Unix and Linux

Chapter 4
Compression
Mastering Editors

Developer Tools

- File Compression Commands
  - gzip
  - bzip2
  - tar

gzip

- Create a file:

```
ls -l /etc > etc.files
```

- Check the size

```
ls -l etc.files
```

- Compress it

```
gzip etc.files
```

- Check the size of the compressed file

```
ls -l etc.files.gz
```

- Uncompress it

```
gunzip etc.files.gz
```

Using Editors

- **Editor:** program for creating and modifying files containing source code, text, data, memos, etc.
- **Text editor:** a simplified word-processing program
  - Used to create and edit documents
- Two text editors normally included in UNIX/Linux are **screen editors**
  - vi
  - Emacs
- **Line editor:** works with one line (or group of lines) at a time

Prepare to create a Web Page

If you are not using a classroom computer, you will need to make a VPN connection to the Chapman network before you can connect to the web server.

Make an ssh connection to www1.chapman.edu by typing, in a linux terminal:

```
ssh -l username www1.chapman.edu
```

Where "username" is replaced with your real username

Type the following commands to:

- Make a directory named "public_html" your home directory
- Change to that directory
- Make a directory in your public_html directory named "cpsc298“
- Change to your cpsc298 directory
- Create a file named "firstPage.html"

```
mkdir public_html
cd public_html
mkdir cpsc298
cd cpsc298
```

Unix and Linux

Using the vi Editor

- vi is a modal editor
  - Supports three modes
    - **Insert mode**
      - Accessed by typing “i”
    - **Command mode**
      - Accessed by typing Esc
    - Extended (**ex**) command set mode
      - Accessed by typing “:” in command mode

Creating a New File in the vi Editor

If you type "`vi data`" a window like this will open to create a file named "`data`"

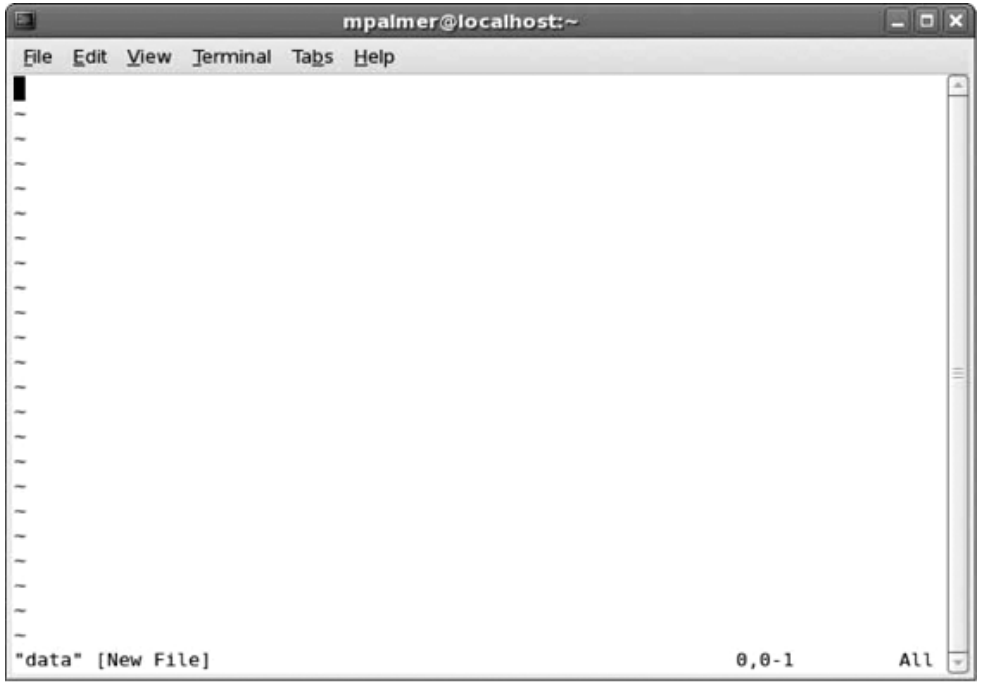

Figure 3-2 Creating a new file in the vi editor

Inserting Text

- When you start vi, you are in command mode
- To insert text in your file, switch to insert mode
  - Use `i` (insert) command
- To return to command mode, press Esc
- To go back to insert mode:
  - Type `i` to insert text at the cursor
  - Type `a` to append text after the cursor

Deleting Text

- Deletion commands available (command mode)
  - Use `x` to delete a character
  - Use `dd` to delete a line

Table 3-2 vi editor's delete commands

Command	Purpose
x	Delete the character at the cursor.
dd	Delete the current line (putting it in a buffer so it can also be pasted back into the file).
dw	Delete the word starting at the cursor. If the cursor is in the middle of the word, delete from the cursor to the end of the word.
d$	Delete from the cursor to the end of the line.
d0	Delete from the cursor to the start of the line.

Saving a File and Exiting vi

First press Esc to to to command mode then

- To save file without exiting, use `:w`
- To save and exit, use `:wq` *or* `ZZ`

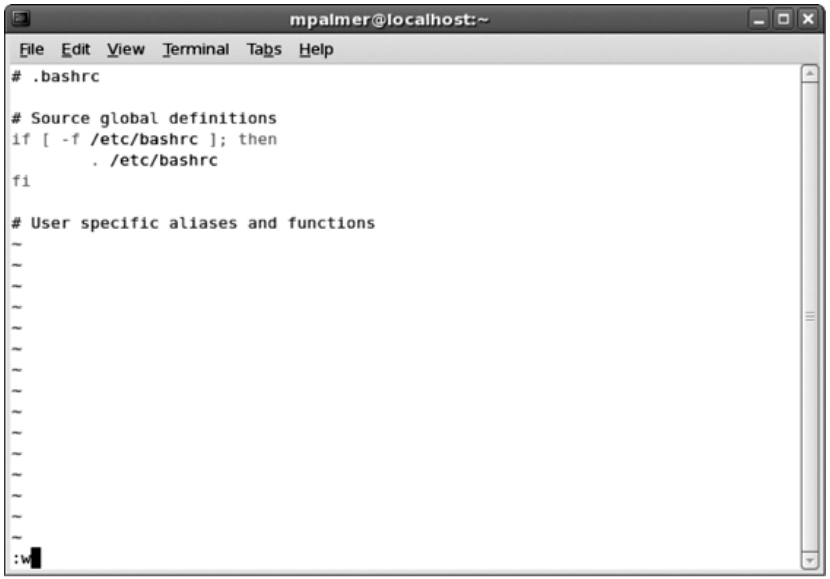

Figure 3-3 Saving without exiting

Create a webpage

Go back to your terminal and use the “pwd command to make sure you are in your public_html/cpsc298 directory. Create the simplePage.html file by typing:

```
vi simplePage.html
```

Type the contents of the attached simplePage handout document and save your work.

To view your page in a browser, go to

```
http://www1.chapman.edu/~username/cpsc298/simplePage.html
```

You should not include the public_html directory in the path. The Apache web server will automatically look inside the public_html directory in your home directory to find the web documents.

Post a link to your page in Blackboard

Unix and Linux

Repeating a Change

- Use a period (.) to repeat the most recent change you made
  - Repeat command
  - Works in command mode

Moving the Cursor

- To move cursor use arrow keys (command/insert mode) or (in command mode) use:

Table 3-1 vi editor's cursor movement keys

Key	Movement
h or left arrow	Left one character position
l or right arrow	Right one character position
k or up arrow	Up one line
j or down arrow	Down one line
H	Upper-left corner of the screen
L	Last line on the screen
G	Beginning of the last line
nG	The line specified by a number, *n*
W	Forward one word
b	Back one word
0 (zero)	Beginning of the current line
$	End of the current line
Ctrl+u	Up one-half screen
Ctrl+d	Down one-half screen
Ctrl+f or *Page Down*	Forward one screen
Ctrl+b or *Page Up*	Back one screen

Undoing a Command

- Type *u* to use the undo command
- Example:
  - If you delete a few lines from a file by mistake, type *u* to restore the text

Searching for a Pattern

- To search forward for a pattern of characters:
  - Type a forward slash (*/*)
  - Type the pattern you are seeking
  - Press Enter

Table 3-3 Special characters used to match a pattern

Special Character*	Purpose
\>	Searches for the next word that ends with a specific string.
\<	Searches for the next word that begins with a specific string.
.	Acts as a wildcard for one character.
[]	Finds the characters between the brackets.
$	Searches for the line that ends with a specific character.
*All of these special characters must be preceded with a slash (/) from the command mode.	

- Examples: */\<top*, */s..n*, */pas[st]*, */!$*

Searching and Replacing

- **Screen-oriented commands** execute at the location of the cursor
- **Line-oriented commands** require you to specify an exact location (an address) for the operation
  - Preceded by a colon (:)
  - Operate in ex mode
  - Used for commands that perform more than one action
    - Example: searching and replacing

      :1,$s/insure/ensure/g

Copying or Cutting and Pasting

- The command *yy* copies (yanks) a specified number of lines
  - To cut the lines, use *dd*
  - Lines are placed in clipboard
- Use *p* to paste the clipboard contents

Lady Gaga tries to exit vim

Rotate Screen at Login

- To rotate you right screen automatically at login:
  - Create a file called “setscreen.desktop” by typing

    ```
    vi setscreen.desktop
    ```

  - Type the following lines in the file and save it

    ```
    [Desktop Entry]
    Name=Set Screen Rotation
    Exec=/bin/bash -c "xrandr --output HDMI-0 --rotate left"
    Type=Application
    ```

  - Copy the file to the autostart directory by typing

    ```
    sudo cp setscreen.desktop /etc/xdg/autostart
    ```