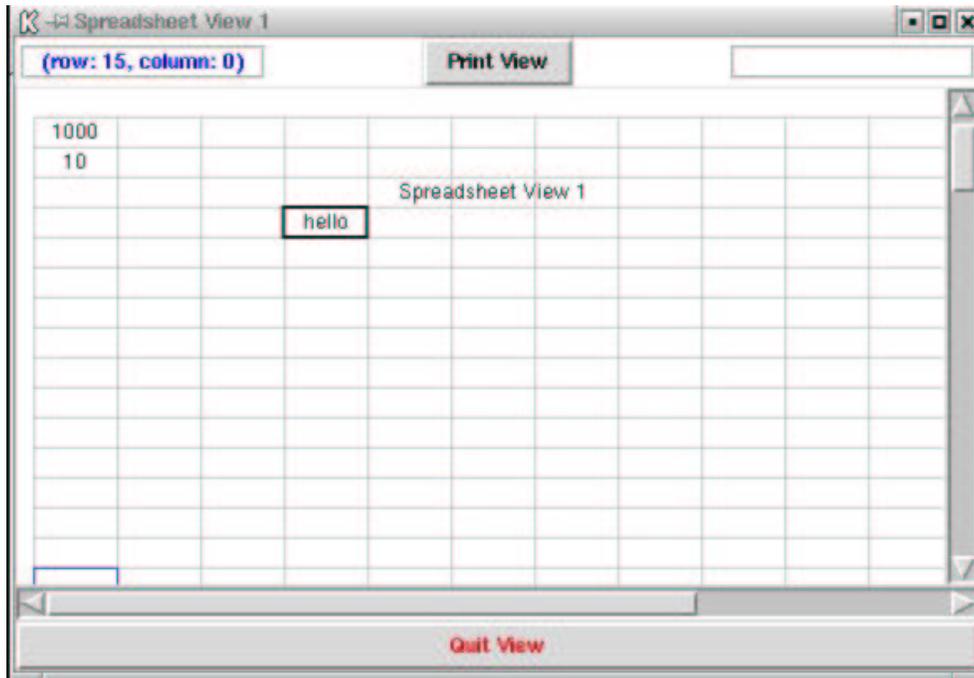


Figure 2: Grid View (includes Postscript printing)

1. The ability to specify from the application main interface (next to the Grid View button), parameters such as number of rows, number of columns, ... a new Grid View should have.

Hint: a tiny example of the use of the Entry widget

```
from Tkinter import *
root=Tk() # the root window
typedText=StringVar()
typedText.set("initial text")
e=Entry(root, textvariable=typedText)
e.pack()

# you can get the text typed into the Entry field by means of
typedText.get()

# the main Tk event loop
root.mainloop()
```

2. The ability to move the selectedCell (framed by a thick black line) by means of the keyboard Up, Down, Left, and Right arrows. Note how selectedCell is where any typed in data will go.

Hint: have a close at how `onDrawareaMouseMove()` and `onDrawareaMouseClicked` handle mouse motion and subsequent cell selection.

3. The ability to enter data in a cell. Use the state automaton describing valid input from the solution of assignment 2 as the basis of your implementation. In particular, use wherever possible exactly the same names (e.g., for states and actions).

Hint: you will have to modify the class `DataElement` to accommodate different types of data values.

Clearly identify and document your additions. *ANY* change you make to the code *must* be accompanied by comments containing the word **MODIFIED** literally (and some explanation).