Setting up a Dev Space

Welcome!

Redbrick
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So you wanna write code?

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This is what you need right?

moar rgb == better

But this is impractical..

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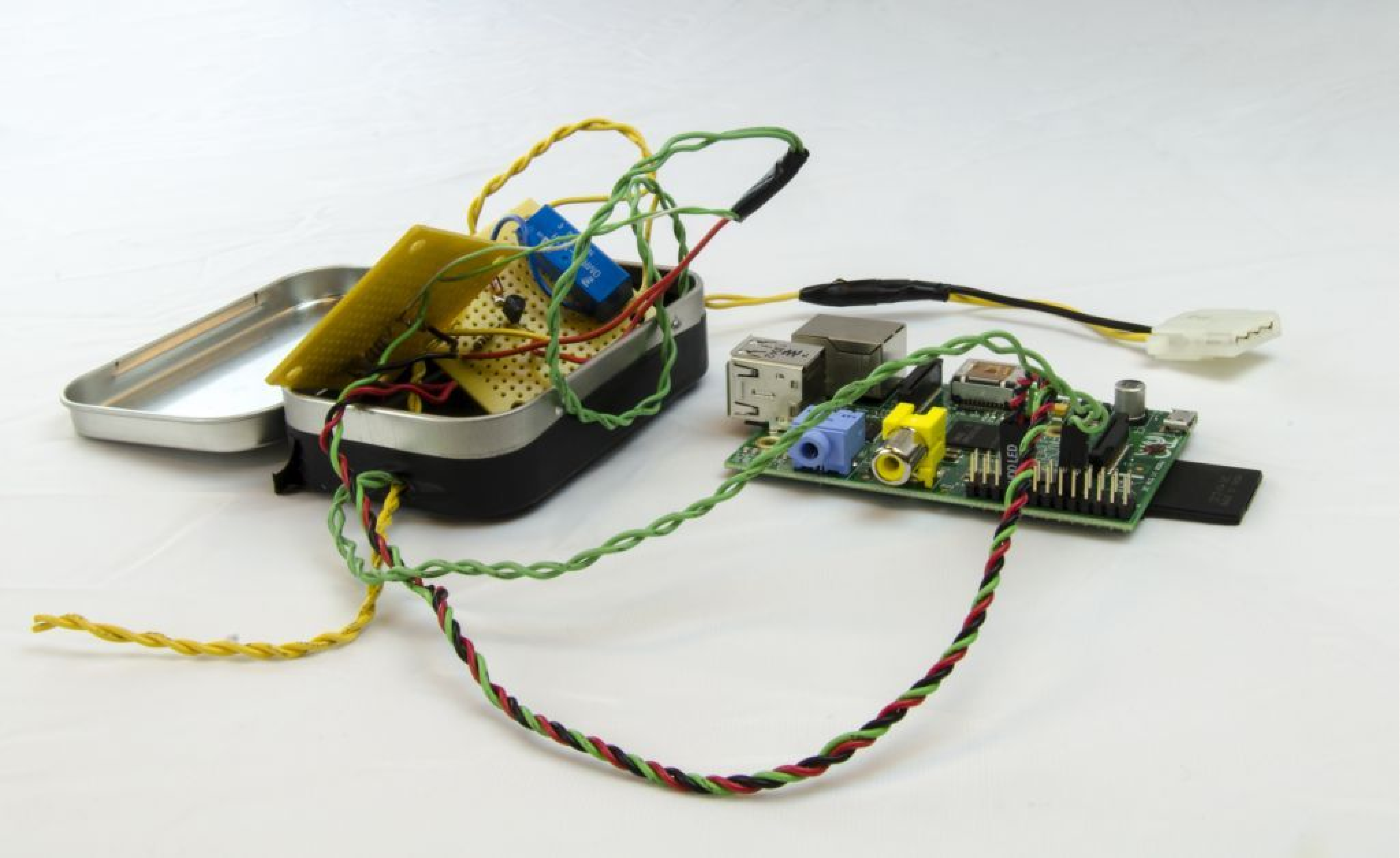
So we figured out size is a factor…

I’ll just carry a raspberry pi!



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We might need something more powerful than this!

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But not much!

More than likely any mid range laptop will do!

Small and Powerful

You definitely need a Razer Blade

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Or a macbook pro

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And especially a dell xps

Now if you have a sugar daddy…

… by all means go and get one of these fantastic beasts

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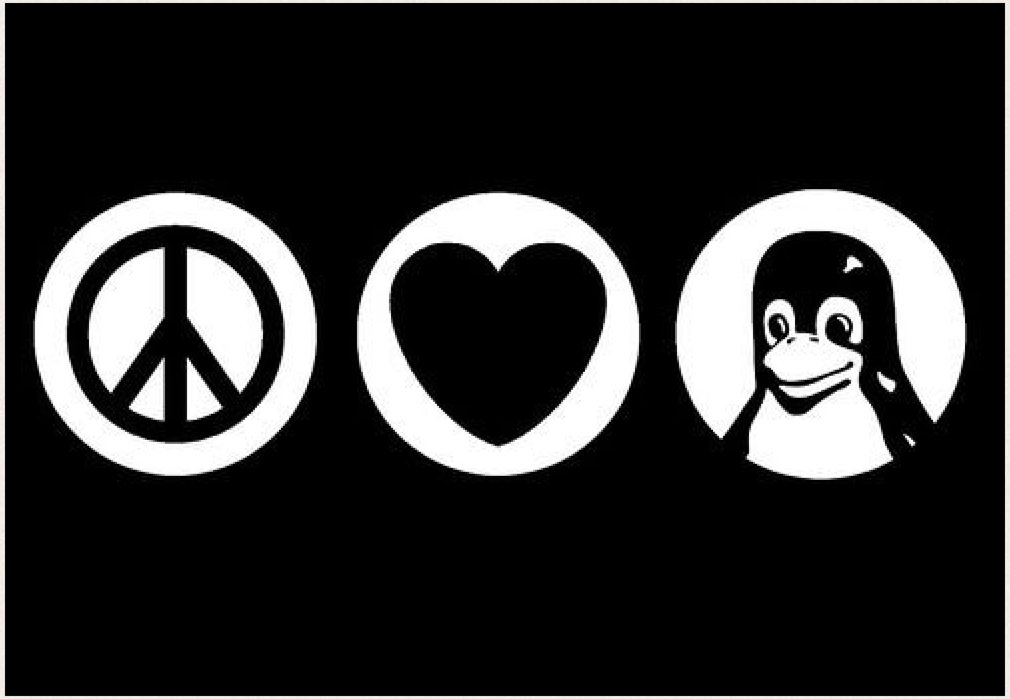
But you don’t need these laptops

especially if you are running linux…

and we love linux



Dells usually take linux well..

.. some even you can buy with ubuntu

Thinkpads are great too

I really like these machines ❤

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Adverts, Done Deal and Ebay

- Make sure that you know what to look for
- Don’t be afraid to say when something is not up to standard

But they can be really good!

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But there are so many versions of linux!

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But there are so many versions of linux!

Ubuntu, Fedora or Linux Mint

All these distros are good starting points

They are both easy to install and easy to use

Now that you are all setup...

You want to write some code!

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But what text editor do you use?

But what text editor do you use?

There are at least 2..

But what text editor do you use?

The two I speak of is emacs and vim

But what text editor do you use?

I have no idea how to use emacs

But what text editor do you use?

So I use vim

But what text editor do you use?

The whole point of it is you don’t have to use the mouse

You can navigate and edit all you text with the keyboard

But what text editor do you use?

But…. It does have a steep learning curve

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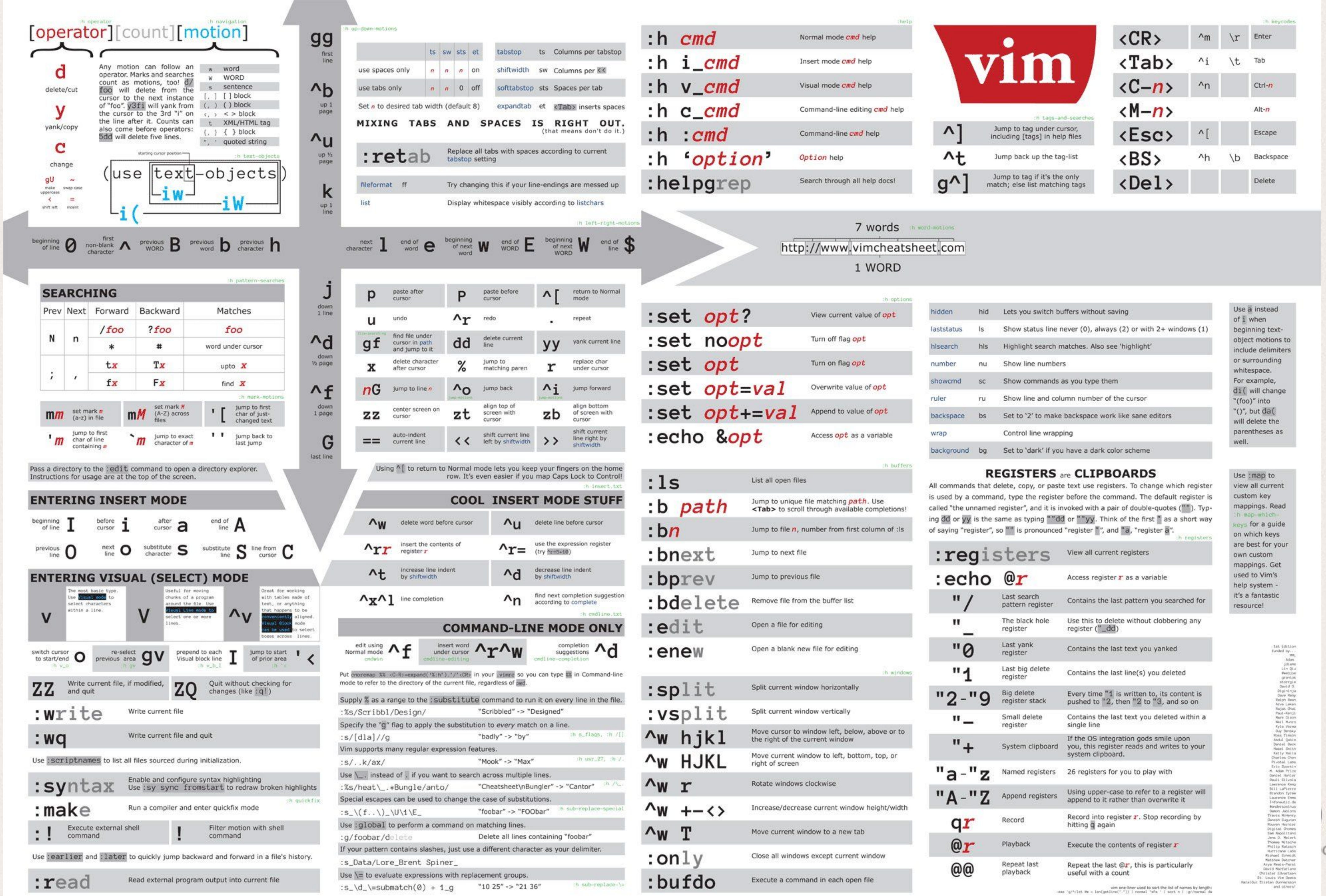

:h operator :h navigation

[operator][count][motion]

d	delete/cut
y	yank/copy
c	change
gU	make uppercase
~	swap case
<	shift left
=	indent

Any motion can follow an operator. Marks and searches count as motions, too! d/foo will delete from the cursor to the next instance of "foo". y3fi will yank from the cursor to the 3rd "i" on the line after it. Counts can also come before operators: 5dd will delete five lines.

w	word
W	WORD
s	sentence
[,]	[ ] block
(,)	( ) block
<, >	< > block
t	XML/HTML tag
{, }	{ } block
", '	quoted string

starting cursor position :h text-objects

(use text-objects)

iw iW i(

:h up-down-motions

gg	first line
^b	up 1 page
^u	up ½ page
k	up 1 line
j	down 1 line
^d	down ½ page
^f	down 1 page
G	last line

	ts	sw	sts	et
use spaces only	n	n	n	on
use tabs only	n	n	0	off

Set n to desired tab width (default 8)

tabstop	ts	Columns per tabstop
shiftwidth	sw	Columns per <<
softtabstop	sts	Spaces per tab
expandtab	et	<Tab> inserts spaces

MIXING TABS AND SPACES IS RIGHT OUT.
(that means don't do it.)

:retab	Replace all tabs with spaces according to current tabstop setting
fileformat ff	Try changing this if your line-endings are messed up
list	Display whitespace visibly according to listchars

:h left-right-motions

0	beginning of line
^	first non-blank character
B	previous WORD
b	previous word
h	previous character
l	next character
e	end of word
w	beginning of next word
E	end of WORD
W	beginning of next WORD
$	end of line

7 words :h word-motions

http://www.vimcheatsheet.com

1 WORD

:help

:h *cmd*	Normal mode *cmd* help
:h i_*cmd*	Insert mode *cmd* help
:h v_*cmd*	Visual mode *cmd* help
:h c_*cmd*	Command-line editing *cmd* help
:h :*cmd*	Command-line *cmd* help
:h '*option*'	*Option* help
:helpgrep	Search through all help docs!

vim

:h tags-and-searches

^]	Jump to tag under cursor, including [tags] in help files
^t	Jump back up the tag-list
g^]	Jump to tag if it's the only match; else list matching tags

:h keycodes

<CR>	^m	\r	Enter
<Tab>	^i	\t	Tab
<C-*n*>	^n		Ctrl-*n*
<M-*n*>			Alt-*n*
<Esc>	^[		Escape
<BS>	^h	\b	Backspace
<Del>			Delete

:h pattern-searches

SEARCHING

Prev	Next	Forward	Backward	Matches
N	n	/*foo*	?*foo*	*foo*
		*	#	word under cursor
;	,	t*x*	T*x*	upto *x*
		f*x*	F*x*	find *x*

:h mark-motions

m*m*	set mark *m* (a-z) in file
m*M*	set mark *M* (A-Z) across files
'[	jump to first char of just-changed text
'*m*	jump to first char of line containing *m*
`*m*	jump to exact character of *m*
''	jump back to last jump

p	paste after cursor	P	paste before cursor	^[	return to Normal mode
u	undo	^r	redo	.	repeat
gf	find file under cursor in path and jump to it	dd	delete current line	yy	yank current line
x	delete character after cursor	%	jump to matching paren	r	replace char under cursor
*n*G	jump to line *n*	^o	jump back	^i	jump forward
zz	center screen on cursor	zt	align top of screen with cursor	zb	align bottom of screen with cursor
==	auto-indent current line	<<	shift current line left by shiftwidth	>>	shift current line right by shiftwidth

file-searching jump-motions

Pass a directory to the :edit command to open a directory explorer. Instructions for usage are at the top of the screen.

Using ^[to return to Normal mode lets you keep your fingers on the home row. It's even easier if you map Caps Lock to Control!

ENTERING INSERT MODE

I	beginning of line
i	before cursor
a	after cursor
A	end of line
O	previous line
o	next line
s	substitute character
S	substitute line
C	line from cursor

:h insert.txt

COOL INSERT MODE STUFF

^w	delete word before cursor	^u	delete line before cursor
^r*r*	insert the contents of register *r*	^r=	use the expression register (try ^r=5+10)
^t	increase line indent by shiftwidth	^d	decrease line indent by shiftwidth
^x^l	line completion	^n	find next completion suggestion according to complete

ENTERING VISUAL (SELECT) MODE

v	The most basic type. Use Visual mode to select characters within a line.
V	Useful for moving chunks of a program around the file. Use Visual Line mode to select one or more lines.
^v	Great for working with tables made of text, or anything that happens to be conveniently aligned. Visual Block mode can be used to select boxes across lines.
o	switch cursor to start/end :h v_o
gv	re-select previous area :h gv
I	prepend to each Visual block line :h v_b_I
'<	jump to start of prior area :h '<

ZZ	Write current file, if modified, and quit
ZQ	Quit without checking for changes (like :q!)
:write	Write current file
:wq	Write current file and quit

Use :scriptnames to list all files sourced during initialization.

:syntax	Enable and configure syntax highlighting Use :sy sync fromstart to redraw broken highlights
:make	Run a compiler and enter quickfix mode
:!	Execute external shell command
!	Filter motion with shell command

:h quickfix

Use :earlier and :later to quickly jump backward and forward in a file's history.

:read	Read external program output into current file

:h cmdline.txt

COMMAND-LINE MODE ONLY

^f	edit using Normal mode cmdwin
^r^w	insert word under cursor cmdline-editing
^d	completion suggestions cmdline-completion

Put cnoremap %% <C-R>=expand('%:h').'/'<CR> in your .vimrc so you can type %% in Command-line mode to refer to the directory of the current file, regardless of pwd.

Supply % as a range to the :substitute command to run it on every line in the file.

```
:%s/Scribbl/Design/            "Scribbled" -> "Designed"
```

Specify the "g" flag to apply the substitution to *every* match on a line.

```
:s/[dla]//g                    "badly" -> "by"          :h s_flags, :h /[]
```

Vim supports many regular expression features.

```
:s/..k/ax/                     "Mook" -> "Max"          :h usr_27, :h /.
```

Use _. instead of . if you want to search across multiple lines.

```
:%s/heat\_.*Bungle/anto/       "Cheatsheet\nBungler" -> "Cantor"    :h /\_.
```

Special escapes can be used to change the case of substitutions.

```
:s_\(f..\)_\U\1\E_             "foobar" -> "FOObar"     :h sub-replace-special
```

Use :global to perform a command on matching lines.

```
:g/foobar/delete               Delete all lines containing "foobar"
```

If your pattern contains slashes, just use a different character as your delimiter.

```
:s_Data/Lore_Brent Spiner_
```

Use \= to evaluate expressions with replacement groups.

```
:s_\d_\=submatch(0) + 1_g      "10 25" -> "21 36"       :h sub-replace-\=
```

:h options

:set *opt*?	View current value of *opt*
:set no*opt*	Turn off flag *opt*
:set *opt*	Turn on flag *opt*
:set *opt*=*val*	Overwrite value of *opt*
:set *opt*+=*val*	Append to value of *opt*
:echo &*opt*	Access *opt* as a variable

hidden	hid	Lets you switch buffers without saving
laststatus	ls	Show status line never (0), always (2) or with 2+ windows (1)
hlsearch	hls	Highlight search matches. Also see 'highlight'
number	nu	Show line numbers
showcmd	sc	Show commands as you type them
ruler	ru	Show line and column number of the cursor
backspace	bs	Set to '2' to make backspace work like sane editors
wrap		Control line wrapping
background	bg	Set to 'dark' if you have a dark color scheme

Use a instead of i when beginning text-object motions to include delimiters or surrounding whitespace. For example, di(will change "(foo)" into "()", but da(will delete the parentheses as well.

:h buffers

:ls	List all open files
:b *path*	Jump to unique file matching *path*. Use **<Tab>** to scroll through available completions!
:b*n*	Jump to file *n*, number from first column of :ls
:bnext	Jump to next file
:bprev	Jump to previous file
:bdelete	Remove file from the buffer list
:edit	Open a file for editing
:enew	Open a blank new file for editing

:h windows

:split	Split current window horizontally
:vsplit	Split current window vertically
^w hjkl	Move cursor to window left, below, above or to the right of the current window
^w HJKL	Move current window to left, bottom, top, or right of screen
^w r	Rotate windows clockwise
^w +-<>	Increase/decrease current window height/width
^w T	Move current window to a new tab
:only	Close all windows except current window
:bufdo	Execute a command in each open file

REGISTERS are CLIPBOARDS

All commands that delete, copy, or paste text use registers. To change which register is used by a command, type the register before the command. The default register is called "the unnamed register", and it is invoked with a pair of double-quotes (""). Typing dd or yy is the same as typing ""dd or ""yy. Think of the first " as a short way of saying "register", so "" is pronounced "register "", and "a, "register a".

:h registers

:registers		View all current registers
:echo @*r*		Access register *r* as a variable
"/	Last search pattern register	Contains the last pattern you searched for
"_	The black hole register	Use this to delete without clobbering any register ("_dd)
"0	Last yank register	Contains the last text you yanked
"1	Last big delete register	Contains the last line(s) you deleted
"2-"9	Big delete register stack	Every time "1 is written to, its content is pushed to "2, then "2 to "3, and so on
"-	Small delete register	Contains the last text you deleted within a single line
"+	System clipboard	If the OS integration gods smile upon you, this register reads and writes to your system clipboard.
"a-"z	Named registers	26 registers for you to play with
"A-"Z	Append registers	Using upper-case to refer to a register will append to it rather than overwrite it
q*r*	Record	Record into register *r*. Stop recording by hitting q again
@*r*	Playback	Execute the contents of register *r*
@@	Repeat last playback	Repeat the last @*r*, this is particularly useful with a count

Use :map to view all current custom key mappings. Read :h map-which-keys for a guide on which keys are best for your own custom mappings. Get used to Vim's help system - it's a fantastic resource!

1st Edition funded by...

vim one-liner used to sort the list of names by length:

rick

ciety

But what text editor do you use?

If you want an easier text editor to get you started you can look into:

- atom
- VS code
- sublime
- gedit
- nano

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What are IDEs?

These are integrated development environments…

What are IDEs?

These are integrated development environments…

- They do a lot of work for you

What are IDEs?

These are integrated development environments…

- They do a lot of work for you
- They autocomplete words

What are IDEs?

These are integrated development environments…

- They do a lot of work for you
- They autocomplete words
- Auto add brackets
- And sooo much more…..

What are IDEs?

BUT…

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What are IDEs?

You don’t wanna use it....

What are IDEs?

Now that may be controversial

What are IDEs?

Now that may be controversial

But in my opinion they hinder learning

What are IDEs?

Now that may be controversial

But in my opinion they hinder learning

You won’t have one in an exam, coding interview, etc

What are IDEs?

By all means when you get out into industry and are writing professional

Get an IDE it will make you life so much better!

What are IDEs?

But when you are learning as a student

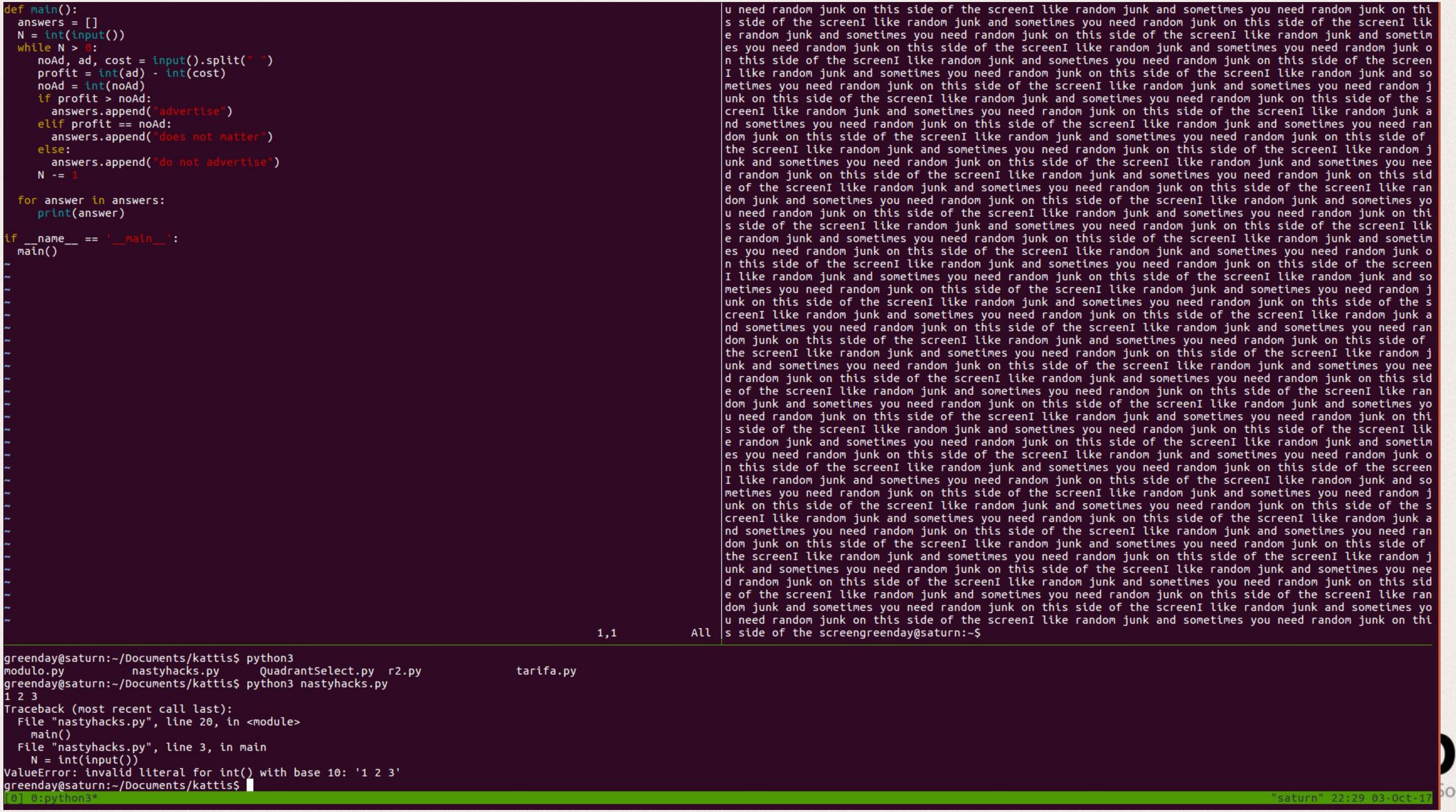
Do as much as you can manually so you learn how things work

A better solution?

I am going to introduce you very slightly to my setup...

.. not that it is good just a taste of the vast customizability you can get with linux

My setup most days



```
def main():
  answers = []
  N = int(input())
  while N > 0:
     noAd, ad, cost = input().split(" ")
     profit = int(ad) - int(cost)
     noAd = int(noAd)
     if profit > noAd:
       answers.append("advertise")
     elif profit == noAd:
       answers.append("does not matter")
     else:
       answers.append("do not advertise")
     N -= 1

  for answer in answers:
     print(answer)

if __name__ == '__main__':
  main()
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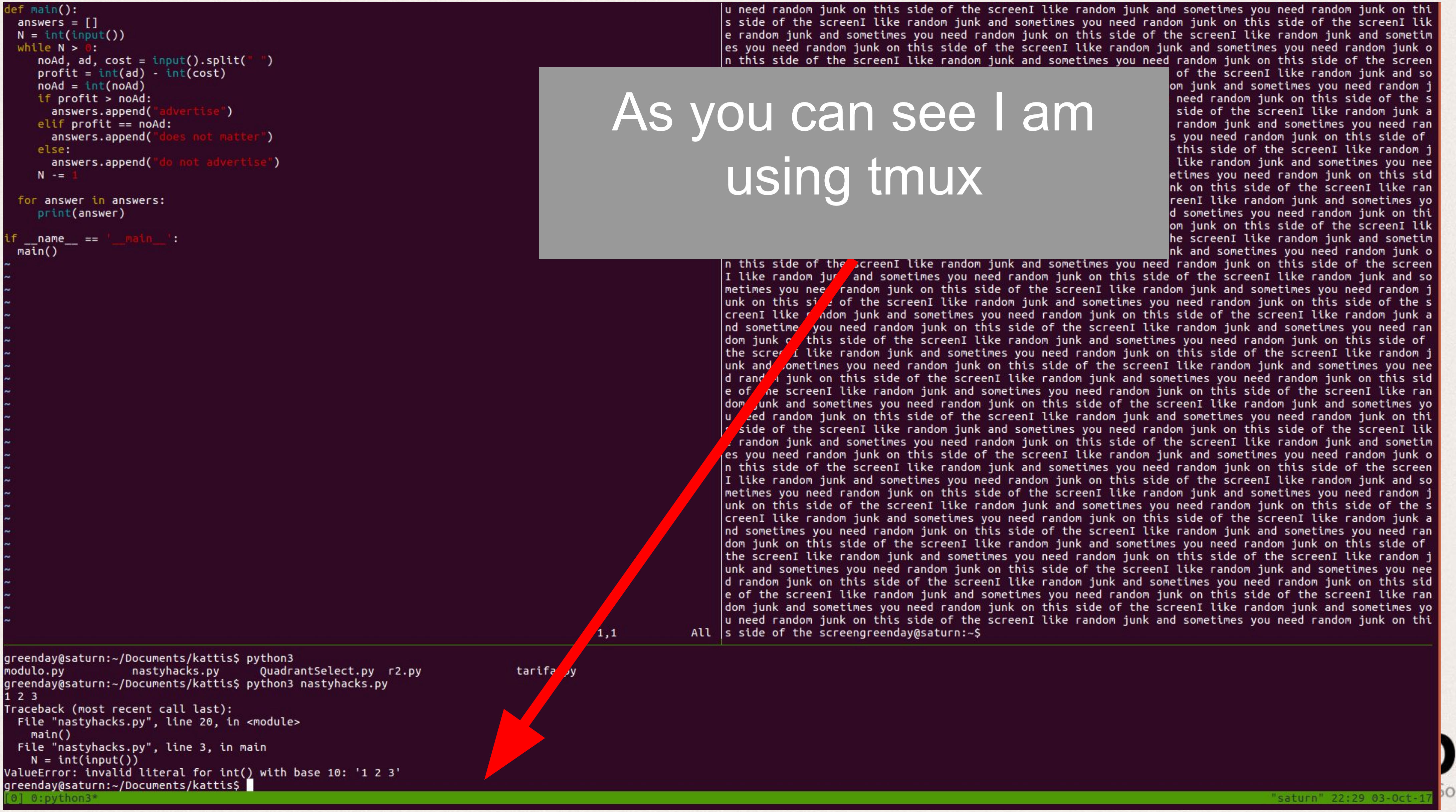
```
greenday@saturn:~/Documents/kattis$ python3
modulo.py          nastyhacks.py      QuadrantSelect.py  r2.py              tarifa.py
greenday@saturn:~/Documents/kattis$ python3 nastyhacks.py
1 2 3
Traceback (most recent call last):
  File "nastyhacks.py", line 20, in <module>
    main()
  File "nastyhacks.py", line 3, in main
    N = int(input())
ValueError: invalid literal for int() with base 10: '1 2 3'
greenday@saturn:~/Documents/kattis$ 
[0] 0:python3*                                                                       "saturn" 22:29 03-Oct-17
```

My setup most days



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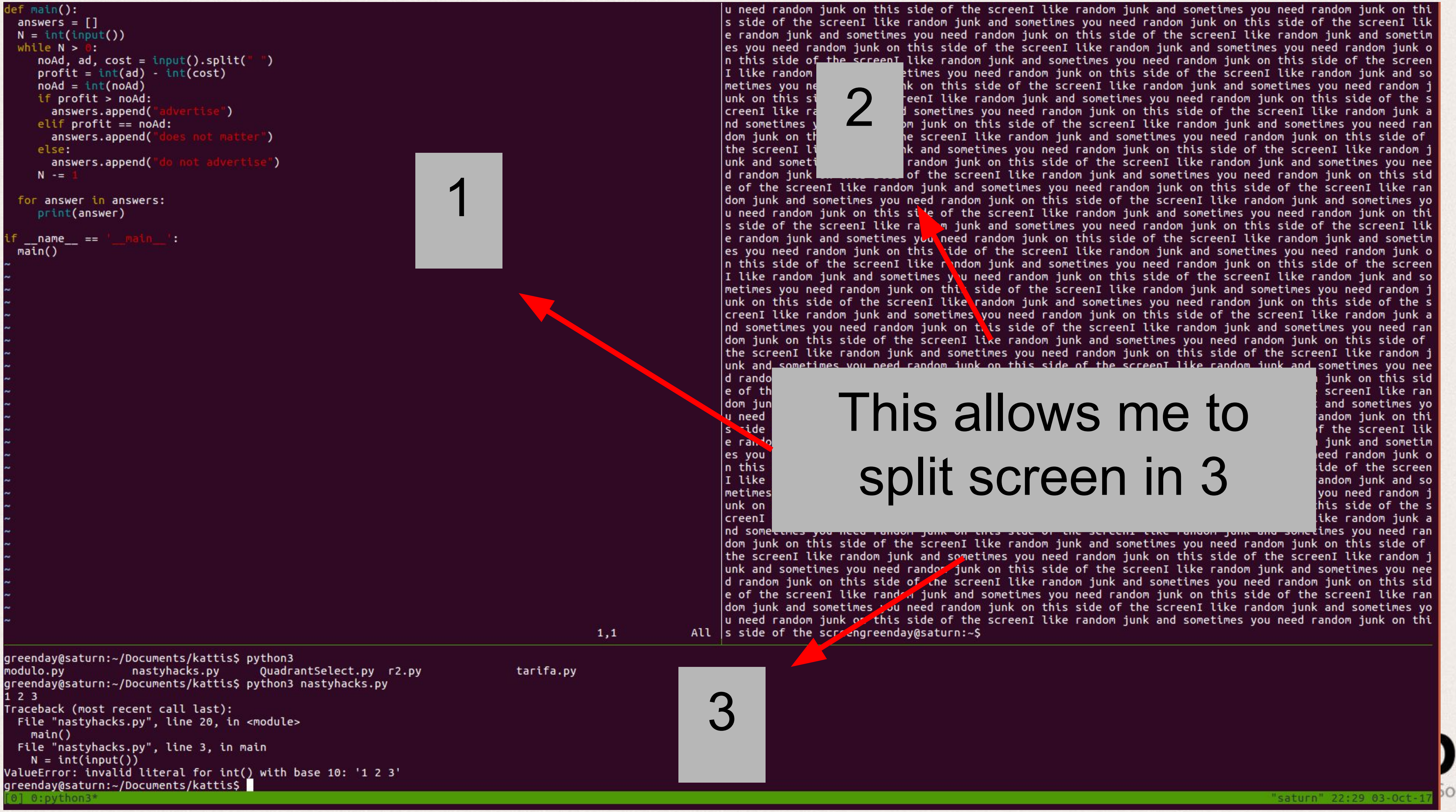
```
greenday@saturn:~/Documents/kattis$ python3
modulo.py          nastyhacks.py      QuadrantSelect.py  r2.py              tarifa.py
greenday@saturn:~/Documents/kattis$ python3 nastyhacks.py
1 2 3
Traceback (most recent call last):
  File "nastyhacks.py", line 20, in <module>
    main()
  File "nastyhacks.py", line 3, in main
    N = int(input())
ValueError: invalid literal for int() with base 10: '1 2 3'
greenday@saturn:~/Documents/kattis$
[0] 0:python3*                                                                                          "saturn" 22:29 03-Oct-17
```

As you can see I am using tmux

My setup most days



```
def main():
  answers = []
  N = int(input())
  while N > 0:
     noAd, ad, cost = input().split(" ")
     profit = int(ad) - int(cost)
     noAd = int(noAd)
     if profit > noAd:
       answers.append("advertise")
     elif profit == noAd:
       answers.append("does not matter")
     else:
       answers.append("do not advertise")
     N -= 1

  for answer in answers:
     print(answer)

if __name__ == '__main__':
  main()
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greenday@saturn:~/Documents/kattis$ python3
modulo.py          nastyhacks.py      QuadrantSelect.py  r2.py              tarifa.py
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Traceback (most recent call last):
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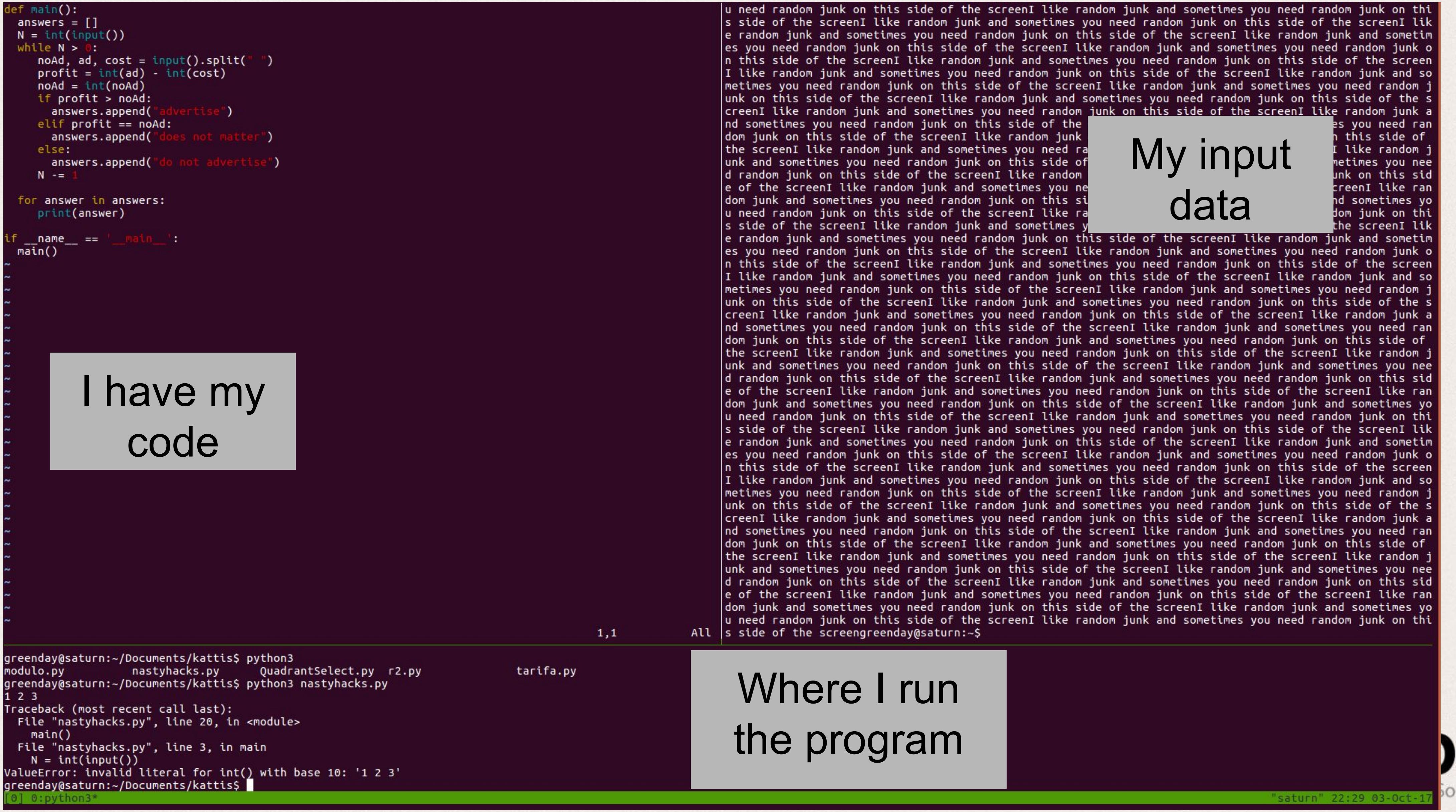
greenday@saturn:~/Documents/kattis$
[0] 0:python3*                                                                                    "saturn" 22:29 03-Oct-17
```

This allows me to split screen in 3

My setup most days



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greenday@saturn:~/Documents/kattis$
[0] 0:python3*                                                                    "saturn" 22:29 03-Oct-17
```
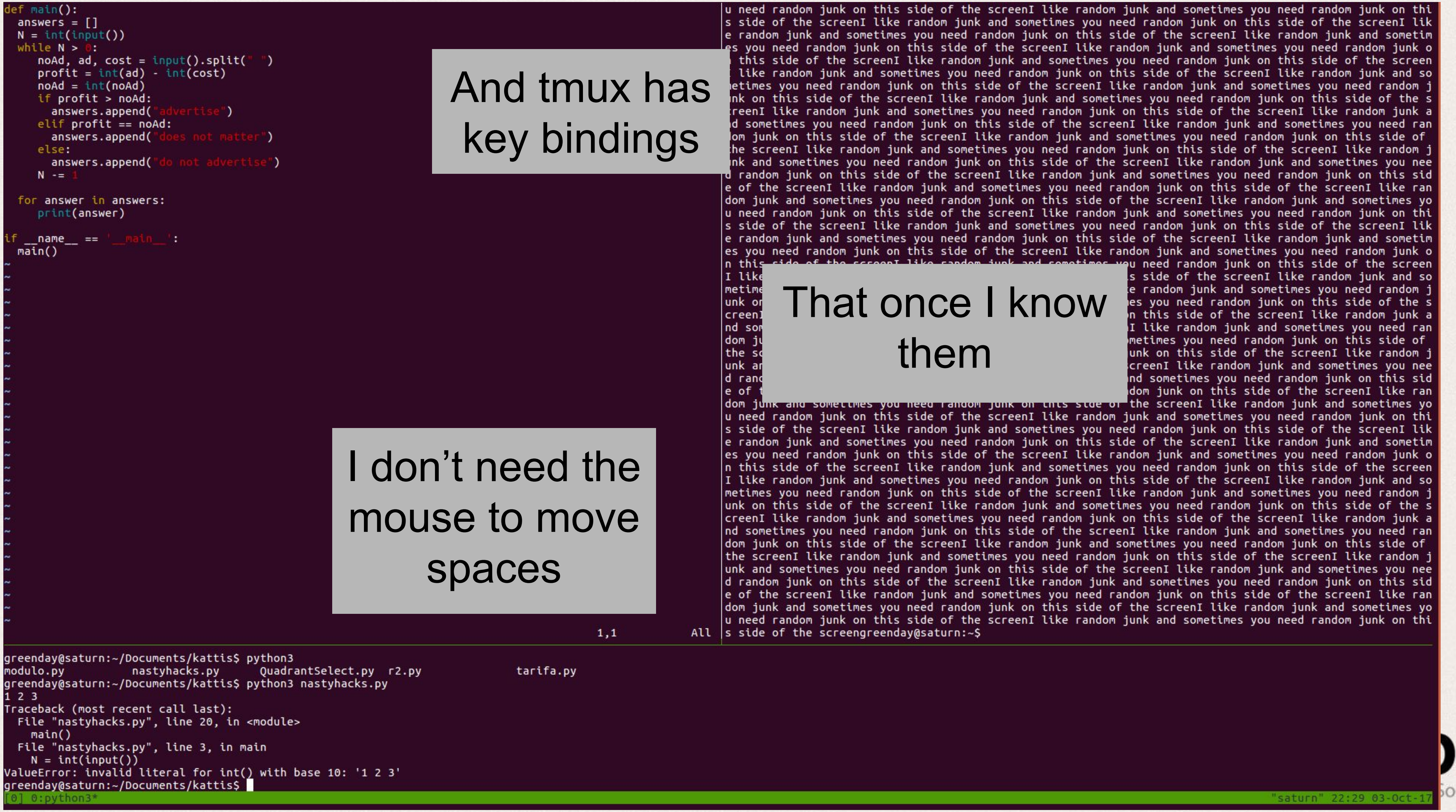

I have my code

My input data

Where I run the program

My setup most days



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[0] 0:python3*                                                                    "saturn" 22:29 03-Oct-17
```

And tmux has key bindings

That once I know them

I don't need the mouse to move spaces

Now we need to run our programs

Now we need to run our programs

First python:

Now we need to run our programs

First python2

If you are on ubuntu linux it is already installed:

```
python2
```

This will bring up a python shell

To run your written python type

```
python2 your_file.py
```

Now we need to run our programs

For python3

If you are on ubuntu linux it is already installed:

```
python3
```

This will bring up a python shell

To run your written python type

```
python3 your_file.py
```

Now we need to run our programs

We can’t tell you how to install every language on every operating system

Now we need to run our programs

But we have a friend who can!

Google

What you need to find

Search:

How to install {x} on {y}

where {x} = language

{y} = operating system

e.g. for fedora and ruby

```
sudo dnf install ruby
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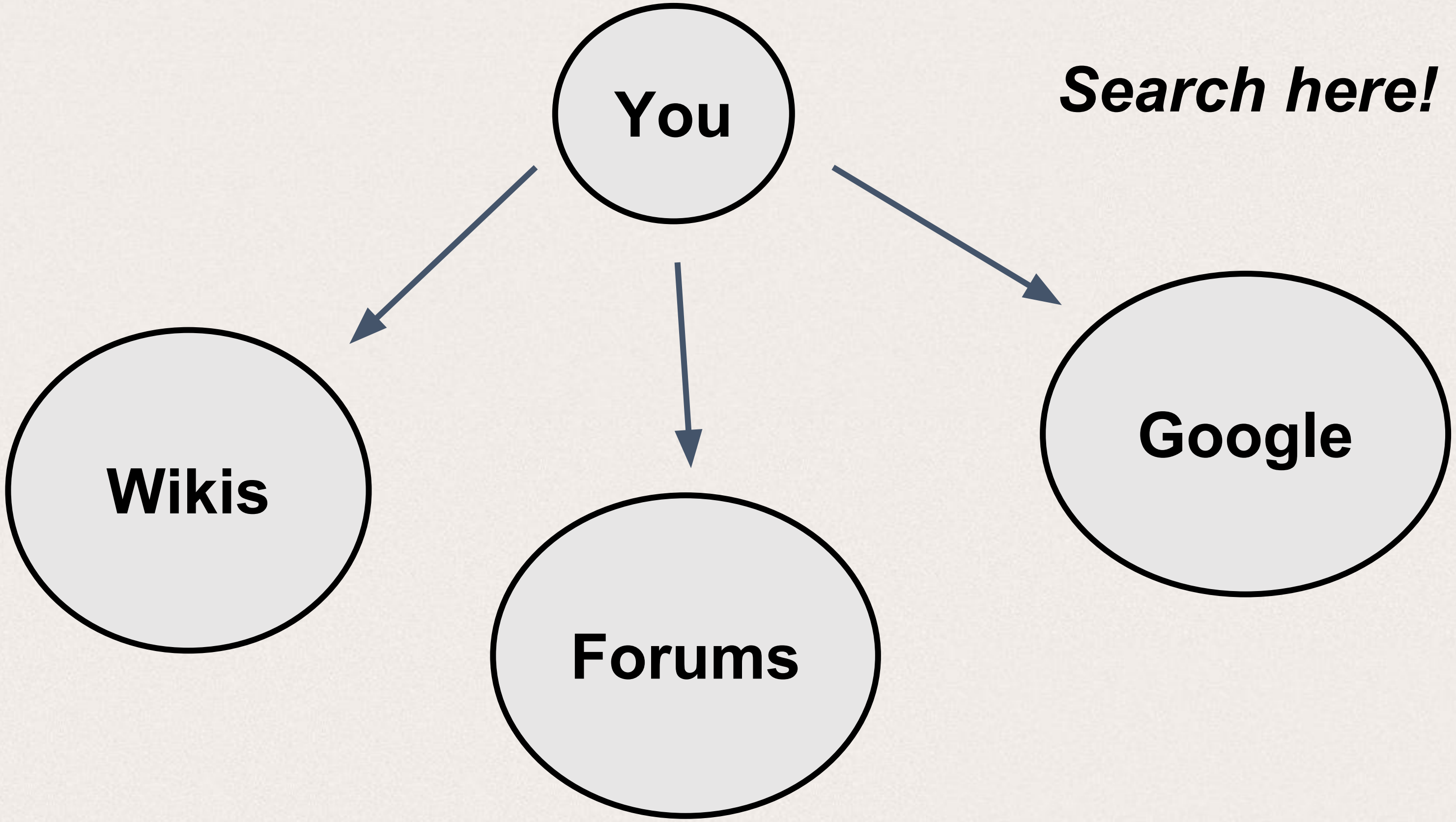
If you need any help..



You

Wikis

Forums

Google

Search here!

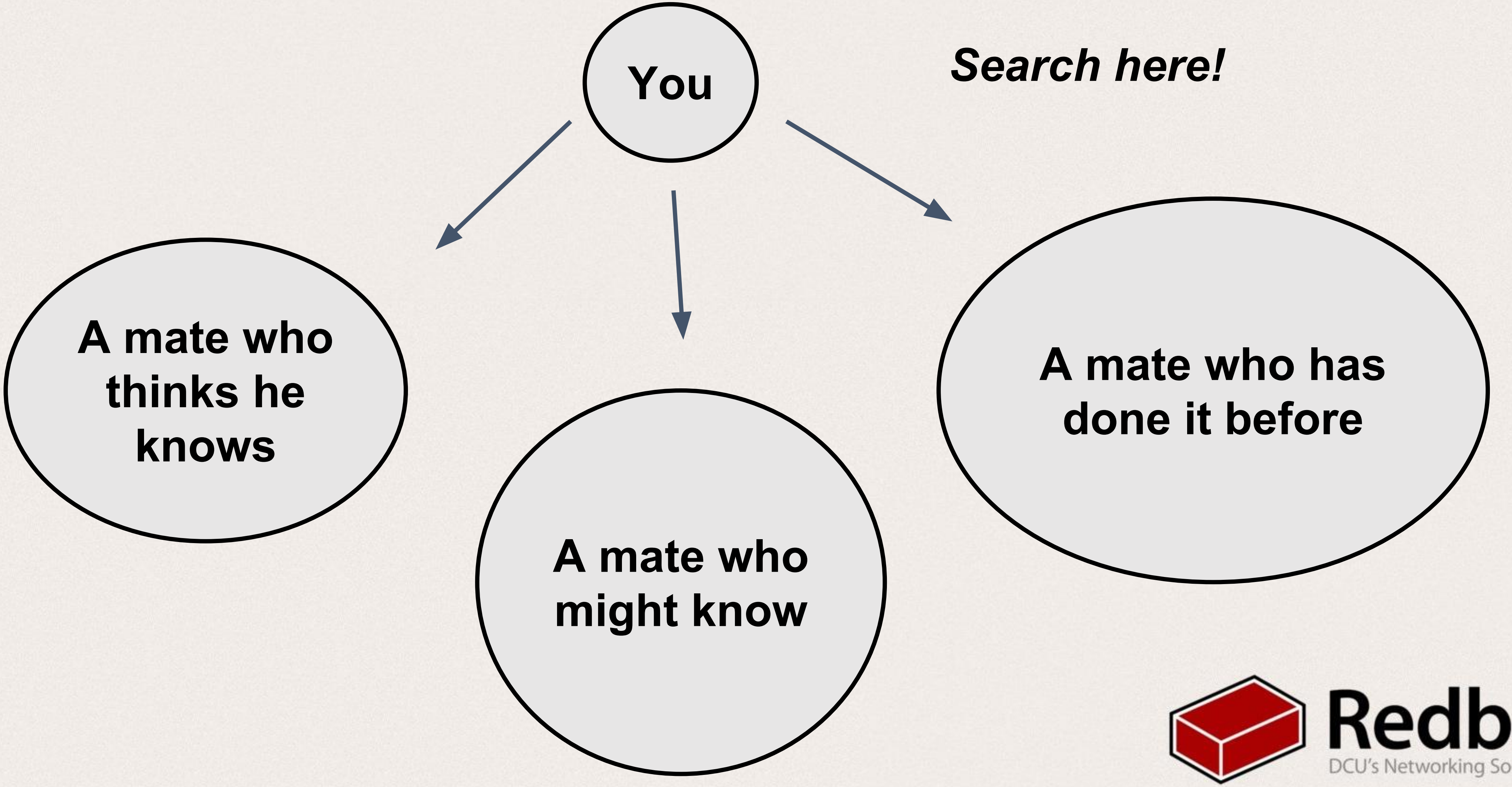
Redbrick

DCU's Networking Society

Can’t find what you’re looking for?

Redbrick
DCU’s Networking Society

If you need any help..



You

Search here!

A mate who thinks he knows

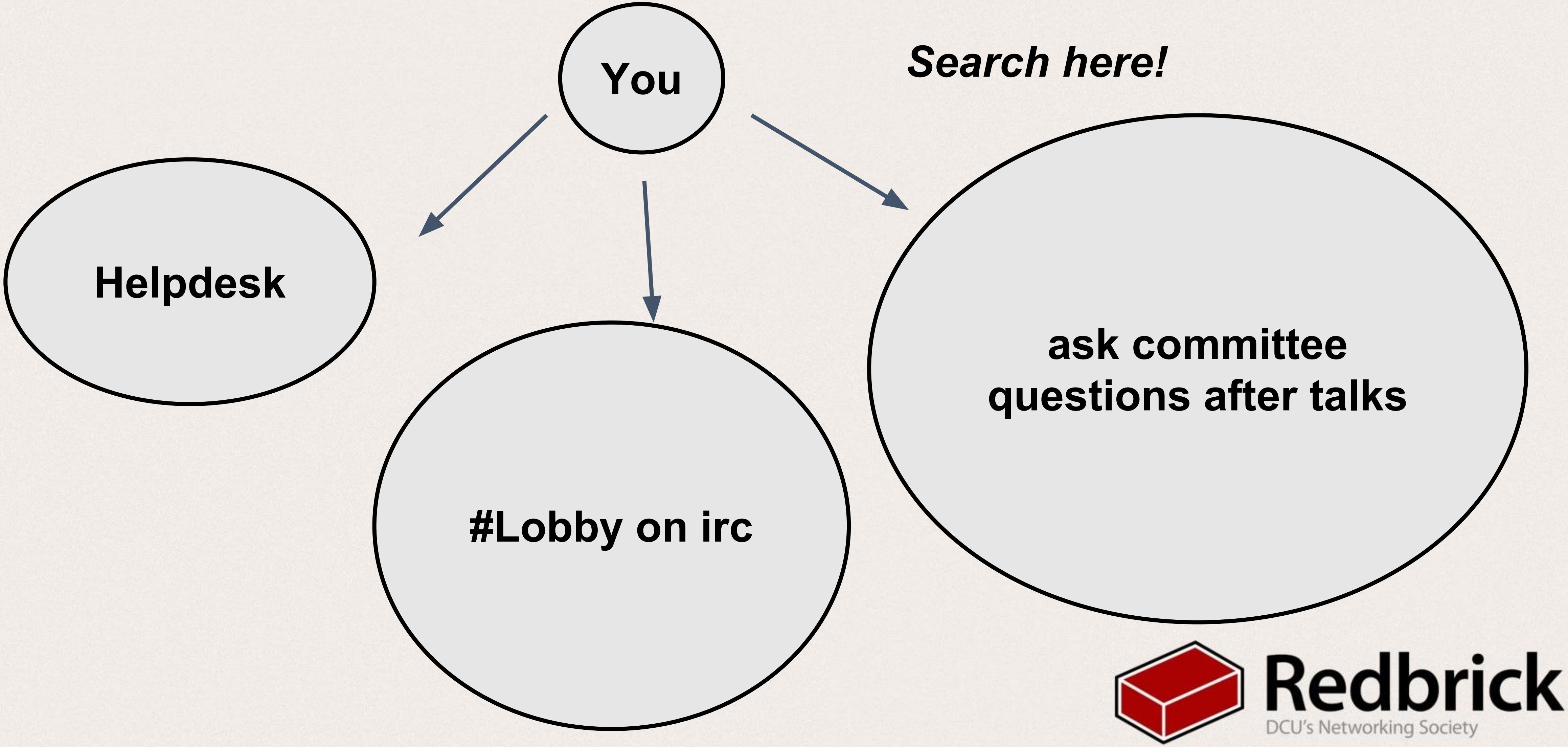
A mate who might know

A mate who has done it before

Can’t find what you’re looking for?

Redbrick
DCU’s Networking Society

If you need any help..



You

Helpdesk

#Lobby on irc

ask committee
questions after talks

Search here!

Redbrick
DCU's Networking Society

Anyone interested in an install fest?

Everyone come together and tries to install linux at the same time together and help each other.

RIGHT NOW THOUGH

We have an egm right after this talk and you all need to come

We need a first year rep and

RIGHT NOW THOUGH

We have an egm right after this talk and you all need to come

We need a first year rep and

It might be you

Redbrick
DCU's Networking Society

And tomorrow

We have the fabulous Ben give an intro to using your webspace

Redbrick
DCU's Networking Society