



The following widgets may be used for example:

1. The foundation is a *Window* with client-side window decorations.
2. Inside it there are both a *HeaderBar* and a *ScrolledWindow*.
3. The *HeaderBar* contains one *Button* for opening files and one *Button* for saving them.
4. The *ScrolledWindow* contains a *TextView*.

*Hint:*

<https://pelzflorian.de/gui-prog-gtk-2017/text-view-utils.tar.gz>

This code reads in a file in one piece. Program execution is blocked while the file is read, so this is not acceptable for large files. Real text editors would use a library such as “Tepl”.

Instead of a plain `gtk_main()` an *Application* may be used for better integration into the operating system and the display environment. For more features – such as showing a menubar and an application menu inside the window or not depending on what the display environment requests (e.g. menubars are external in Ubuntu’s Unity, Mac OS X and not shown at all in GNOME) – an *ApplicationWindow* should be used in place of a *Window*.

- Only one instance of an application is running at a time.
- Trying to open it repeatedly only activates the existing application. It can then e.g. open a new window.
- The `main()` method only creates an *Application*, binds an *activate* signal and then starts the application by calling `g_application_run()`. `gtk_main()` is used as part of the *Application* and need not be called separately.
- The functionality of the application menu and menubar should also be made accessible via keyboard shortcuts using the *ActionMap* functions offered by the *Application*.

Examples for including these in the editor from before:

- <https://pelzflorian.de/git/gui-prog-gtk-2017/tree/bin/text2/text.c>
- <https://developer.gnome.org/gtk3/stable/ch01s04.html>
- Documentation for *GtkApplication*, *GtkApplicationWindow*.

More ideas:

- Instead of a *Button* for opening files one may want to use a *MenuButton* with a *Popover* like `gedit`. Its contents may include for example a *RecentChooser* and the standard open *Button*.
- The “`GtkSourceView`” library offers a dedicated *TextView* widget for text editors.
- Analogously you can write an image viewer, a PDF viewer, a Web browser etc. Aside from developing an end user program most of the work on such software consists of creating an appropriate widget.