5 The `emacs` editor

You should read through this section, ideally sitting in front of a terminal. Try starting up the editor and practicing the various editing operations.

5.1 Introduction

`Emacs` is a very powerful screen based editor available on almost all UNIX machines. This editor has a huge range of features which are documented in a complete book. Most people, however, only use a tiny fraction of these features and in particular all the common operations can be performed via the "PULL-DOWN" menus.

`emacs` is a language sensitive editor having various features that assist you in writing programs, such as colour highlighting and automatic bracket checking. This feature is most useful when using programming languages like JAVA where a single missing "{" or ";" can result in massive problems.

5.2 Starting up `emacs`

To create a new file, or edit an existing file called, for example, `MyProgram.java` you type in the following command in the TERMINAL WINDOW.

```
emacs MyProgram.java &
```

the `emacs` window will then appear. If the file exists it will be read, else a blank screen will appear.

1. The ".java" extension to the filename tells `emacs` that you are editing a JAVA program. This will switch-on the correct syntax checking.

2. The "&" means "run as detatched process" which creates the `emacs` window but then leaves the terminal window free to type other commands.

Simple Editing:

1. Move the X-windows cursor (with the mouse) into the `emacs` window to make the window *Active.*.

2. Typing will insert text at the solid block cursor.

3. `Return` or $\boxed{\hookleftarrow}$ key will insert a newline.

4. Backspace (and Delete) key will delete character *to left* of the cursor.

5. Move the cursor using the arrow keys $\boxed{\leftarrow}$ $\boxed{\rightarrow}$ $\boxed{\uparrow}$ $\boxed{\downarrow}$.

Mouse Editing
Mouse based editing uses a combination of the two cursors, the *text* cursor (solid magenta block) and the *mouse* cursor (thin magenta $\top\!\!\!\bot$). You also uses the "PULL-DOWN" menus at the top of the window.

1. To move *text* cursor with mouse: Move mouse cursor to required position in text and click LEFT button.

2. To *Select* a region of text:

   • Position *mouse* cursor at start of region.

   • Press and *hold down* LEFT button.

   • Drag cursor to end of region. The *selected* region will be highlighted.

3. To Cut or Copy *selected* region.

   • Move *mouse* cursor to EDIT menu on the top bar. *Hold down* LEFT button. Pop-down menu appears.

   • Drag down to select "Cut" or "Copy" and release button

4. To Paste *selected* region.

   • Move *text* cursor to point in the text buffer (window) where you want the paste insert to start.

   • Move *mouse* cursor to EDIT menu on the top bar. *Hold down* LEFT button. Pop-down menu appears.

   • Drag down to "PASTE MOST RECENT" to paste *last region* selected. "SELECT AND PASTE" gives you a sub-menu to paste previously selected regions where the first and last 8 characters of the region are used to denote regions.

5. To clear (or delete) a *selected* region

   • Move *mouse* cursor to EDIT menu on the top bar.

   • Select CLEAR form menu.

   • To restore deleted region, repeat by selecting UNDO from the same menu.

6. To search for a string in the text buffer,

   • Move *mouse* cursor to SEARCH menu on the top bar. *Hold down* LEFT button. Pop-down menu appears

   • Select "SEARCH...". Prompt "Search for string: " appears at the bottom of the screen and the text cursor moves there.

   • Type in search string followed by "Return" or $\boxed{\hookleftarrow}$. Text cursor goes to start of the search string in the text window, (if it exists).

   • The search can be repeated with "REPEAT SEARCH" or "REPEAT BACKWARDS" from the same menu.

Saving changes and Exit

All input is typed into the TEXT BUFFER which you must save to and ouput file. This is controlled by the FILES menu as follows:

1. To SAVE the TEXT BUFFER to disc,

- Move *mouse* cursor to FILES menu on the top bar. *Hold down* LEFT button. Pop-down menu appears
- Select the SAVE BUFFER option.
- This will write the contents of the text buffer to the current file. This will **overwrite** the current contents of the disc file.
- If you want to save the text buffer in a different file, select SAVE BUFFER AS ... and you will be prompted a new filename with a "Write file:" prompt at the bottom of the screen. Type in the new filename followed by "Return" to save.

2. To Exit the editor, select "EXIT EMACS" from the FILES menu. If you have not saved the text buffer before doing this you will be warned and given a chance to save it before exiting.

This is all you really need to know about `emacs`.

5.3 Use of Multiple Buffers

`emacs` can be used to edit multiple files at one time allowing "Cuts" and "Paste" between them. This is a very useful feature especially when programming since it allows pieces of code from previous programs to be easily copied.

To use this feature,

1. Start `emacs` as above which will read the first file into the text buffer.

2. Select OPEN FILE... from the FILES menu. You will be prompted with "Find file:". Complete the filename given followed by "Return" to read-in a second file. This new file appears in the text buffer, but it has *not* overwritten the first one.

3. By using the BUFFERS menu you can now switch between the two text buffers at will. In particular you can perform a region "Copy" from one to the other by simply selecting a region in one, doing a "Copy", selecting the other text buffer and doing "Paste".

4. You can repeat this operation as many times as you like and have as many text buffers as you like and swap between them.

5.4 Starting from X-WINDOWS

You can start `emacs` from the LINUX DESKTOP *Programming* menu by selecting it. This will start `emacs` in its own window with a message about the version number of `emacs` but with no file read in and without any syntax checking enabled.

You then **must** open a file using the OPEN FILE... option form the FILES menu.

1. The OPEN FILE... menu is currently pointed to your "top level" directory. So if you want to open a file called `MyNewProg.java` in your `scicomp` directory you must open `scicomp/MyNewProg.java`.

2. If the file exists, it will open it, else it will create it.

3. Opening a file with a ".java" extension will automatically load the JAVA syntax checked and colour highlighting.

5.5   Then things go Wrong

There are a few things that can appear to "go wrong" when using emacs all of which are easily cured. Error messages appear on the bottom line, usually accompanied with a BEEP from the terminal.

- BEEP plus message about "*minibuffer in minibuffer*": You clicked TWICE in a menu and confused things, CLICK once in the TEXT BUFFER with the LEFT mouse button and try again.

- Window splits in *two*, both rather small, then either:

    1. You "asked it to" with the SPLIT WINDOW option.
    2. You typed <TAB> in the OPEN FILE... option and started the file browser.
    3. You were "playing" with the (so called) HELP menu.

    to get out of this:

    1. Select the part of the window you *want*, (usually your program) by CLICKING in it once with the LEFT mouse button.
    2. Select the ONE WINDOW option from the FILES menu.

- You get some strange prompt at the bottom of the screen like C-x-, or M# and the text cursor moves to bottom of the screen. You have switched emacs into command mode.

    - Type Ctrl-G (hold down Ctrl and type G).
    - Repeat typing Ctrl-G until a Quit message appears at the bottom of the screen. Normality will be restored!

- When typing you "overwrite" the text in the TEXT BUFFER and the Delete key does not remove spaces: You have switched to OVERWRITE mode by pressing the Insert key (beside the Delete key!).

    1. Press the Insert key (again).
    2. The string Ovwrt will be removed from the black information line at the bottom of the screen, and all will work again.

- The whole system "stops" and you think you have "*lost your whole editing session*". No, emacs saves changes every 50 or so key-strokes so you will not have lost much.

    1. The "saved" file is called #<filename># in the current directory.
    2. Rename this file to something more sensible using mv.
    3. Then edit this new file and you will find that almost everything is still there!

- Other odd errors or odd behaviour: Call a demonstrator, or see Mrs McIvor in the laboratory.

There are many hundreds of other features of emacs, it even has is one internal GAMES, which you can play with in your own time.

What Next?

You are now ready to write your first JAVA program. Follow the instructions in the next section.