Assignment 3 Proposal Document

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1 The existing software project, what it does, and its architecture and major components

We wish to work on the existing project 'tkinter'. git repository. This is used to build GUI's and this is written python. Let's discuss the architecture of tkinter:

'tkinter' is bulit using the Tcl, Tk, Ttk modules. (as found form the official docs)

Tcl: This is a programming language like python. "Unlike Python, Tcl's execution model is designed around cooperative multitasking, and Tkinter bridges this difference"

Tk: "Tk is a Tcl package implemented in C that adds custom commands to create and manipulate GUI widgets. Each Tk object embeds its own Tcl interpreter instance with Tk loaded into it. Tk's widgets are very customizable, though at the cost of a dated appearance. Tk uses Tcl's event queue to generate and process GUI events.

Ttk: "Themed Tk (Ttk) is a newer family of Tk widgets that provide a much better appearance on different platforms than many of the classic Tk widgets. Ttk is distributed as part of Tk, starting with Tk version 8.5. Python bindings are provided in a separate module, tkinter.ttk."

The more about these modules is here.

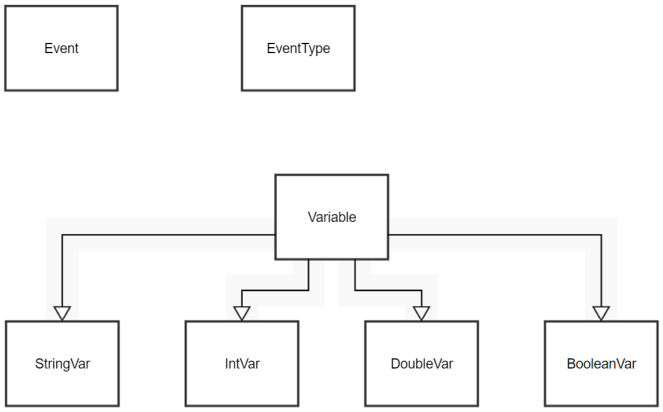

Figure 1: System Architecture

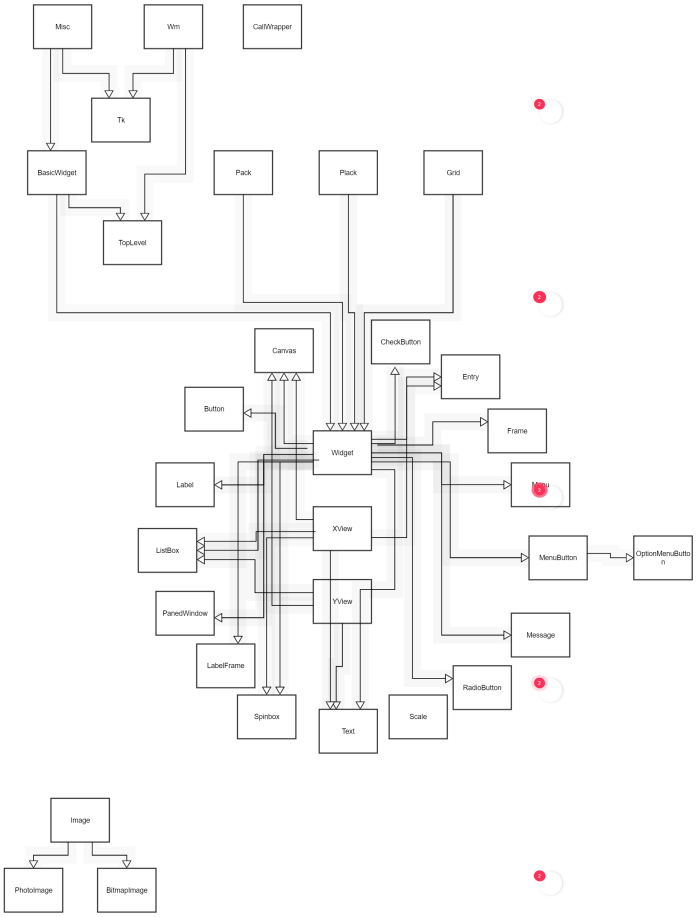

Figure 2: System Architecture

2 The changes we plan to make, the components of the software they will affect, and amount of work will be required.

The idea is to understand the complete architecture of tkinter and then fix some of the open issues listed in github.

- Fixing bad image grab from a gif file. view here. The problem is **tkinter.PhotoImage** is rendering single frame from many frames of a gif file. The way we wish to fix is:
  - Assume there are 60 frames. Frames[1...60] Which have to be overlapped gradually to show the complete gif.
  - Convert the frames in numpy array. N[1...60].
  - frame = N[0]
  - (for i=1 to 60){frame=frame+N[i]; N[i] = frame;}
  - Now each second we will iterate through the N[i] cyclically.

  I think this will not be so simple. We'll encounter some issues during doing the above steps.

- In tkinter when someone wants to create same type of font two times in the same app it is producing errors. The way I think this is causing problem

Figure 3: Issue. Image source github

is :

- there is an array storing the possible font properties
- when a font object is created then the font property is getting deleted from that array.

- When a second font of the same type is trying to access the properties from that array, then it is not found there.

We've to dig deep into this issue and have to see how to fix this, so that the fix will work fine with other parts of the tkinter. The details of the issue can be found here.

- Text.count() method should return (0,) when two same index is passed to it. But it is not working as expected. This issue can be solved. The problem is actually in **tk** module. For details please visit here.

3 The changes will be new and are not already available somewhere (supporting evidence).

All of the above mentioned issues are open issues in github. Please visit the following links to visit the issues.

- Bad gif load link.
- Font error: link.
- Text count error: link.