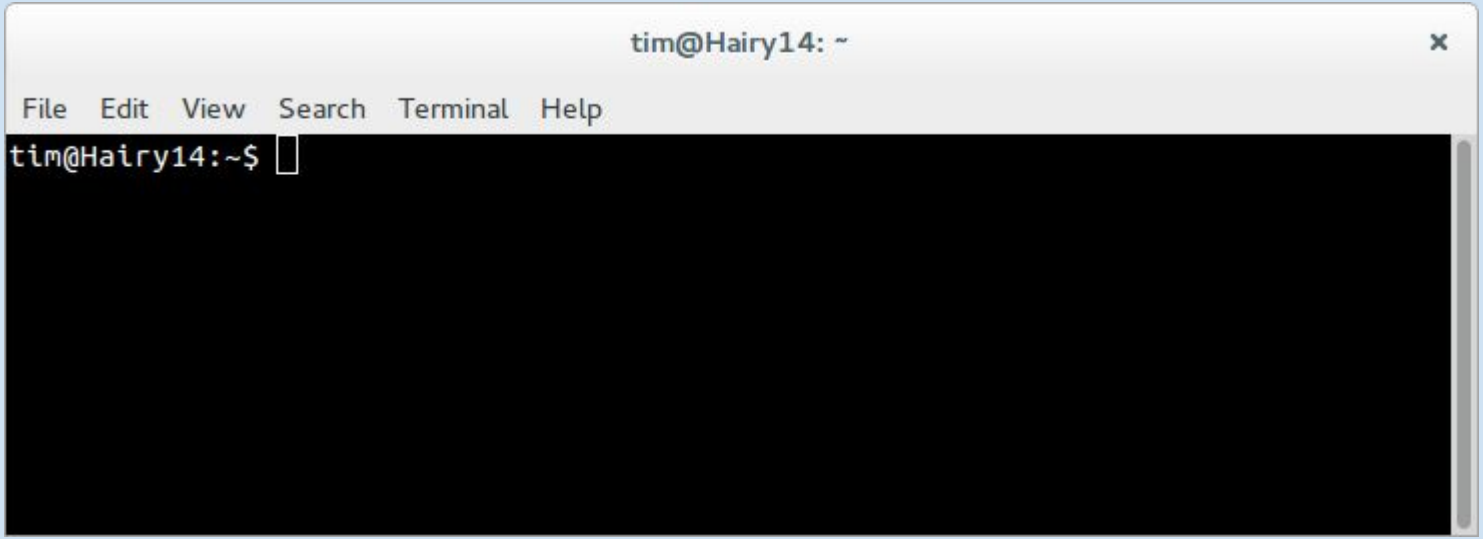
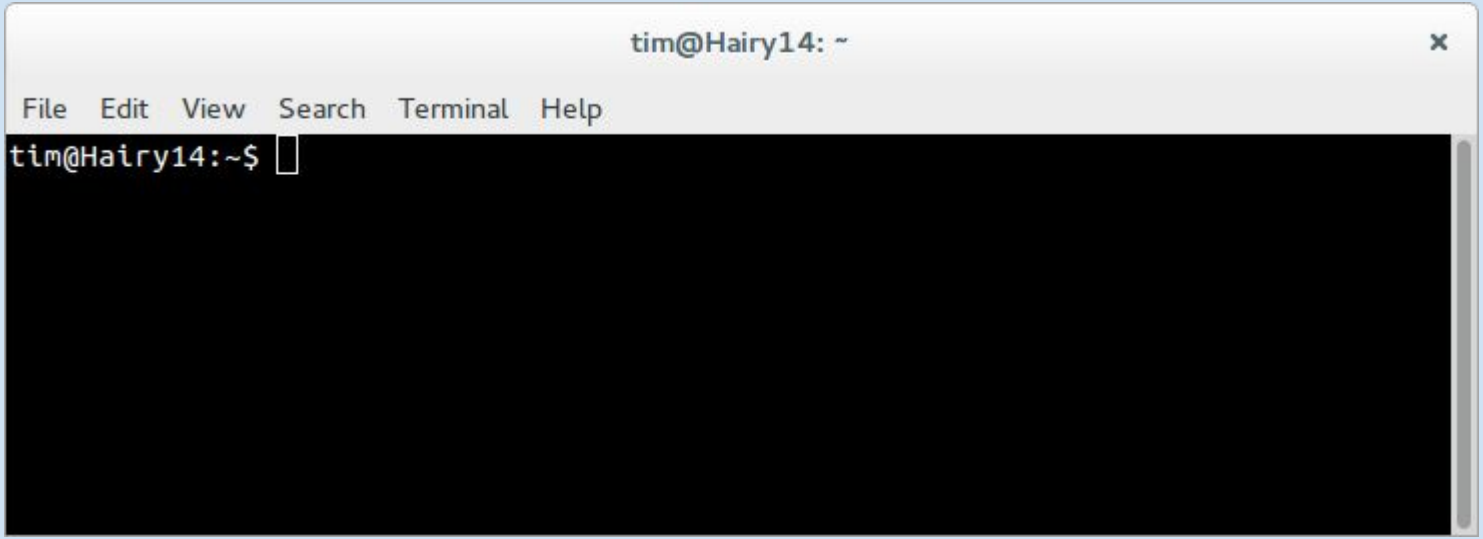
# Terminal / Git Guide

A/B Testing Gear Up

# What’s a terminal?

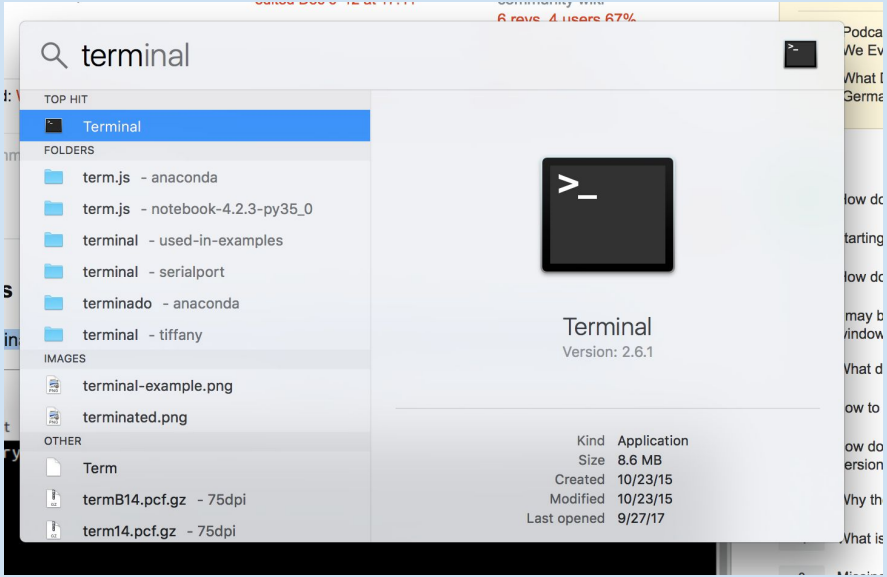


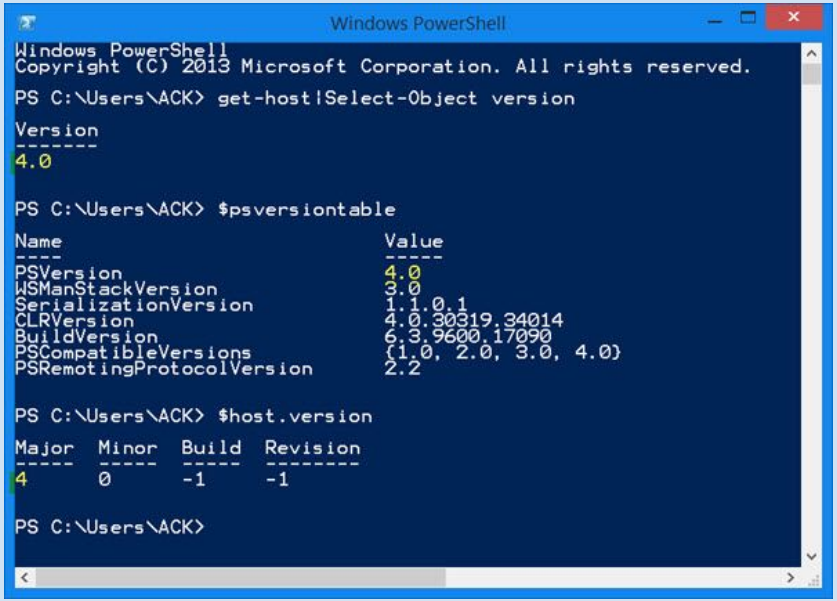
# What’s a terminal?




An interface in which you can type and execute text based commands.

# It’s already on your computer.



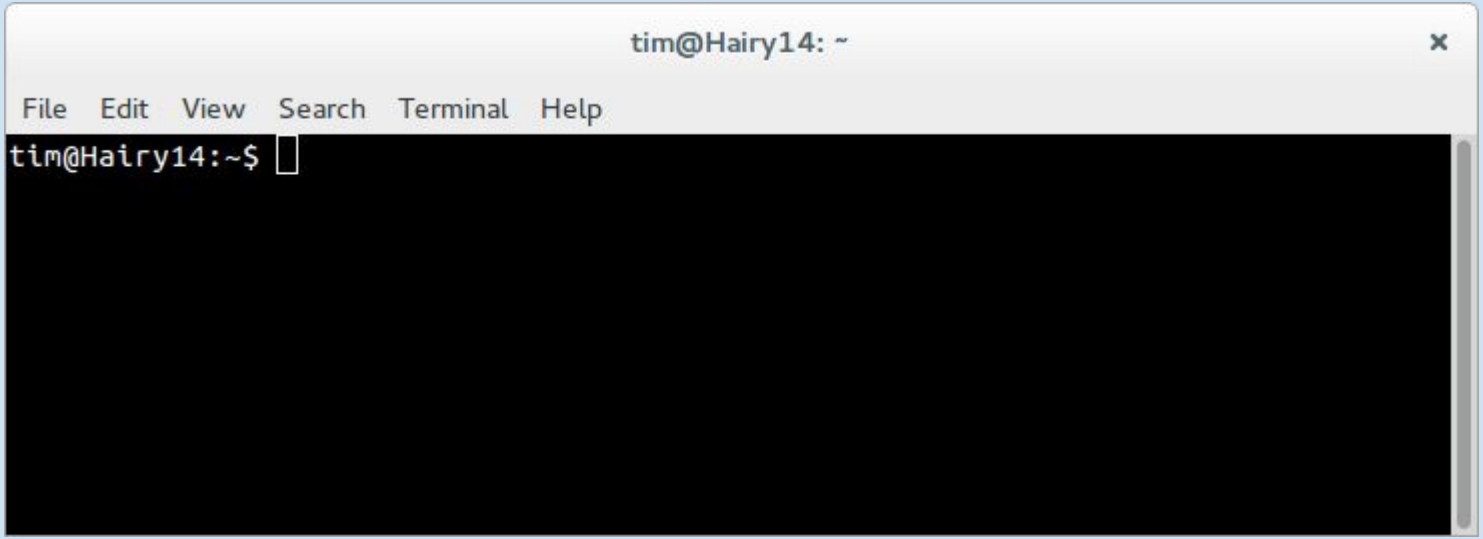




**Mac**: Terminal

**Windows**: PowerShell

(the commands in the handout will only work with PowerShell, not other command line applications!)

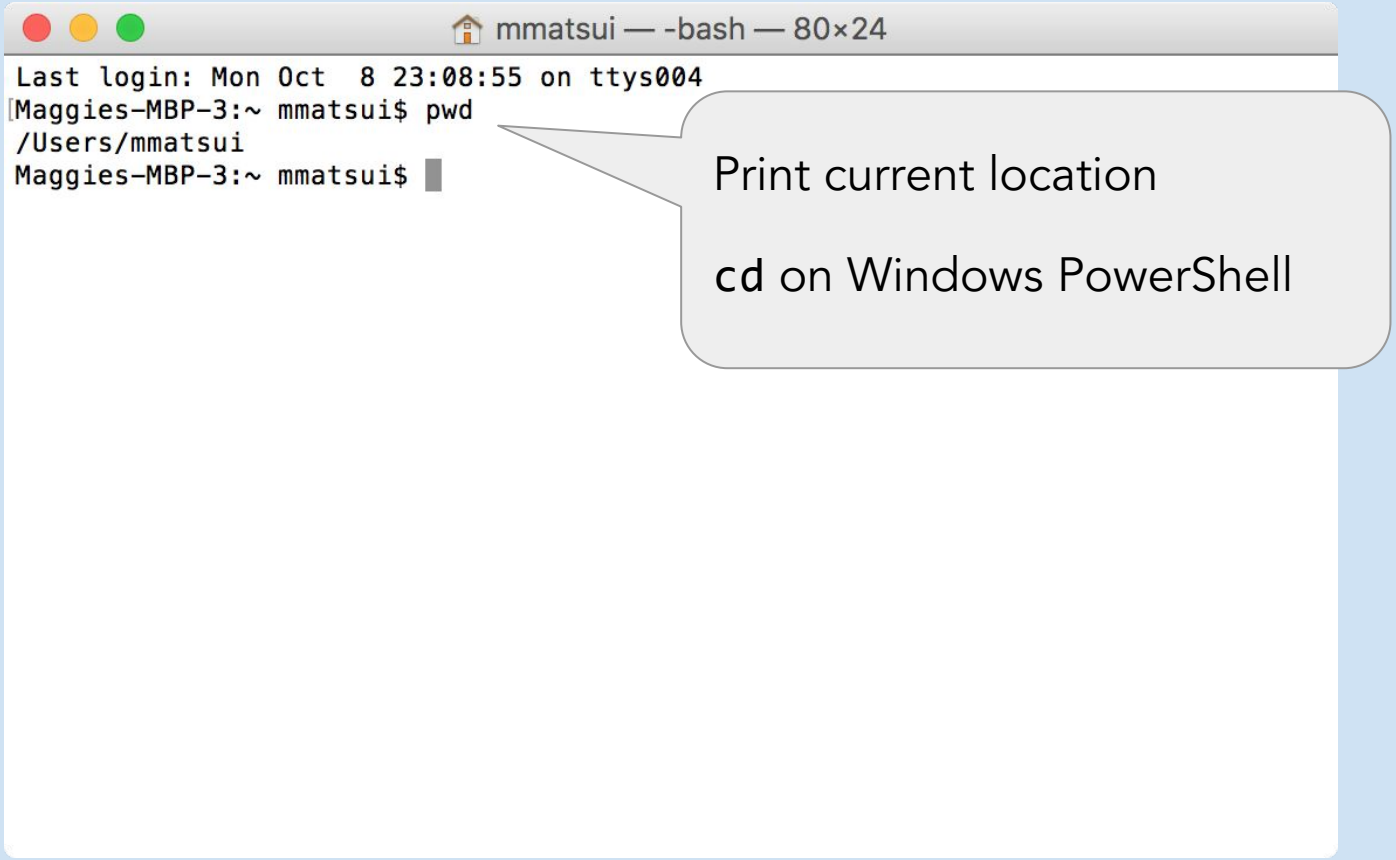
# What do I need terminal for?

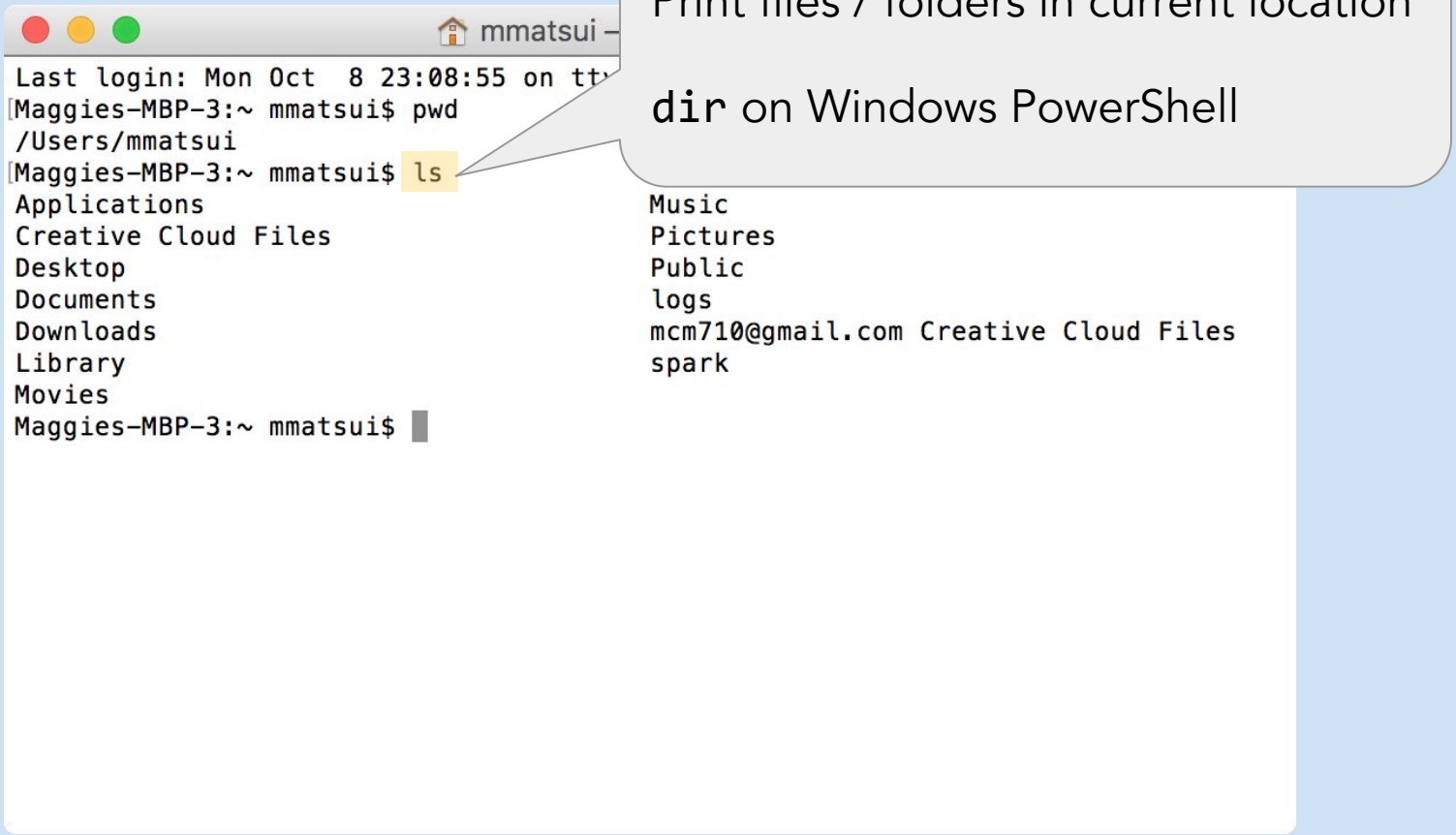


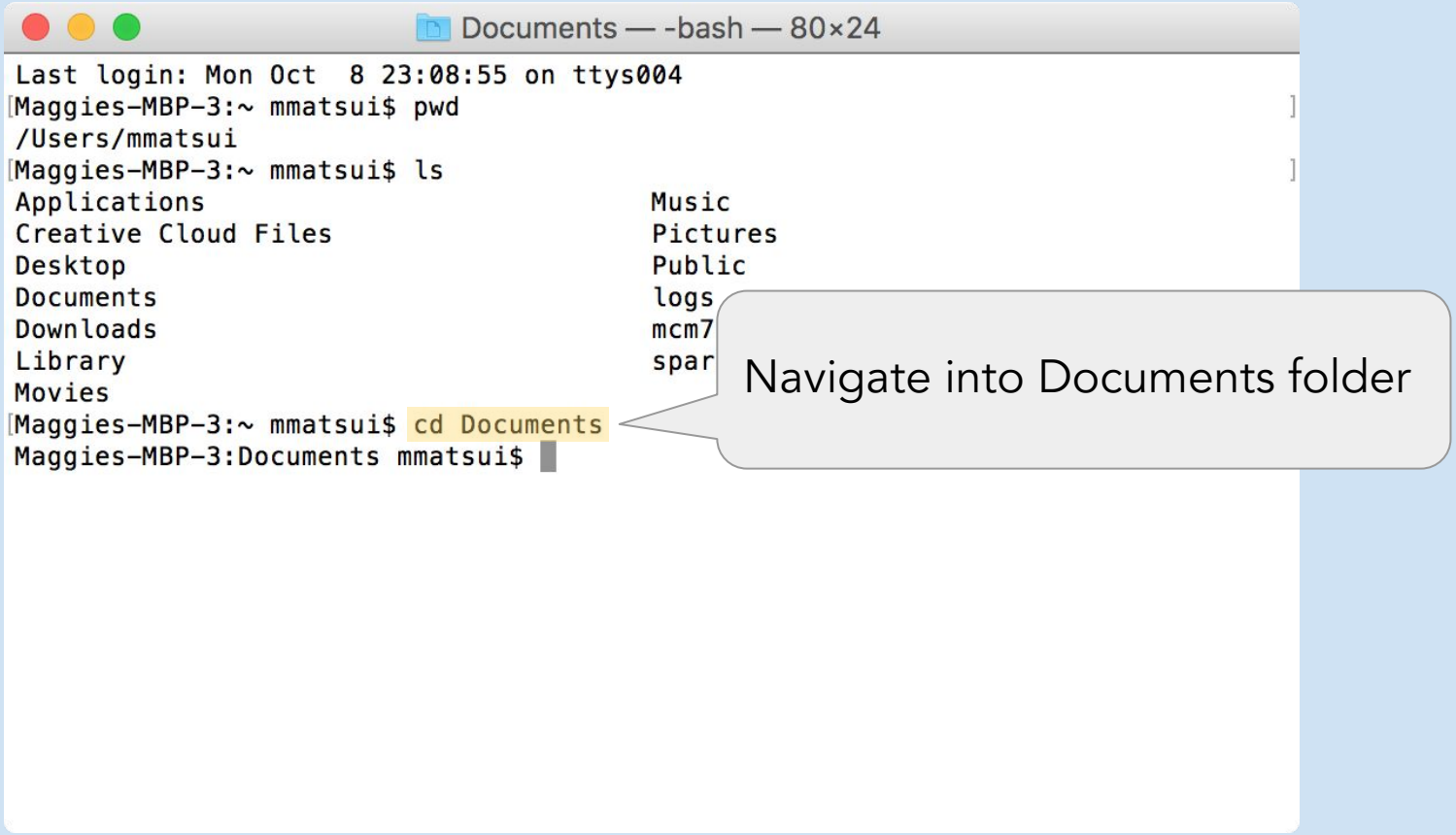

You will use your terminal to download the stencil files for your website from Github onto your computer.

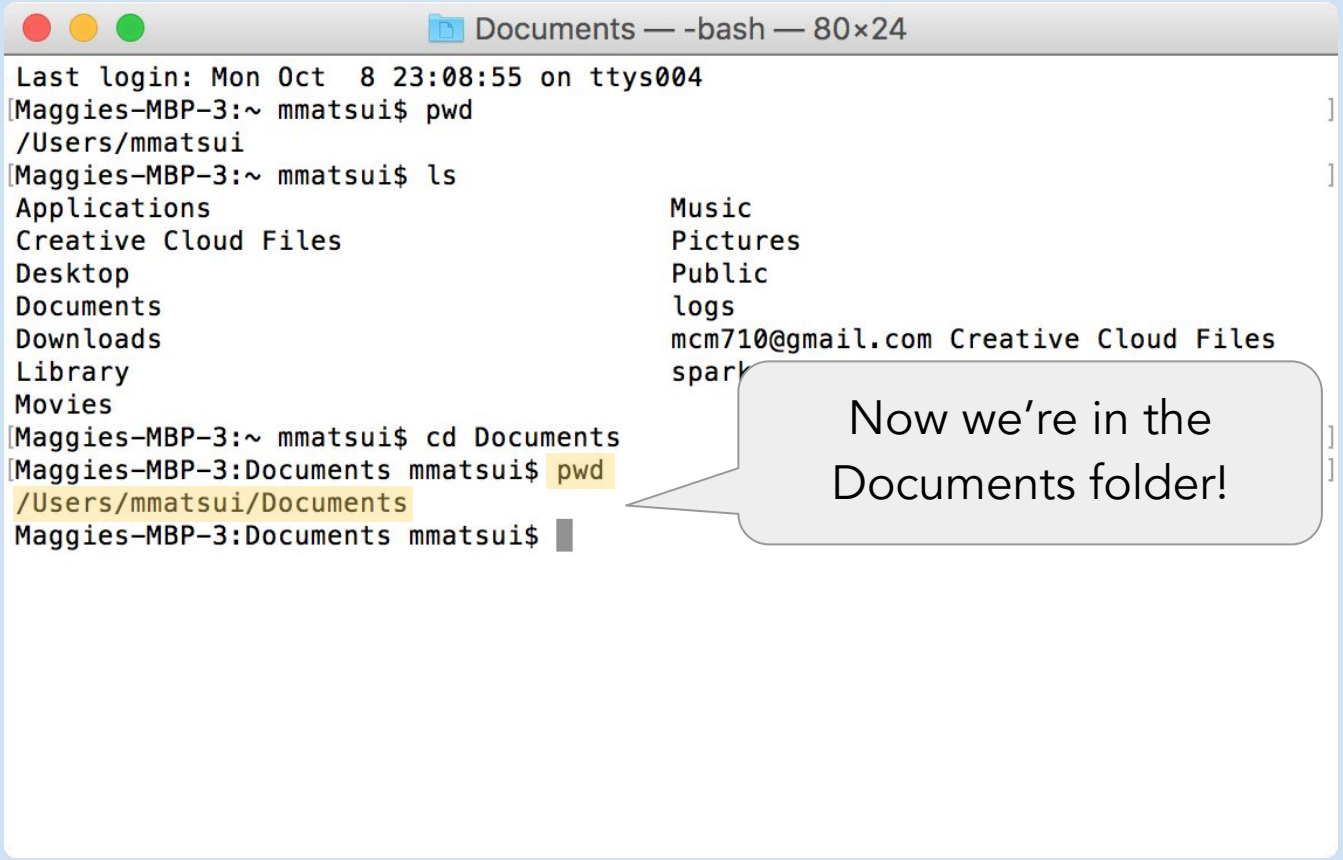
# Basic commands

| Mac command | Windows command | Action |
|---|---|---|
| `pwd` | `cd` | Print “url” of where you are in your computer |
| `cd <FOLDER NAME>` | `cd <FOLDER NAME>` | Navigate down into a folder |
| `cd ..` | `cd ..` | Navigate up out of a folder |
| `ls` | `dir` | Show current files / folders where you are in computer |


mmatsui — -bash — 80×24
Last login: Mon Oct  8 23:08:55 on ttys004
Maggies-MBP-3:~ mmatsui$ pwd
/Users/mmatsui
Maggies-MBP-3:~ mmatsui$
Print current location
cd on Windows PowerShell


mmatsui —
Last login: Mon Oct 8 23:08:55 on tty
Maggies-MBP-3:~ mmatsui$ pwd
/Users/mmatsui
Maggies-MBP-3:~ mmatsui$ ls
Applications
Creative Cloud Files
Desktop
Documents
Downloads
Library
Movies
Music
Pictures
Public
logs
mcm710@gmail.com Creative Cloud Files
spark
Maggies-MBP-3:~ mmatsui$
Print files / folders in current location
dir on Windows PowerShell


Documents — -bash — 80×24
Last login: Mon Oct 8 23:08:55 on ttys004
Maggies-MBP-3:~ mmatsui$ pwd
/Users/mmatsui
Maggies-MBP-3:~ mmatsui$ ls
Applications
Creative Cloud Files
Desktop
Documents
Downloads
Library
Movies
Music
Pictures
Public
logs
mcm7
spar
Maggies-MBP-3:~ mmatsui$ cd Documents
Maggies-MBP-3:Documents mmatsui$
Navigate into Documents folder


Documents — -bash — 80×24
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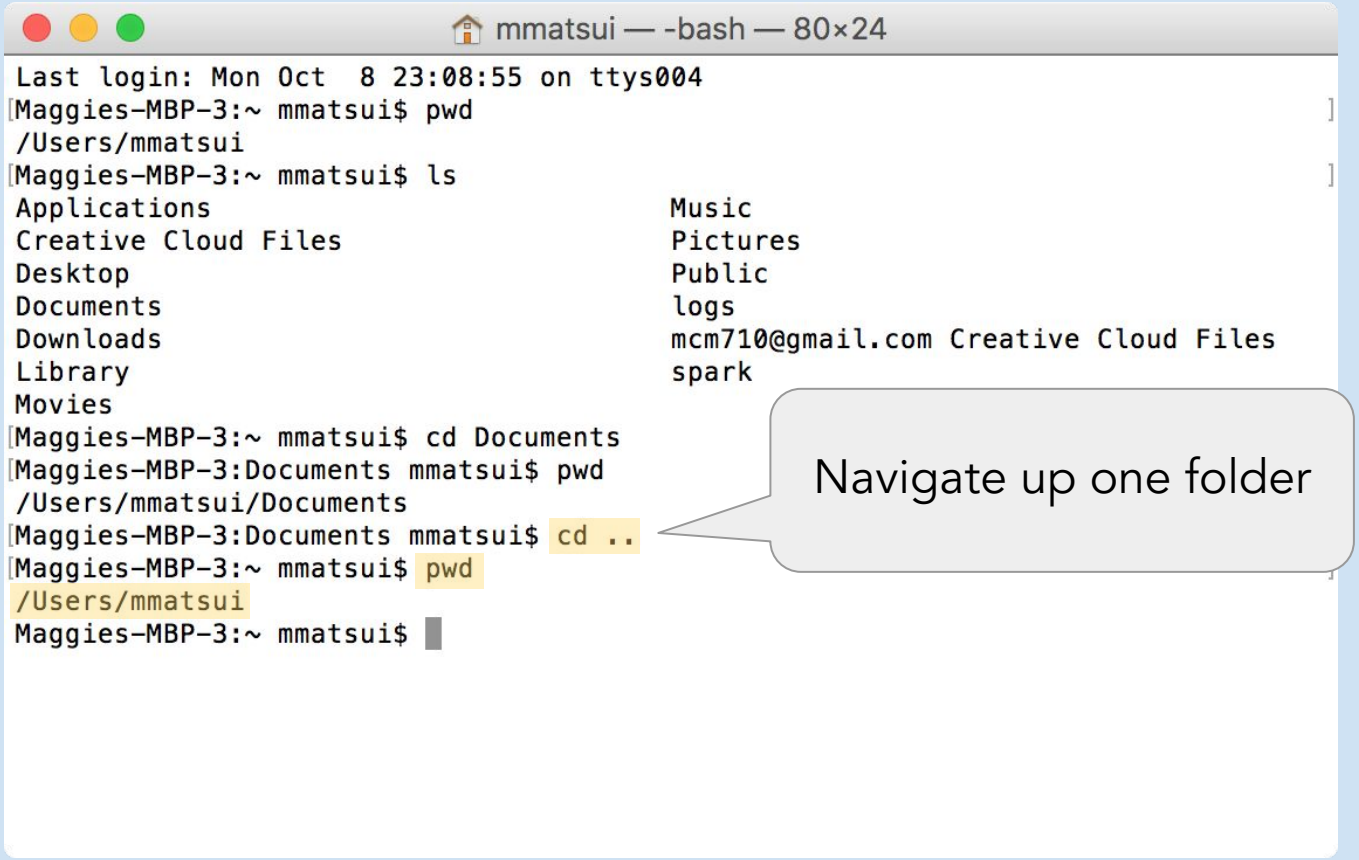
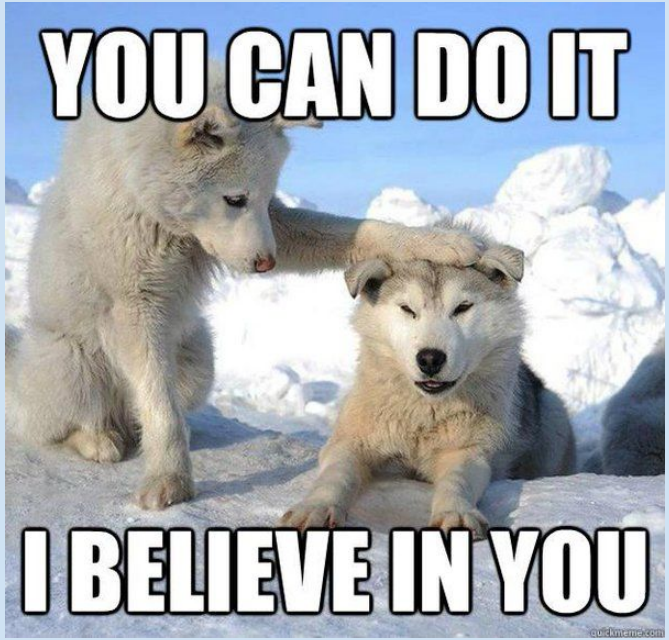
Applications
Creative Cloud Files
Desktop
Documents
Downloads
Library
Movies
Music
Pictures
Public
logs
mcm710@gmail.com Creative Cloud Files
Maggies-MBP-3:~ mmatsui$ cd Documents
Maggies-MBP-3:Documents mmatsui$ pwd
/Users/mmatsui/Documents
Maggies-MBP-3:Documents mmatsui$
Now we're in the Documents folder!


mmatsui — -bash — 80×24
Last login: Mon Oct 8 23:08:55 on ttys004
Maggies-MBP-3:~ mmatsui$ pwd
/Users/mmatsui
Maggies-MBP-3:~ mmatsui$ ls
Applications
Creative Cloud Files
Desktop
Documents
Downloads
Library
Movies
Music
Pictures
Public
logs
mcm710@gmail.com Creative Cloud Files
spark
Maggies-MBP-3:~ mmatsui$ cd Documents
Maggies-MBP-3:Documents mmatsui$ pwd
/Users/mmatsui/Documents
Maggies-MBP-3:Documents mmatsui$ cd ..
Maggies-MBP-3:~ mmatsui$ pwd
/Users/mmatsui
Maggies-MBP-3:~ mmatsui$
Navigate up one folder

# For A/B Testing:

1. Create a folder where you want to store your code files.
2. Open a Terminal/PowerShell window.
3. Use **cd** to navigate to your folder you created in step 1.
4. Type `git clone` https://github.com/matsuim/a-b-testing.git to download files into your folder (you will need to download Git first).


YOU CAN DO IT
I BELIEVE IN YOU
quickmeme.com

# Calculating Your Metrics

## A/B Testing Gear Up

# Overview

1. Getting your data
2. What's a metric?
3. Sorting your data
4. Calculating metrics!
    a. Click rate
    b. Time-to-click
    c. Return rate
    d. Dwell time

# Getting your data

Your log data should look something like this:

```
2018-10-10T22:57:59.358730+00:00 app[web.1]: AB_TESTING: A 1507676280918 0 0 nfwsqqb
2018-10-10T22:58:02.636817+00:00 app[web.1]: AB_TESTING: B 1507676278189 1507676285131 mp3 jcdgkuk
2018-10-10T22:58:08.552881+00:00 app[web.1]: AB_TESTING: B 1507676285142 0 0 tuethevg
2018-10-10T22:58:08.700558+00:00 app[web.1]: AB_TESTING: A 1507676280918 1507676290270 mp2 nfwsqqb
2018-10-10T22:58:10.263199+00:00 app[web.1]: AB_TESTING: A 1507676302416 0 0 dbfggghmn
...
```

Which corresponds to this format:

```
<timestamp> AB_TESTING <ver. a/b> <page load time> <click time> <id of clicked element> <sessionID>
```

# Cleaning your data

Follow your handout to get your data from this…

```
2018-10-10T22:57:59.358730+00:00 app[web.1]: AB_TESTING: A 1507676280918 0 0 nfwsqqb
2018-10-10T22:58:02.636817+00:00 app[web.1]: AB_TESTING: B 1507676278189 1507676285131 mp3 jcdgkuk
2018-10-10T22:58:08.552881+00:00 app[web.1]: AB_TESTING: B 1507676285142 0 0 tuethevg
2018-10-10T22:58:08.700558+00:00 app[web.1]: AB_TESTING: A 1507676280918 1507676290270 mp2 nfwsqqb
2018-10-10T22:58:10.263199+00:00 app[web.1]: AB_TESTING: A 1507676302416 0 0 dbfggghmn
...
```

to this!

| A | B | C | D | E | F |
|---|---|---|---|---|---|
| 2017-10-10T22:57:59.358730+00:00 | A | 1.50768E+12 | 0 | 0 | nfwsqqb |
| 2017-10-10T22:58:02.636817+00:00 | B | 1.50768E+12 | 1.5077E+12 | mp3 | jcdgkuk |
| 2017-10-10T22:58:08.552881+00:00 | B | 1.50768E+12 | 0 | 0 | tuethevg |
| 2017-10-10T22:58:08.700558+00:00 | A | 1.50768E+12 | 1.5077E+12 | mp2 | nfwsqqb |
| 2017-10-10T22:58:10.263199+00:00 | A | 1.50768E+12 | 0 | 0 | dbfggghmn |
| 2017-10-10T22:58:12.052691+00:00 | B | 1.50768E+12 | 0 | 0 | jcdgkuk |
| 2017-10-10T22:58:13.238201+00:00 | A | 1.50768E+12 | 1.5077E+12 | mp3 | aliqpn |

# What’s a metric?

- Click rate
- Dwell time
- Time to click
- Return rate

** a metric is different from a statistical test!*

# Sorting your data

Separate your version A data and version B data into two sheets, then sort by session. You can now see the sessions in which your page received clicks!

2017-10-05T17:26:19.598801+00:00 app[web.1]: AB_TESTING: B 1507224379455 0 0 fndowmclai
2017-10-05T17:26:20.579381+00:00 app[web.1]: AB_TESTING: B 1507224380415 0 0 fndowmclai
2017-10-05T17:26:24.840825+00:00 app[web.1]: AB_TESTING: B **1507224380415 1507224384783** fndwmclai

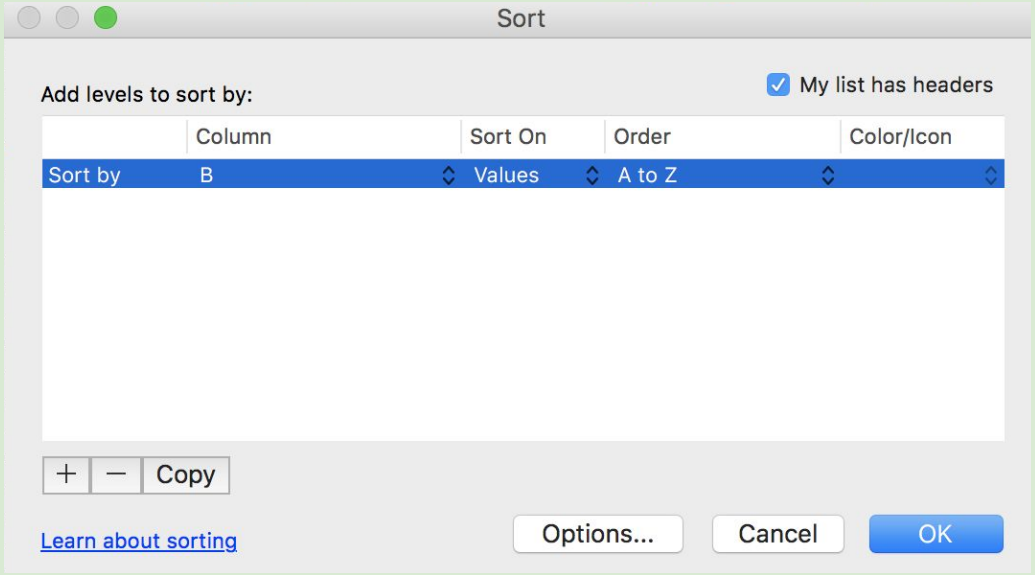
2017-10-05T17:26:28.808994+00:00 app[web.1]: AB_TESTING: A 1507224388741 0 0 itzjseohpj
2017-10-05T17:26:32.252820+00:00 app[web.1]: AB_TESTING: A **1507224388741 1507224392189** mp2 itzjseohpj

remember:

`<timestamp> AB_TESTING <ver. a/b> <page load time> <click time> <id of clicked element> <sessionID>`

# Sorting in Excel

1. Select all your data (CTRL + A)
2. data > sort > custom sort > sort by (column B)



# Calculating Metrics

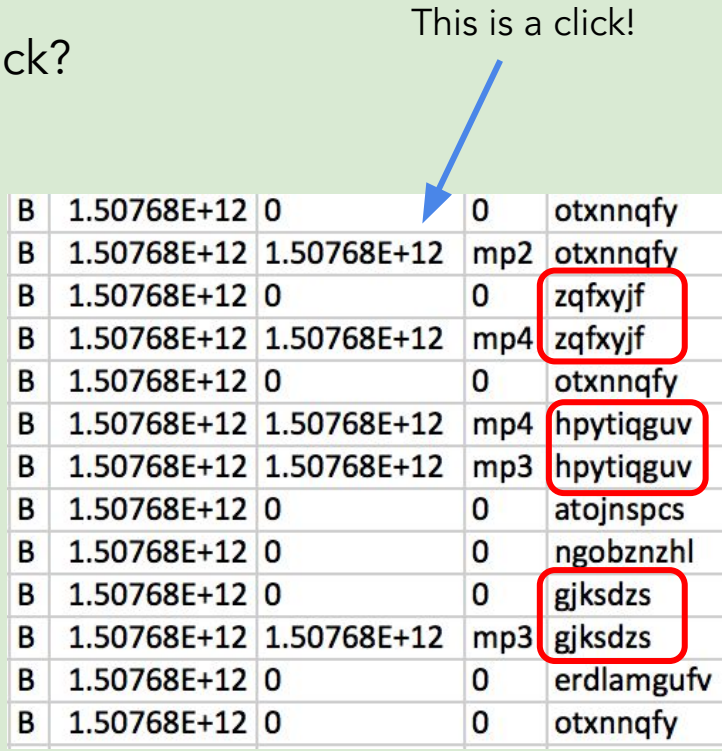
# Click rate

What proportion of sessions had at least one click?

$$\frac{\text{number of unique* clicks}}{\text{number of unique sessions}}$$

4 / 7 = 57% click-through rate

*unique: only count a visitor's first interaction!



# Time-to-click

How long does it take a user to click your website?
(only count a user's first click!)

**time-to-click = click time - page load time**
**1507676971224 - 1507676958632 = 12592 ms.**

| | | | |
|---|---|---|---|
| 1.50768E+12 | 0 | 0 | otxnnqfy |
| 1.50768E+12 | 1.50768E+12 | mp2 | otxnnqfy |

page load time

click time

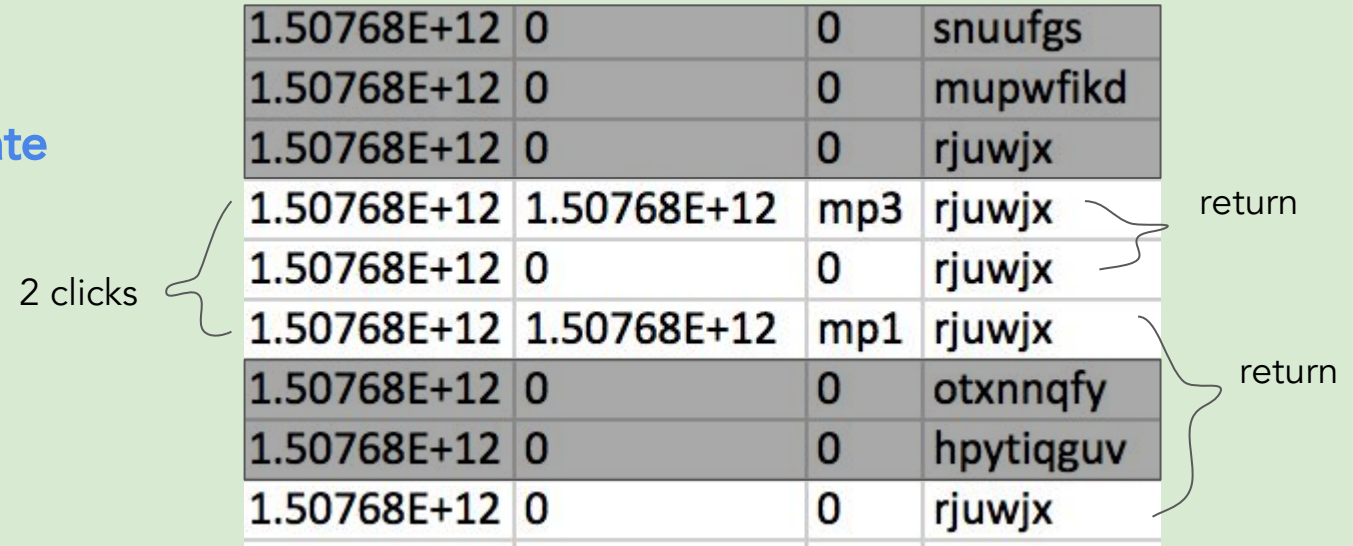
* you might have to click on the individual cell to get the full number value

# Return rate

What proportion of sessions left the landing page and returned?

$$\frac{\text{number of returns}}{\text{number of clicks}}$$

2 / 2 = 100% return rate

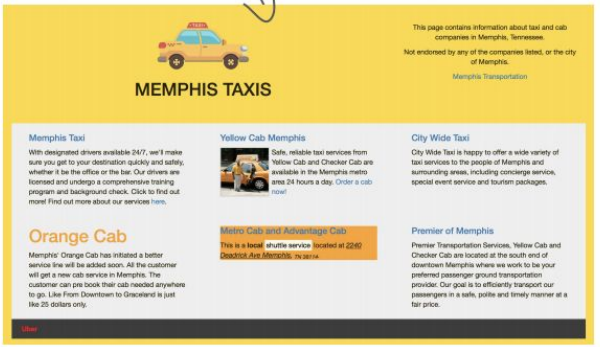


# What's a return?

page load #1

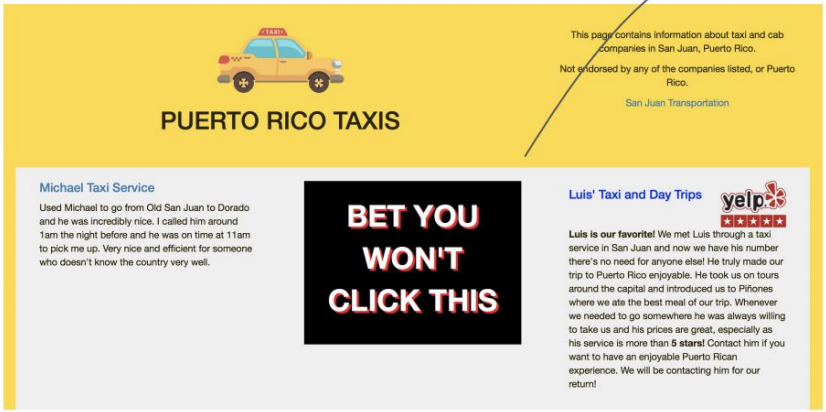
click a div

back button
(page load #2)

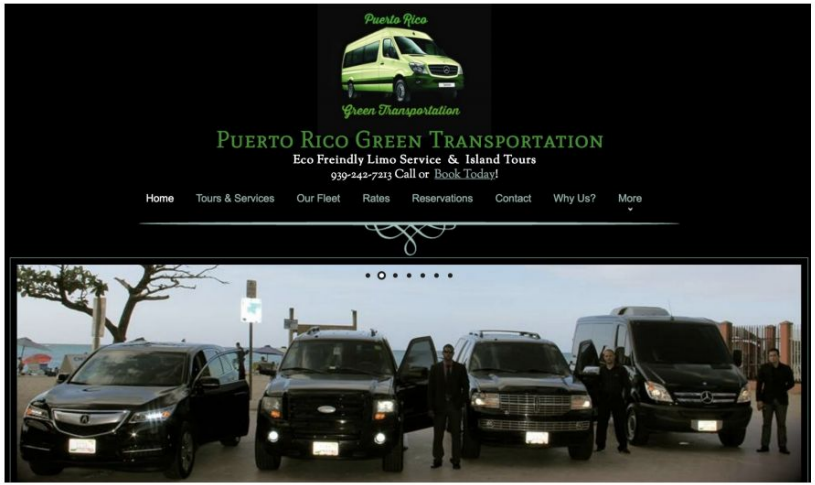


# Why would someone return?

page load #1




ooh i'm curious
*click*




page load #2

no thanks, gonna find a different taxi

# Dwell time

What's the average time users spend on linked pages before returning to the landing page?

**dwell time = 2nd page load time - click time**

1507676888123 - 1507676885288 = 2835 ms.

click time

| | | | |
|---|---|---|---|
| 1.50768E+12 | 0 | 0 | rjuwjx |
| 1.50768E+12 | 1.50768E+12 | mp3 | rjuwjx |
| 1.50768E+12 | 0 | 0 | rjuwjx |

2nd page load time

# Handy Excel formulas

## =COUNTIF(A2:A5, "zkjfiol")

Counts the number of cells that have “zkjfiol” (for instance, this could be a session ID) in cells A2 through A5.

## =SUMPRODUCT(1/COUNTIF(H1:H6, H1:H6))

Uses two formulas to count the total unique entries in column H!
This is useful to find number of unique sessions.

Here’s more information about how to use the COUNTIF formula.
You can also watch this helpful video for more information on how to apply these functions.