

CS 134

Operating Systems

Optimize your Engineering Life
Neil Rhodes
April 28, 2019

Outline

General

Meta-optimizations

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General

Mouse Selection

Bash

- Jobs
- Directory stack
- History
- Editor mode

Vim

Screen

Meta-optimizations

Selecting Using the Mouse

To select multiple words:

Use command keys!

Double-click to select a word

Drag to extend the selection (word-at-a-time)

To select multiple lines:

Triple-click to select a line

Drag to extend the selection (line-at-a-time)

Editing code: to move one or more lines:

Triple-click select and cut

Move to *beginning* of the desired paste line

Paste

Bonus: Don't delete selected text before typing

Job Handling in Bash

Run command in background

`command &`

List background and suspended jobs

`jobs`

Suspend foreground job

`<Ctrl-Z>`

Put current suspended job in background

`bg`

Bring background job to foreground

`%job_number`

Directory Stack

Change directories and push onto stack

```
pushd dirName
```

Pop current directory off stack

```
popd
```

Swap top two directories

```
pushd
```

List directories

```
dirs
```

Switch to last directory you were in (doesn't use the stack)

```
cd -
```

Show contents of top two directories

```
ls ~1 ~2
```

History

Show last 20 commands

```
history 20
```

Rerun last command

```
!!
```

Rerun command with given number

```
!command_number
```

Rerun last command beginning with prefix

```
!bla
```

Rerun last command containing string

```
!?bla
```

History (continued)

Run last command substituting foo for bar

```
^foo^bar
```

Rerun last command substituting all instances of foo with bar

```
!!:gs/bar/foo
```

List (don't run) last command starting with foo

```
!foo:p
```

Last parameter of last command

```
!$
```

All parameters of last command

```
!*
```


Editor mode in the shell

Add to ~/.bashrc

```
set -o vi
```

Enter vi mode

```
<ESC>
```

Within vi mode:

Use vi commands (f, ^, \$, i, ...)

Exit vi mode:

```
<ESC> (or <return> to execute command)
```

Screen

Window manager in terminal window

Create new screen session

```
screen
```

Restore existing screen session

```
screen -r
```

Create new screen

```
<Ctrl-A>c
```

Switch screens

```
<Ctrl-A>p
```

Enter/exit scrollback mode

```
<Ctrl-A><ESC>
```

Help

```
<Ctrl-A>?
```

Outline

General

Meta-optimizations

Meta-optimizations

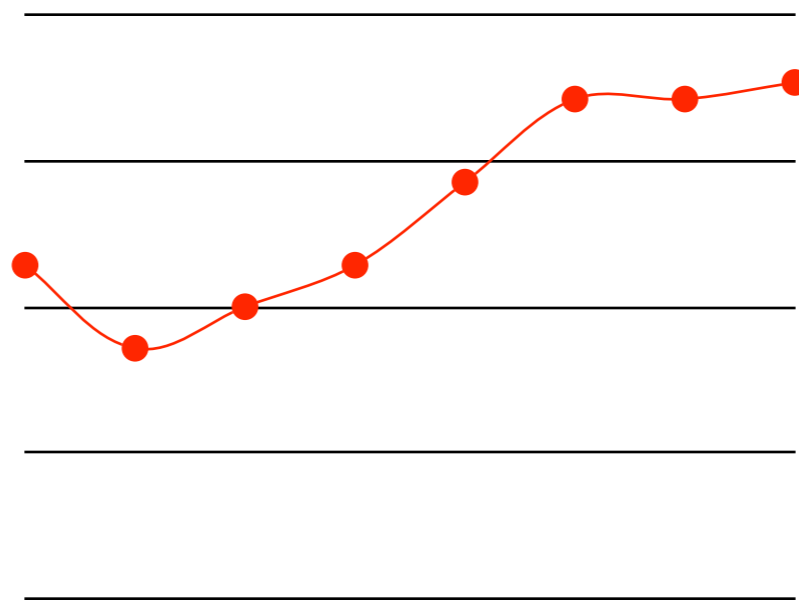
Learn your tools

Become {bash,vim,emacs,Eclipse,...}-savvy

Keep notes

~/notebook

Performance curve when learning:

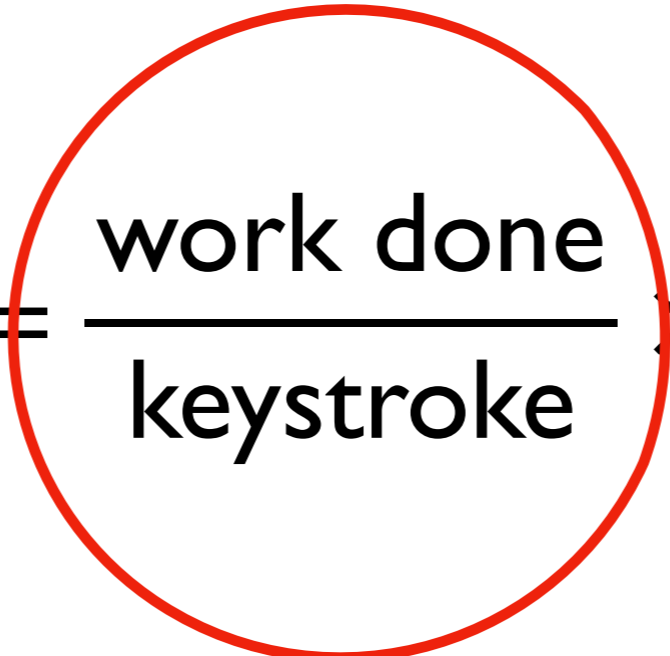


Learning is an investment: pay some immediate productivity for increased future productivity

Increase the amount of work done

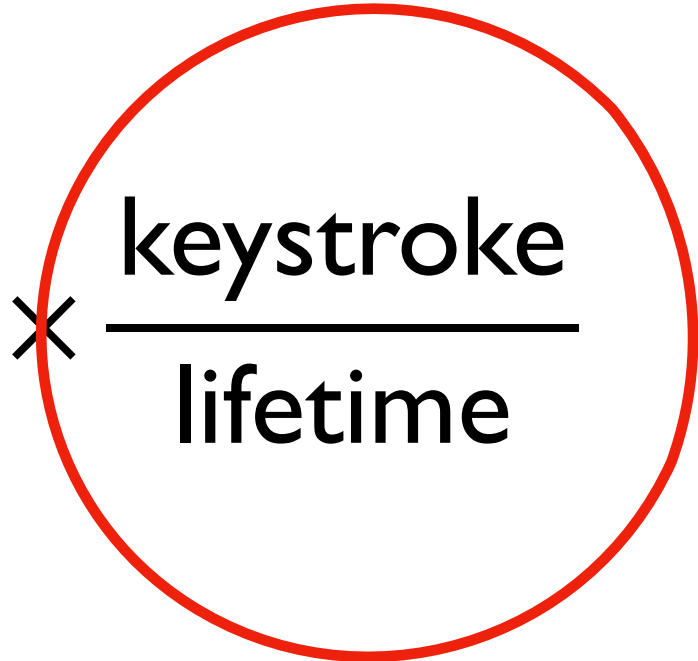
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Become a master of your tools!

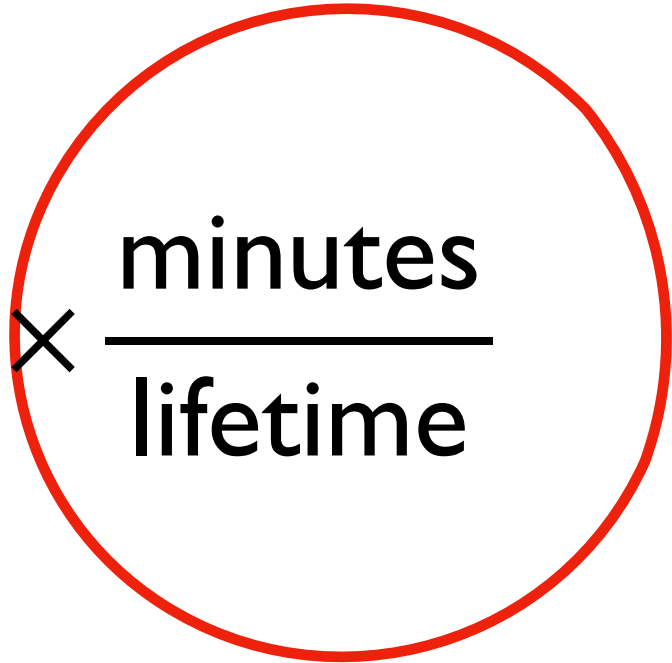
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Option 1: Increase your remaining lifetime

Vitamin-D

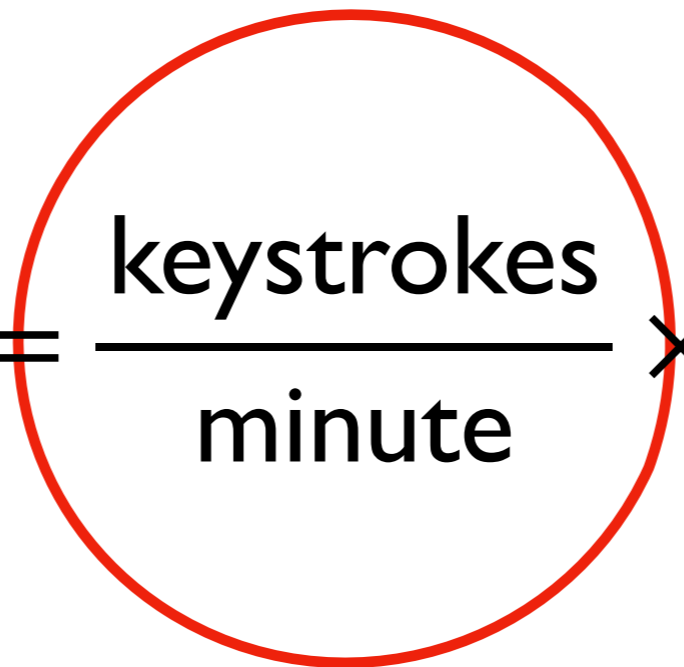
Fish oil

Get plenty of sleep

Exercise regularly, including strength training

Avoid sugar/carbohydrates

Increase the number of keystrokes in your lifetime

$$\frac{\text{keystroke}}{\text{lifetime}} = \frac{\text{keystrokes}}{\text{minute}} \times \frac{\text{minutes}}{\text{lifetime}}$$


Option 1: Increase the frequency of keystrokes

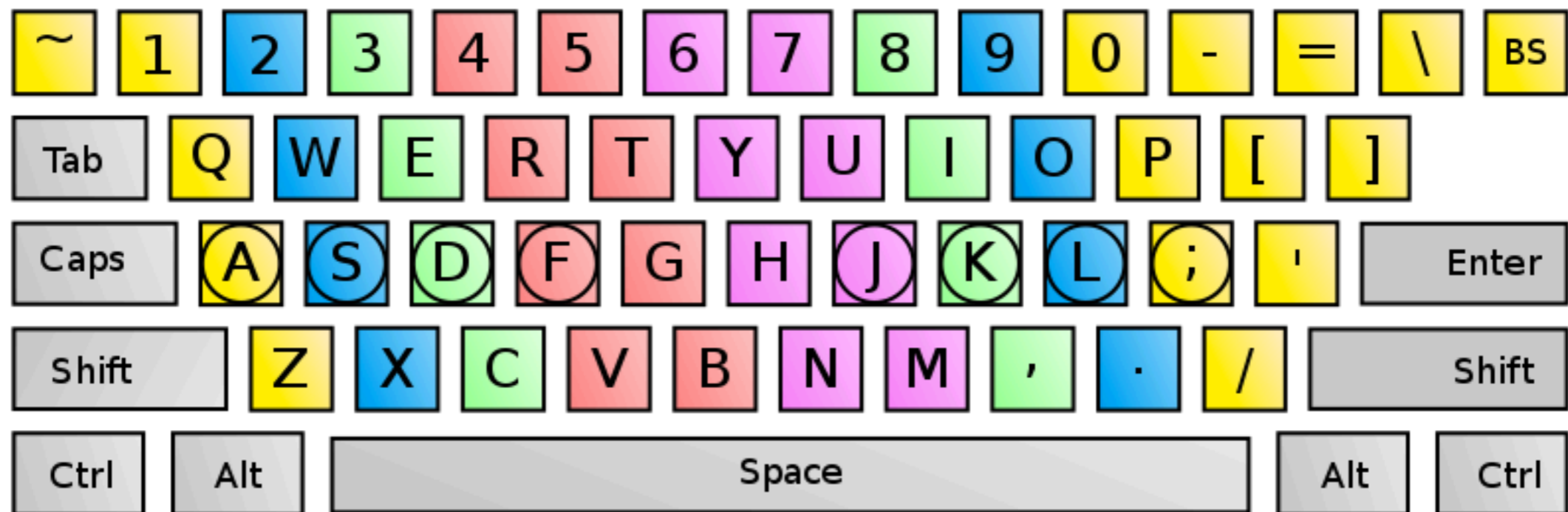
Type faster!

Type faster!

Learn to touch-type in 4 easy steps:

1. Print out keyboard chart

Chart from http://en.wikipedia.org/wiki/Touch_typing



2. Mount chart near your monitor

3. Don't *ever* look at your keyboard while typing (if temptation is too great, buy a keyboard with blank keys)

4. *Always* use the “correct” fingering