What is a computer?

What is it really?

Active Learning

- How would you explain it?

How would you explain the pattern of eating in a restaurant?

users
I/O

Coca-Cola
Messages

Storage
Storage
Recipes
Storage
RAM

Chef - CPU

THE NEW YORK PUBLIC LIBRARY

High level description of a computer

- The restaurant analogy
- Explain that we will write instructions
- The computer will interpret them

Start

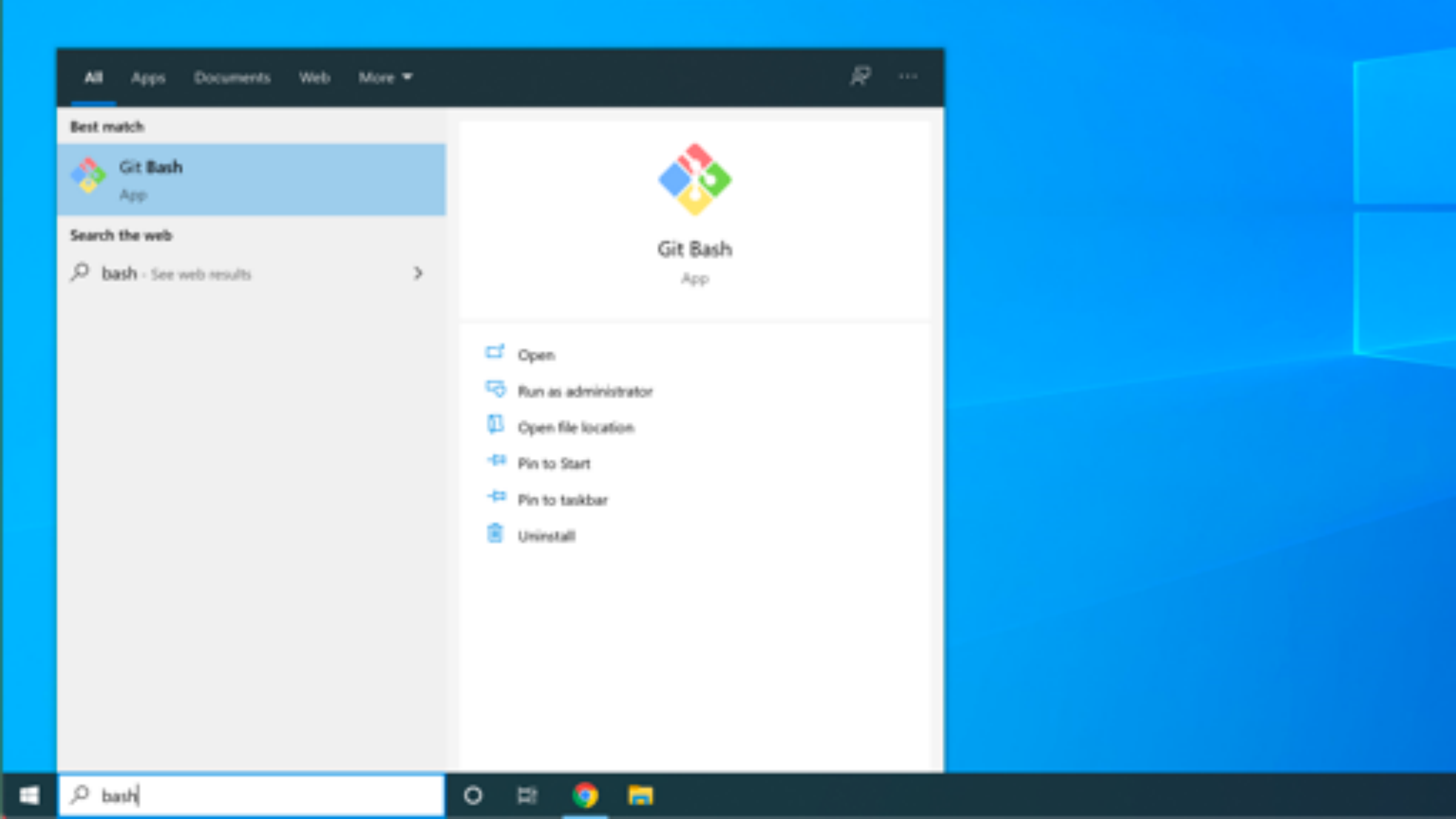
You will need Google Chrome

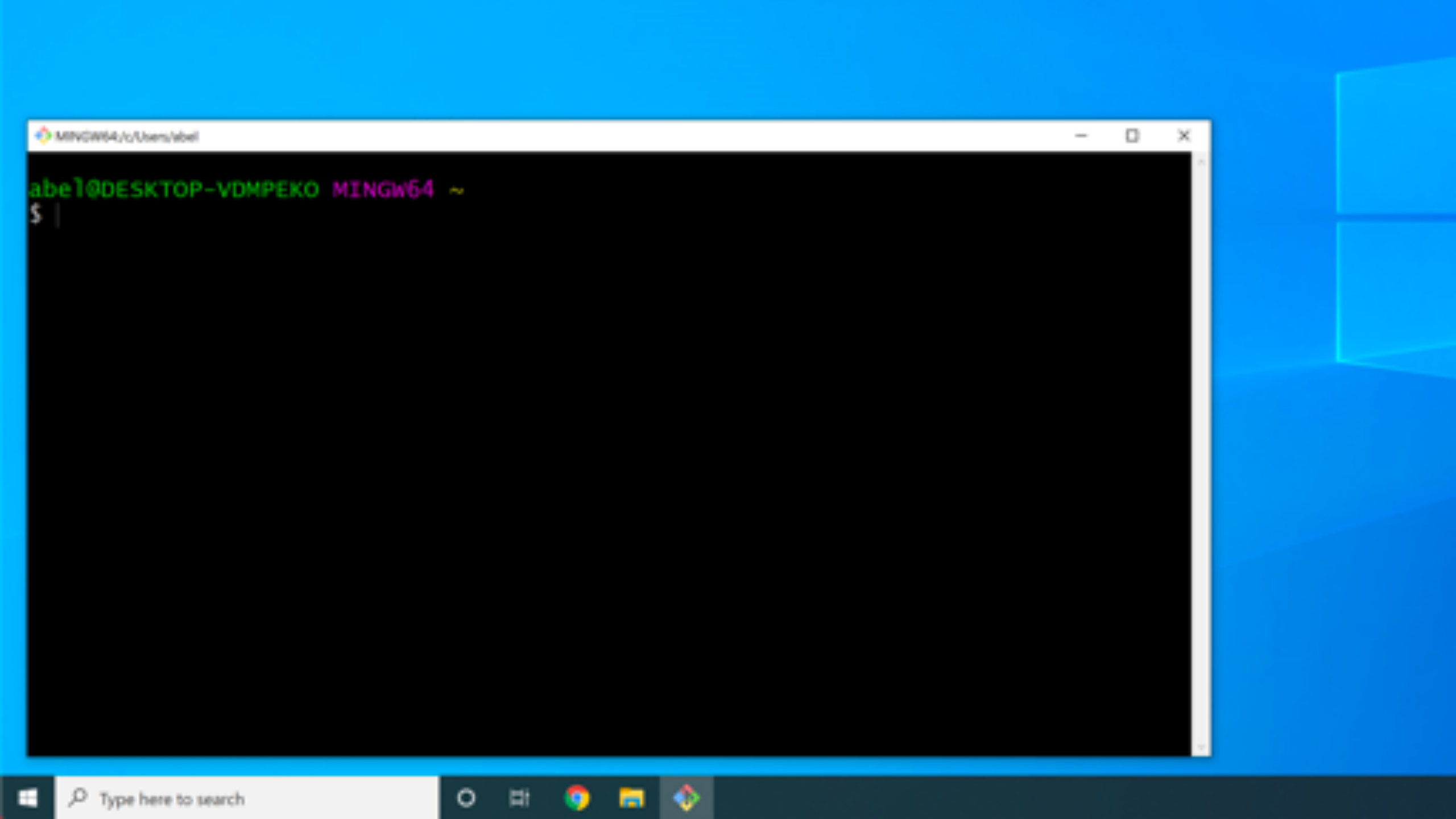
bin -> usr/bin
boot
dev
etc
home
lib -> usr/lib
lib64 -> usr/lib
lost+found
mnt
opt
private -> /home/encrypted
proc
root
run
sbin -> usr/bin
srv
sys
tmp

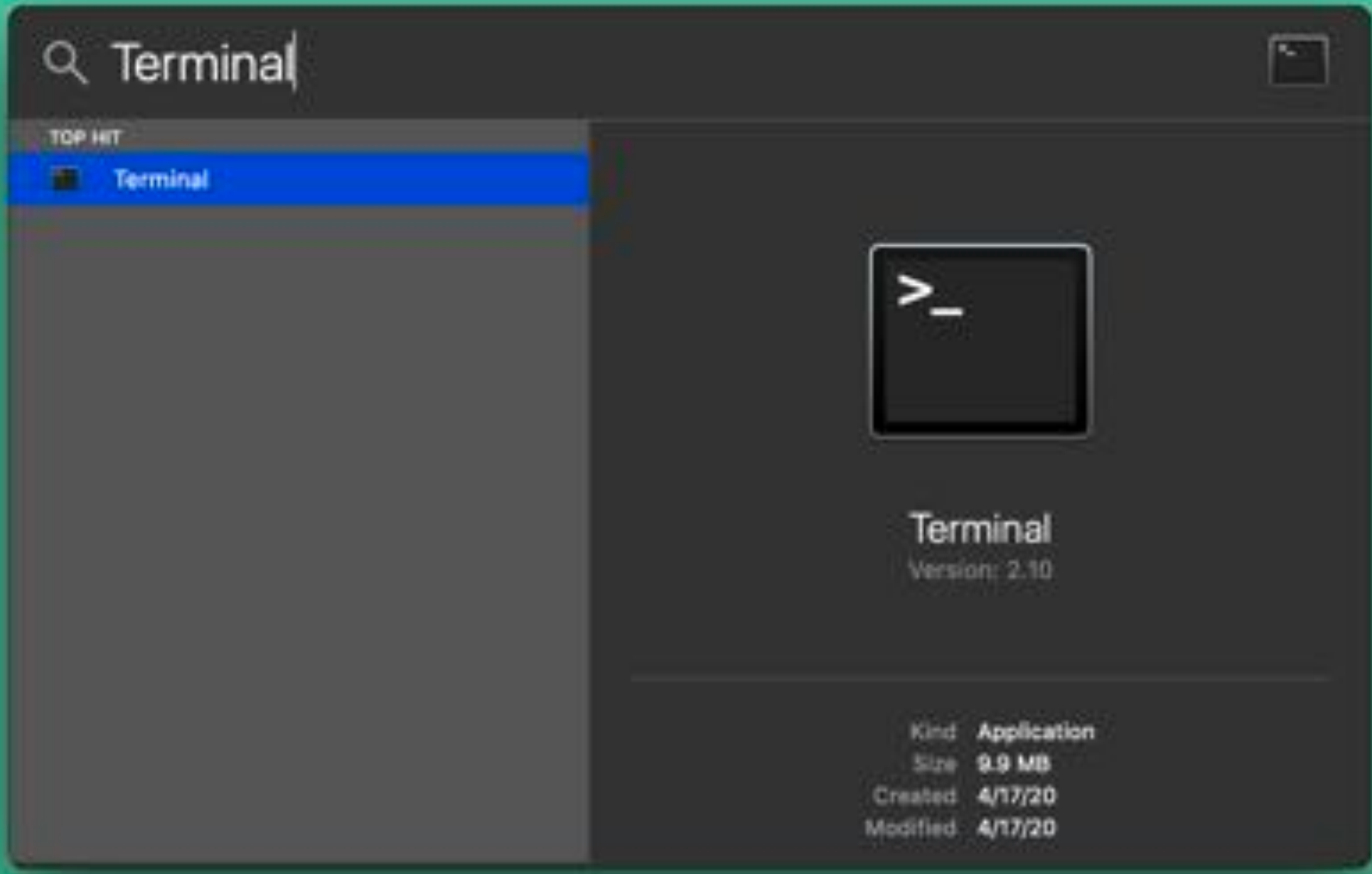
Goal: basic commands and navigation

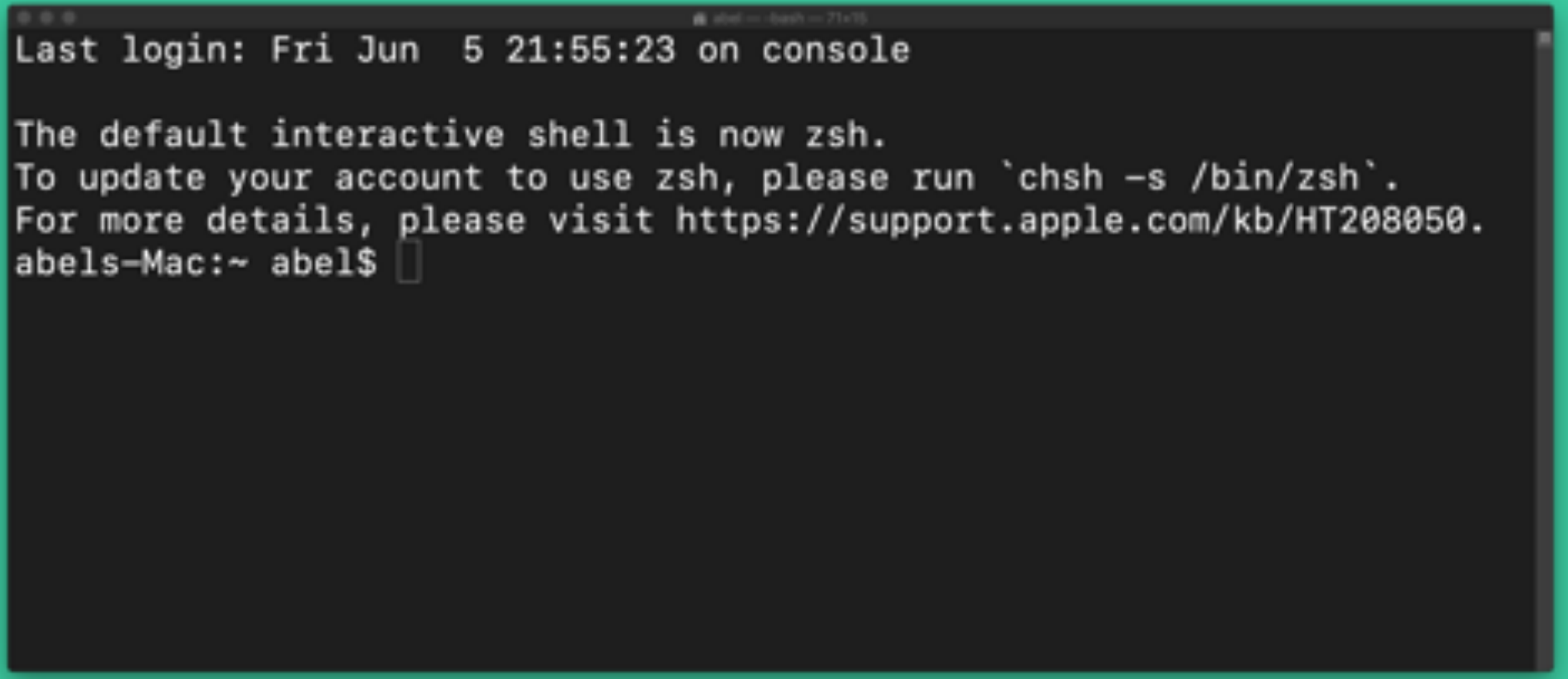
Windows: search for “git” on google

Choose all the defaults

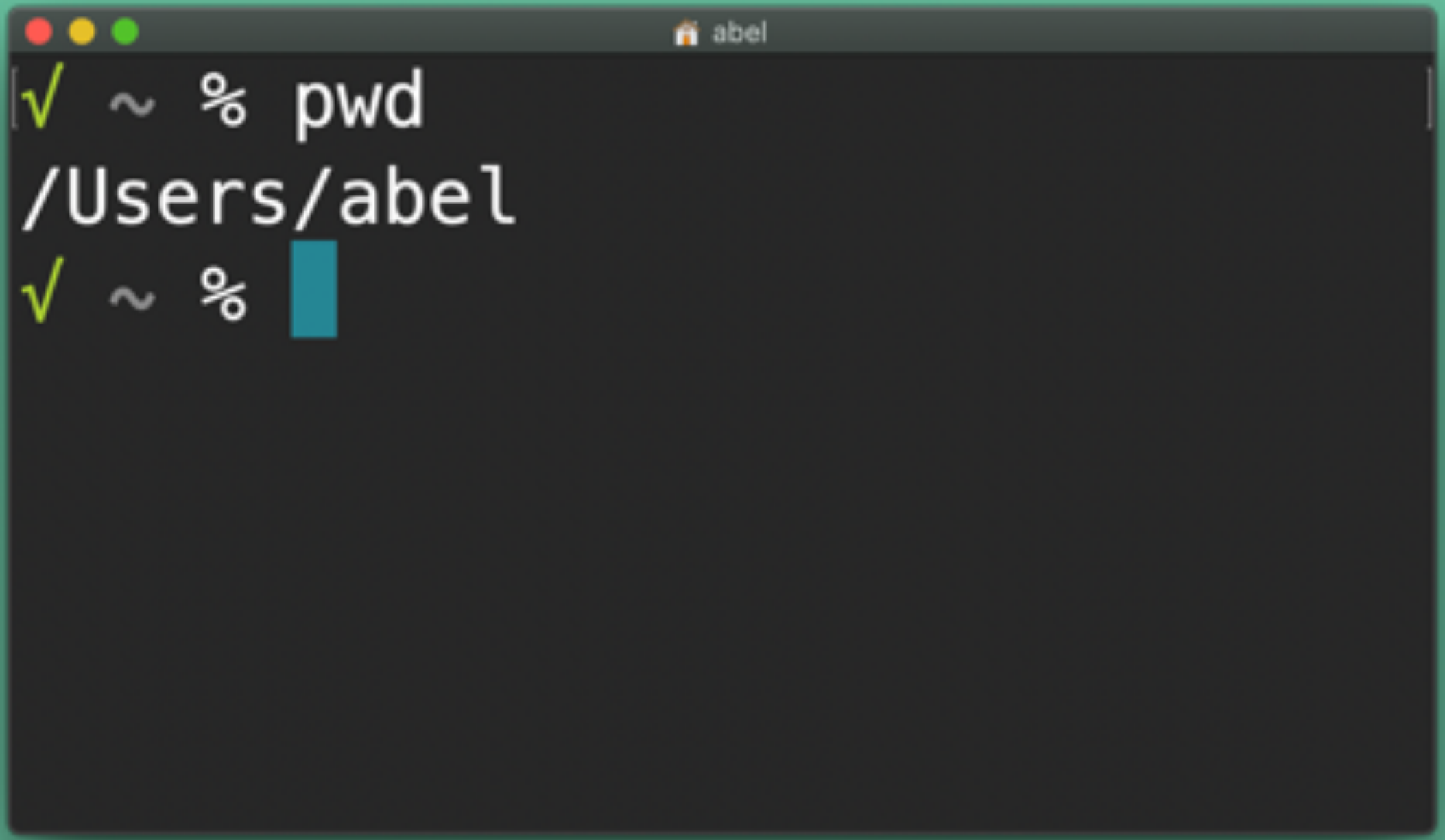

All
Apps
Documents
Web
More
Best match
Git Bash
App
Search the web
bash - See web results
Git Bash
App
Open
Run as administrator
Open file location
Pin to Start
Pin to taskbar
Uninstall
bash


MINGW64:/c/Users/abel
abel@DESKTOP-VDMPEKO MINGW64 ~
$
Type here to search


Terminal
TOP HIT
Terminal
>_
Terminal
Version: 2.10
Kind Application
Size 9.9 MB
Created 4/17/20
Modified 4/17/20


Last login: Fri Jun 5 21:55:23 on console
The default interactive shell is now zsh.
To update your account to use zsh, please run `chsh -s /bin/zsh`.
For more details, please visit https://support.apple.com/kb/HT208050.
abels-Mac:~ abel$

I am running zsh and custom styles

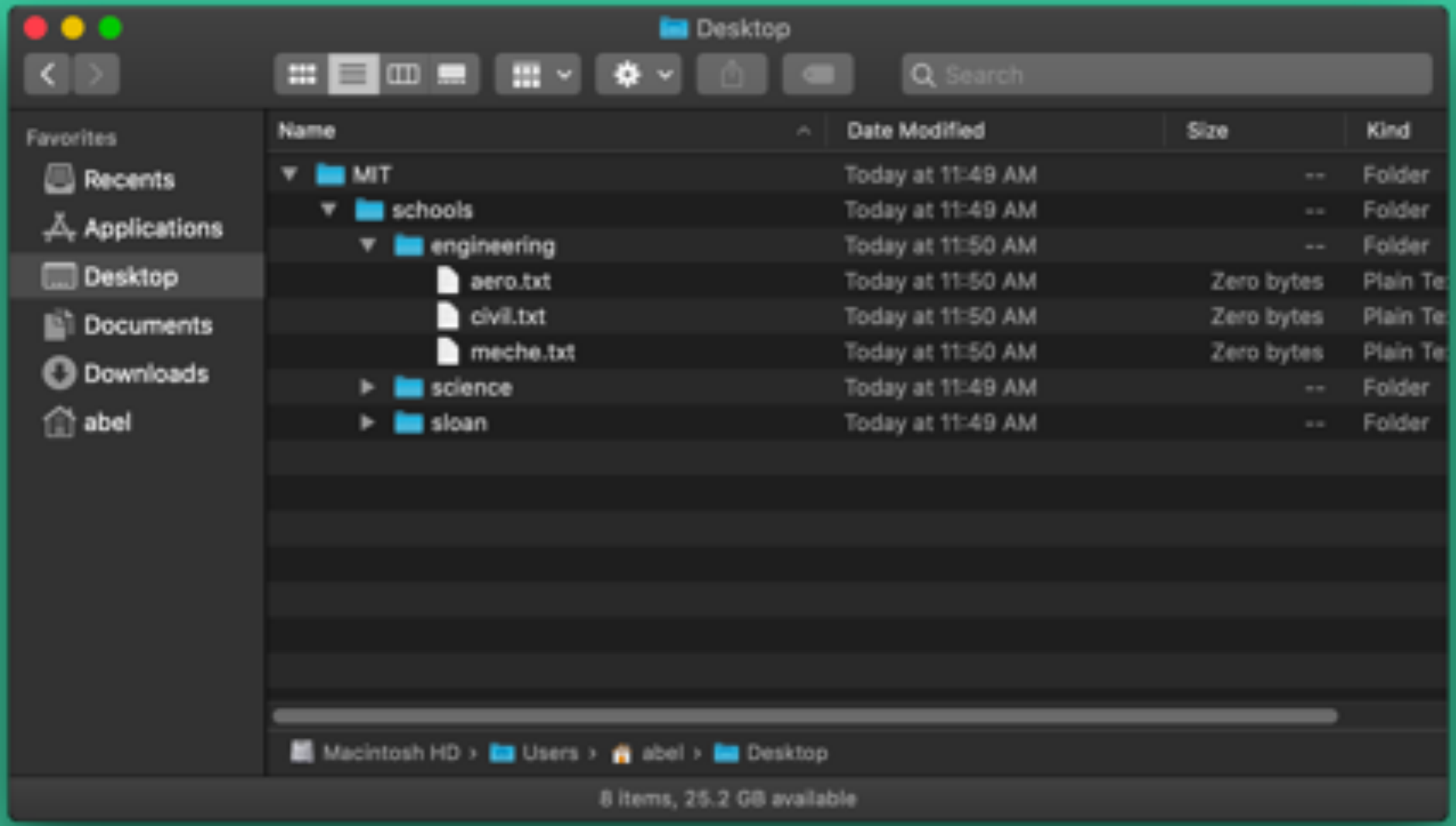


A few commands

pwd	current working directory
ls	list files in current directory
cd	current directory
~/	home directory
mkdir	make directory
rmdir	remove directory
touch	create file
cat/more	file content
sudo	superuser do
cp	copy
mv	move
man	help

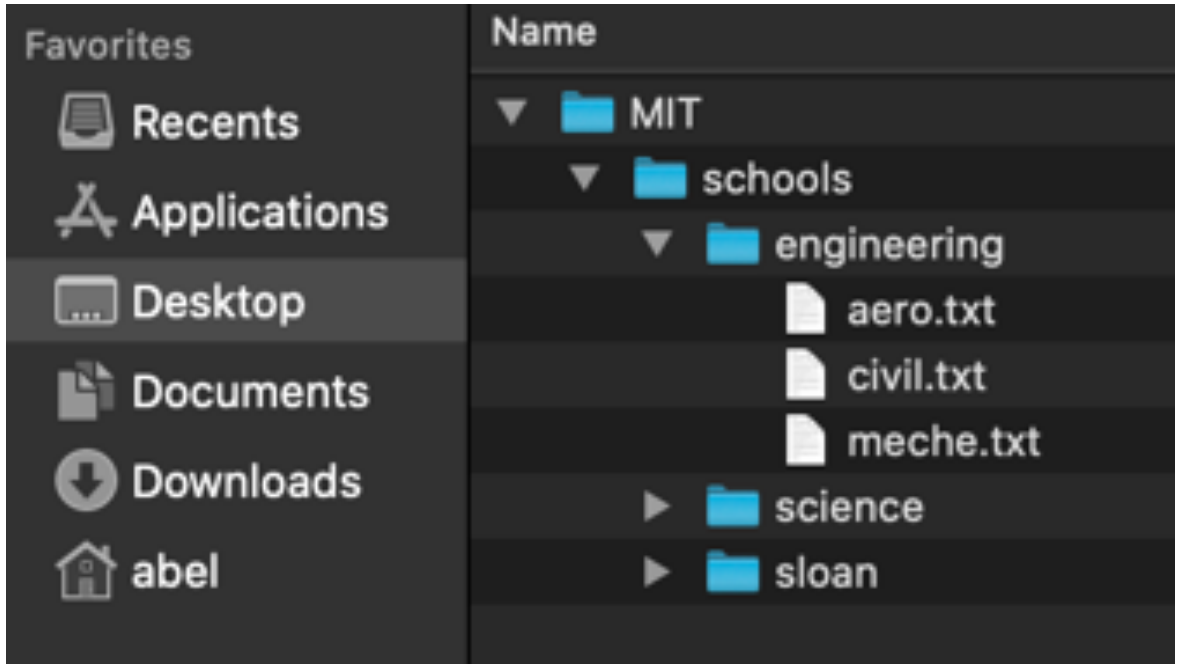
Active learning

- Create the following directory structure using terminal commands


Desktop
Search
Favorites
Recents
Applications
Desktop
Documents
Downloads
abel
Name
Date Modified
Size
Kind
MIT
Today at 11:49 AM
--
Folder
schools
Today at 11:49 AM
--
Folder
engineering
Today at 11:50 AM
--
Folder
aero.txt
Today at 11:50 AM
Zero bytes
civil.txt
Today at 11:50 AM
Zero bytes
meche.txt
Today at 11:50 AM
Zero bytes
science
Today at 11:49 AM
--
Folder
sloan
Today at 11:49 AM
--
Folder
Macintosh HD › Users › abel › Desktop
8 items, 25.2 GB available

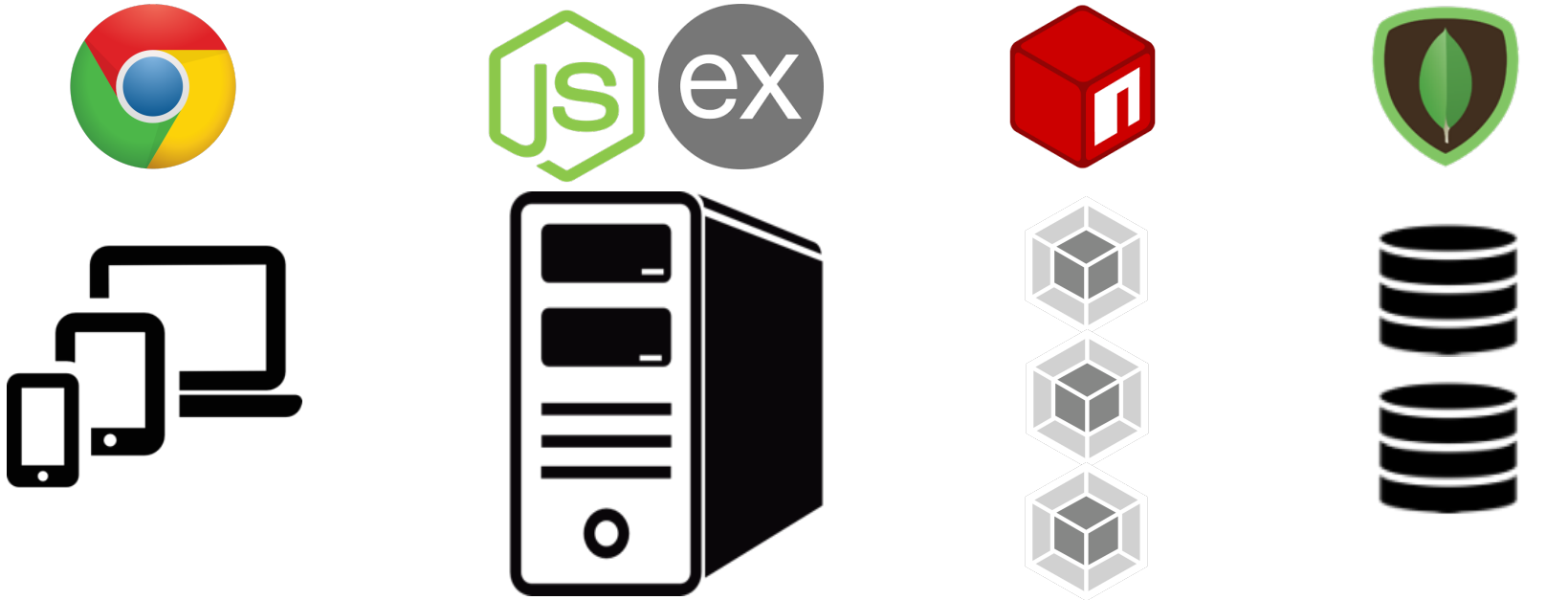
A few commands

pwd	current working directory
ls	list files in current directory
cd	current directory
~/	home directory
mkdir	make directory
rmdir	remove directory
touch	create file
cat/more	file content
sudo	superuser do
cp	copy
mv	move
man	help



Full Stack

Full Stack



Ecosystem numbers

Packages

1,383,356

Downloads · Last Week

21,561,848,574

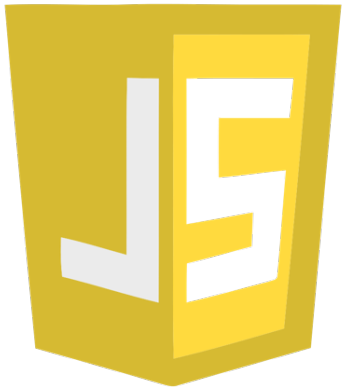
Downloads · Last Month

88,927,900,395

Three different languages on frontend

HTML

CSS



JavaScript

HTML

HELLO

Heading

```
<h1>Hello World!</h1>
```

Paragraph

```
<p>Hello World! </p>
```

Image

```
<img src="boston.jpg">
```

Link

```
<a href="https://www.wikipedia.org/">
    Wikipedia
</a>
```

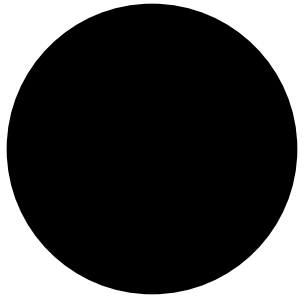
Active learning

- Declarative programming
- Say ”Hello World!”
- Create a simple web document

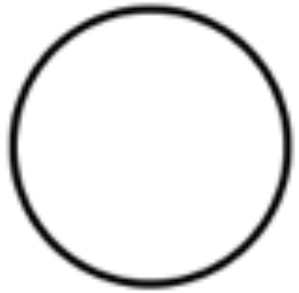
Topics

- HTML
- CSS
- Screen coordinate system
- Z-Index
- DIV properties

Add a shape

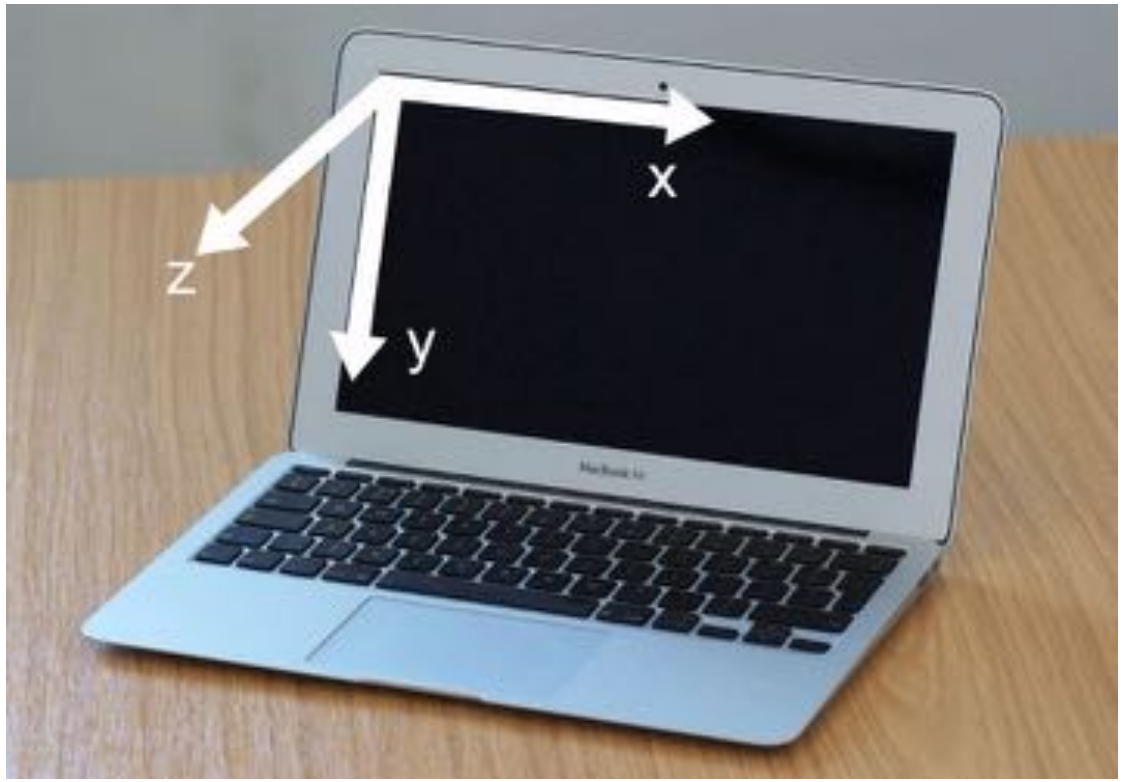


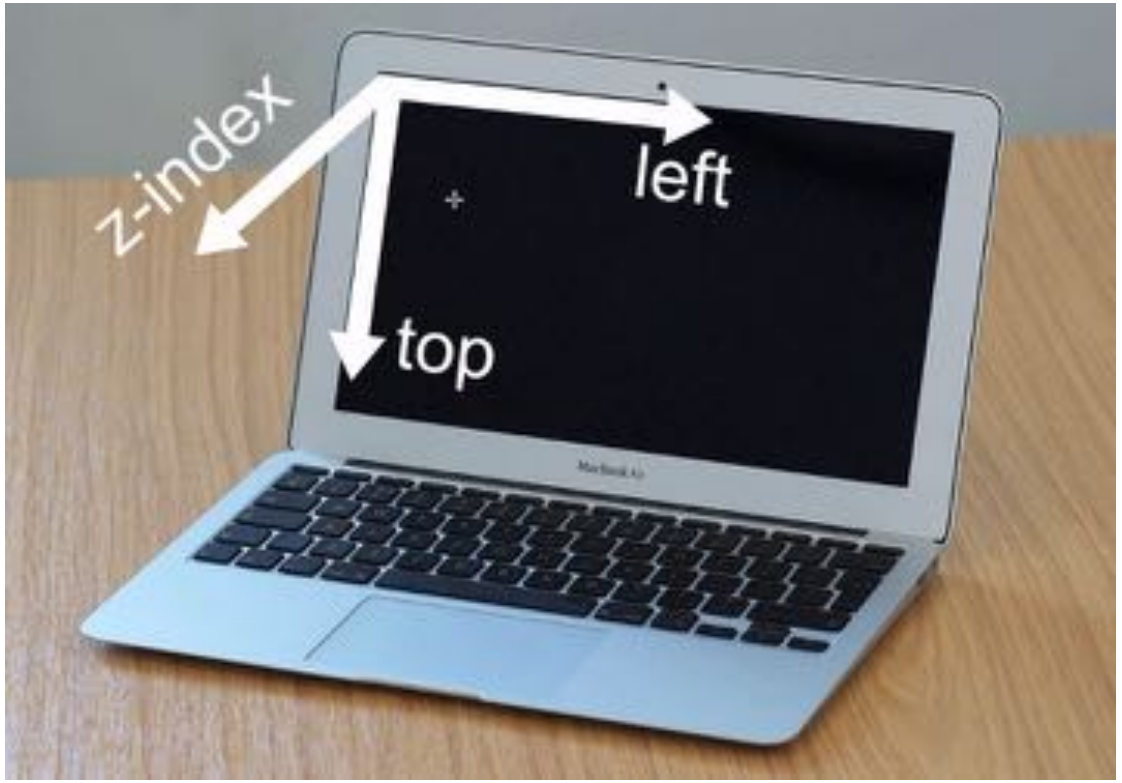
```
<div style="
    z-index:5;
    position:absolute;
    left:100px;
    top:200px;
    width:100px;
    height:100px;
    border-radius:50%;
    background:black">
</div>
```

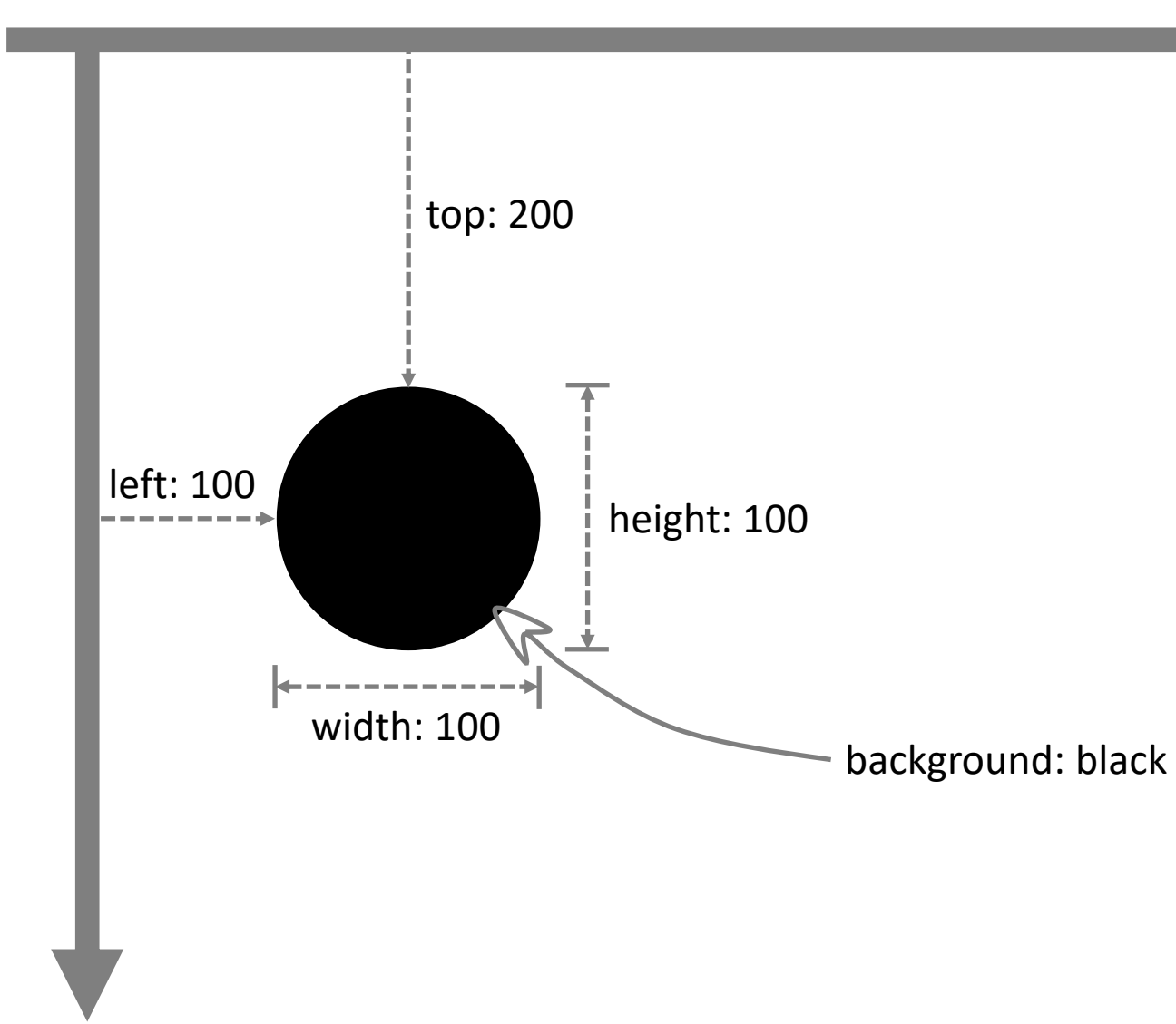


```
<div style="
    z-index:5;
    position:absolute;
    left:100px;
    top:200px;
    width:100px;
    height:100px;
    border-radius:50%;
    border: 3px solid">
</div>
```

Coordinates

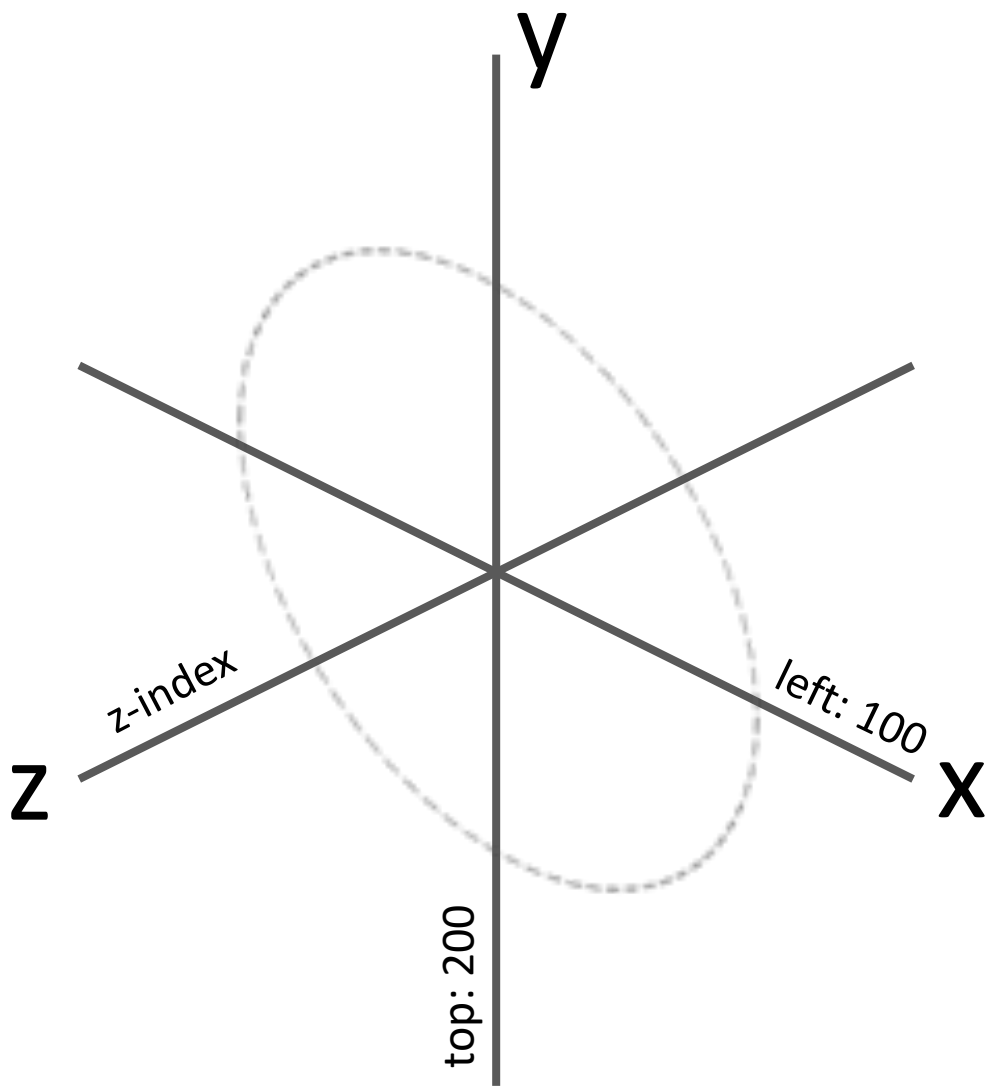




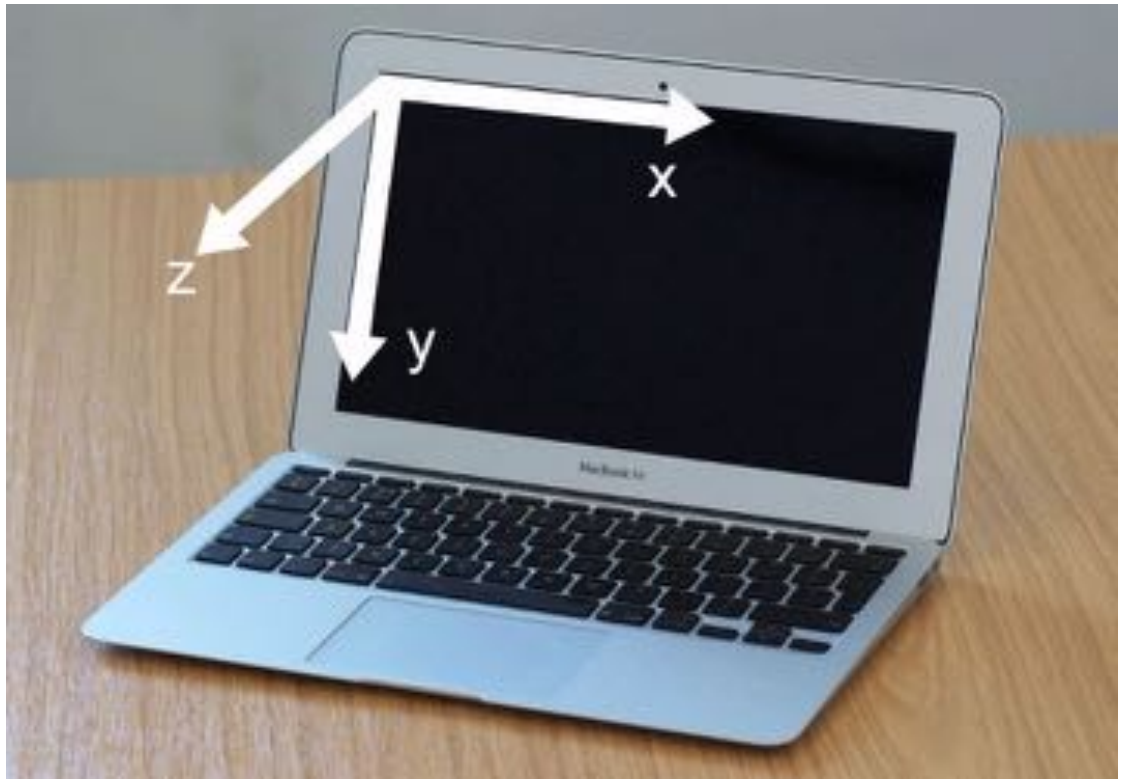

top: 200
left: 100
height: 100
width: 100
background: black

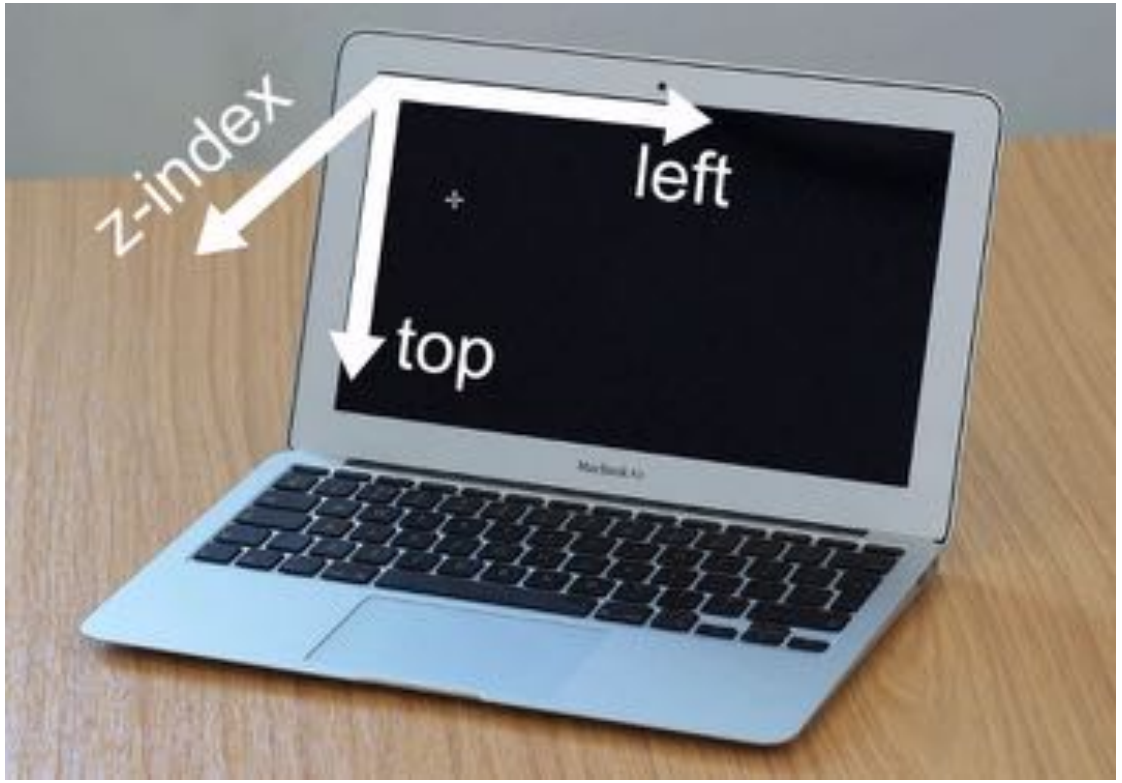
Active learning

- Create a couple of shapes


y
z-index
z
left: 100
x
top: 200

Coordinates





For more colors see:
http://goo.gl/uQVY8f

```
<div style="
z-index:5;
position:absolute;
left:100px;
top:200px;
width:100px;
height:100px;
border-radius:50%;
background:black">
</div>
```

Active learning

- Create shape

CSS Basics

Styling all HTML tags/elements of a type

```
<!DOCTYPE html>
<html>
<style>
  h1{color:red; font-size: 4em;}
  p{color:green; font-size: 2em;}
</style>

<h1>Hello World!</h1>
<p>Welcome to CSS</p>

</html>
```

CSS selectors

```
<!DOCTYPE html>
<html>
<style>
  .greenItems{
    color:red;
    font-size: 2em;
  }
  .redItems{
    color:green;
    font-size: 3em;
  }
  #poundStyle{
    color:orange;
    font-size: 4em;
  }
</style>

<ul>
<li class="greenItems">Item 01</li>
<li class="redItems">Item 02</li>
<li id="poundStyle">Item 03</li>
</ul>
</html>
```

CSS styles file

index.html

```
<!DOCTYPE html>
<html>
<link rel="stylesheet" href="styles.css">
  <ul>
    <li class="greenItems">Item 01</li>
    <li class="redItems">Item 02</li>
    <li id="poundStyle">Item 03</li>
  </ul>
</html>
```

styles.css

```
.greenItems{
  color:red;
  font-size: 2em;
}
.redItems{
  color:green;
  font-size: 3em;
}
#poundStyle{
  color:orange;
  font-size: 4em;
}
```

Styling elements directly

```
<!DOCTYPE html>
<html>
  <h1 style="color: red;font-size: 5em;">Hello World!</h1>
</html>
```

CSS shapes

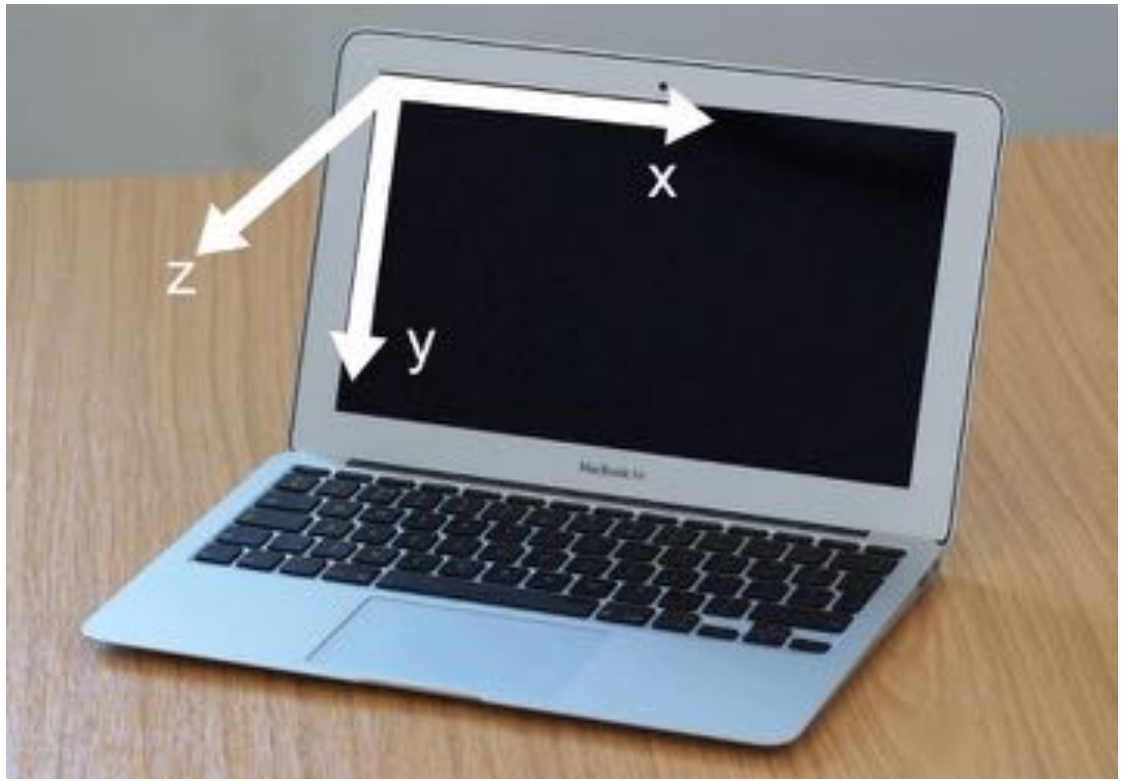
```css
#square {
  width: 100px;
  height: 100px;
  background: red;
}
```

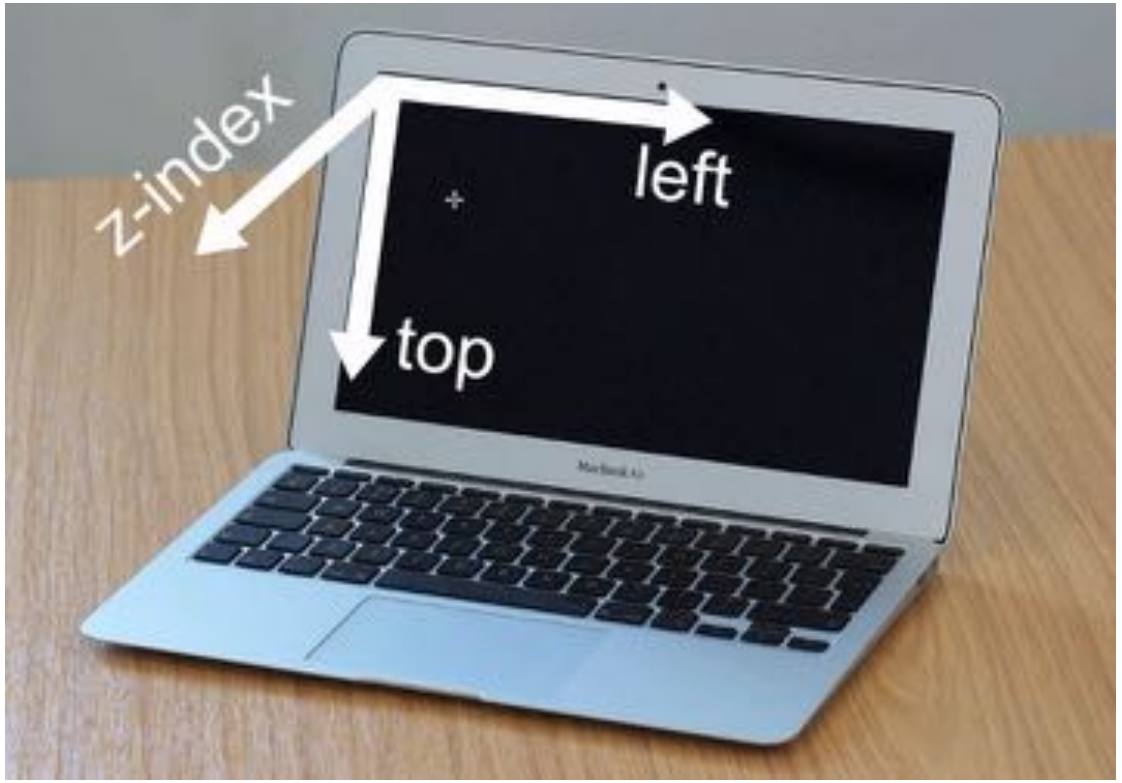
```css
#circle {
  width: 100px;
  height: 100px;
  border-radius:50%;
  background: red;
}
```

More shapes

https://css-tricks.com/examples/ShapesOfCSS/

Coordinates





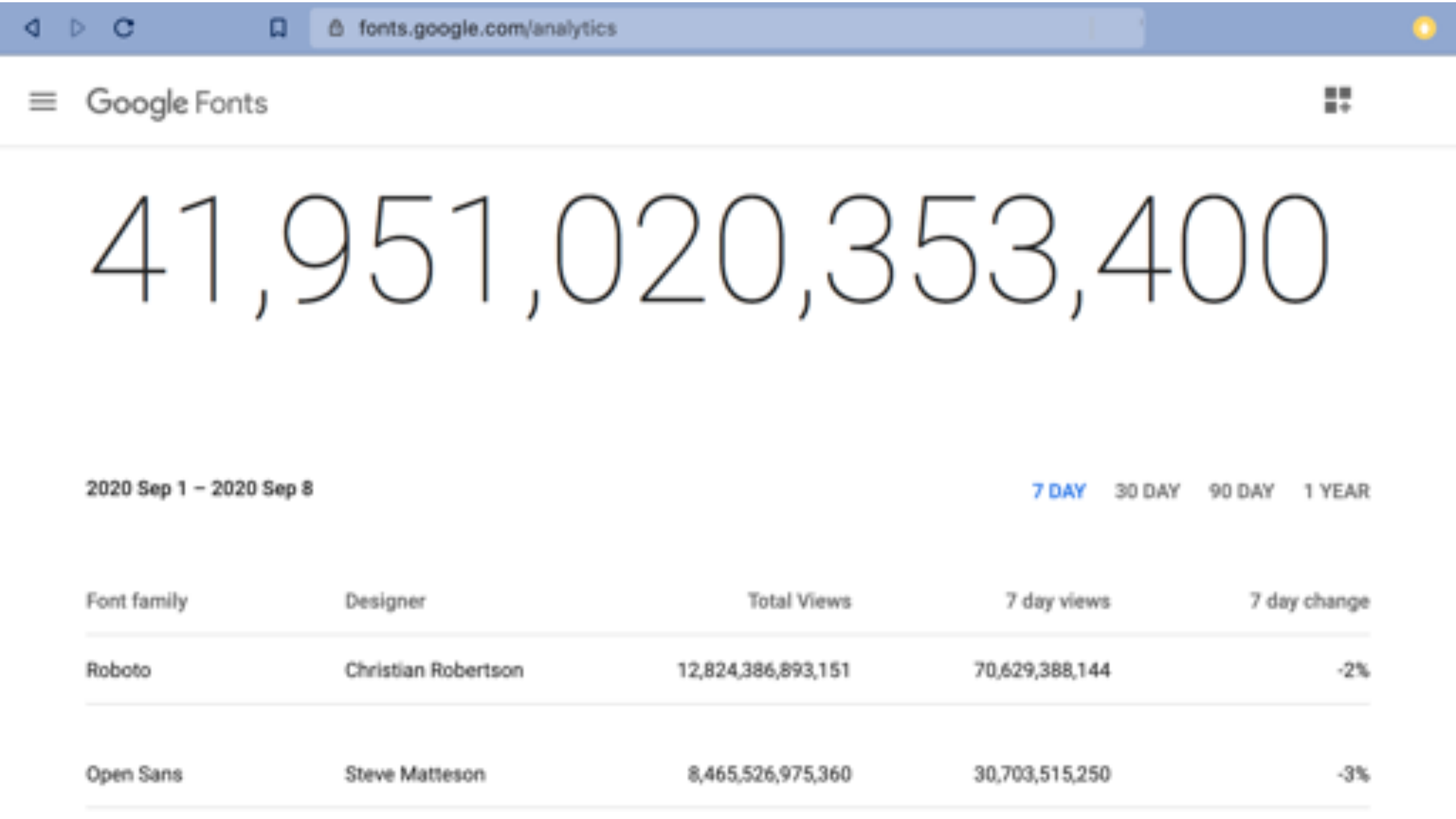
From last time – green circle

```
<div style="
  z-index:5;
  position:absolute;
  left:100px;
  top:150px;
  width:50px;
  height:50px;
  border-radius:50%;
  background:green"></div>
```

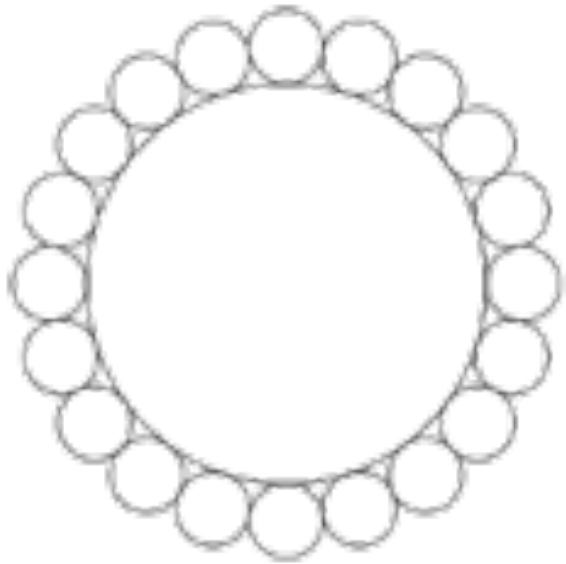
Active learning - Position eight circles as follows

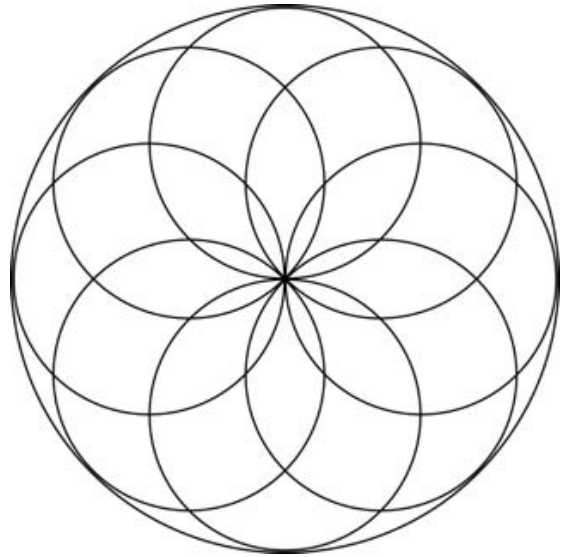
What about fonts?

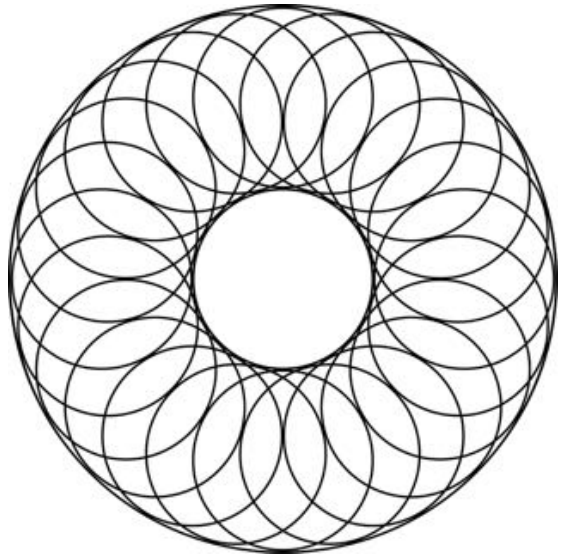
Google fonts

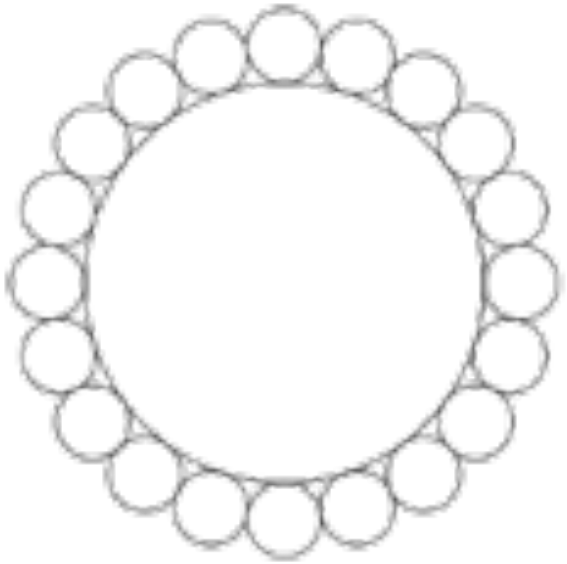

fonts.google.com/analytics
Google Fonts
41,951,020,353,400
2020 Sep 1 – 2020 Sep 8
7 DAY
30 DAY
90 DAY
1 YEAR
Font family
Designer
Total Views
7 day views
7 day change
Roboto
Christian Robertson
12,824,386,893,151
70,629,388,144
-2%
Open Sans
Steve Matteson
8,465,526,975,360
30,703,515,250
-3%

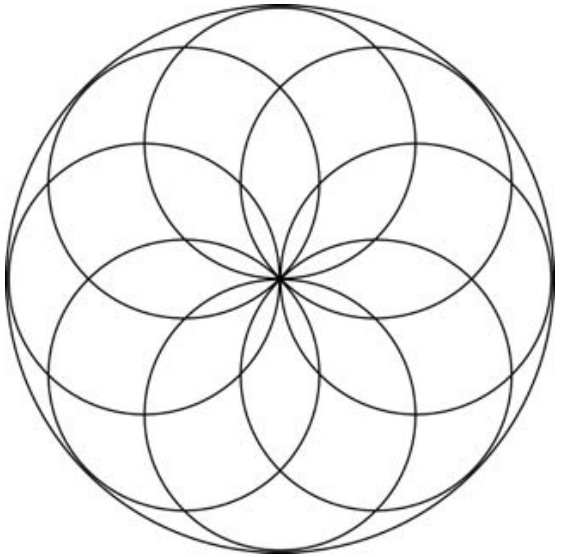
Active learning – Google Fonts, Long Cang

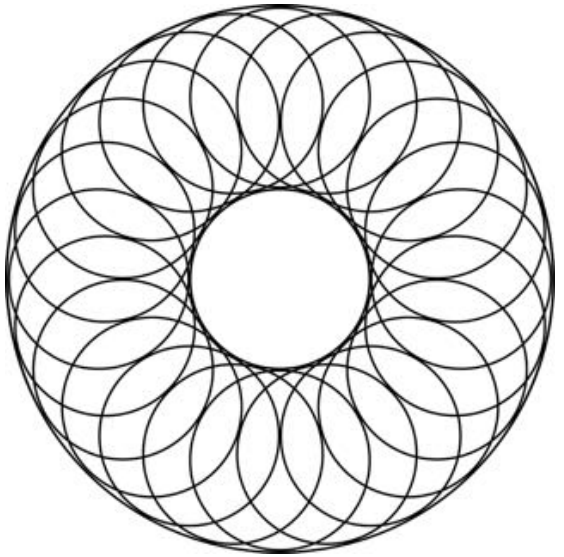












https://css-tricks.com/examples/ShapesOfCSS/

Active learning – change background image

Programmatically Change Styles

```
document.getElementById("ball").style.background="red";
```