

A silver laptop is open on a wooden table. The screen displays a Windows 10 desktop with a blue mountain wallpaper. The text "What is a computer?" is written in a white, handwritten-style font across the center of the screen. The taskbar at the bottom shows various application icons. The background is a blurred indoor setting with wooden chairs and a window looking out onto a green area.

What is a computer?

A person with long, wavy, reddish-brown hair, wearing a grey ribbed sweater, is holding a silver laptop. The laptop screen is filled with a solid pink color, and the text "what is it really?" is written in a white, handwritten-style font in the center. The laptop is on a light-colored wooden table. To the right of the laptop, there is a black paper cup with a brown beverage. In the background, a window with a black frame is visible, showing a bright, out-of-focus outdoor scene. The overall lighting is soft and natural, suggesting an indoor setting with large windows.

what is it really?

Active Learning

- How would you explain it?

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



A photograph of a busy restaurant interior. In the foreground, a woman with long blonde hair is drinking from a glass of amber liquid. Next to her, another woman is seen in profile, eating. The table is set with various items including a water bottle, a wine glass, and plates of food. In the background, other patrons are seated at tables, and a music stand with sheet music is visible on the right. The text 'Users I/O' is overlaid on the left side of the image.

Users
I/O

A waiter in a white shirt is balancing a silver tray. On the tray are three glasses: one with orange juice, one with a green drink and a straw, and one with a green drink and a straw. A bottle of Coca-Cola is also on the tray. The waiter is holding the tray with both hands, and a blue napkin is visible in their left hand. The background is blurred, showing green foliage and a person's head in the lower left corner.

Messages




Storage

Storage

Recipes

Storage

RAM

A close-up photograph of a chef's hands adding a large portion of shredded purple cabbage into a black wok. The wok is positioned on a gas stove with a visible blue flame. A wooden spatula is already inside the wok. The chef is wearing a dark apron and has a ring on their left ring finger. The background is blurred, showing a kitchen setting with a vase of flowers.

Chef - CPU













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



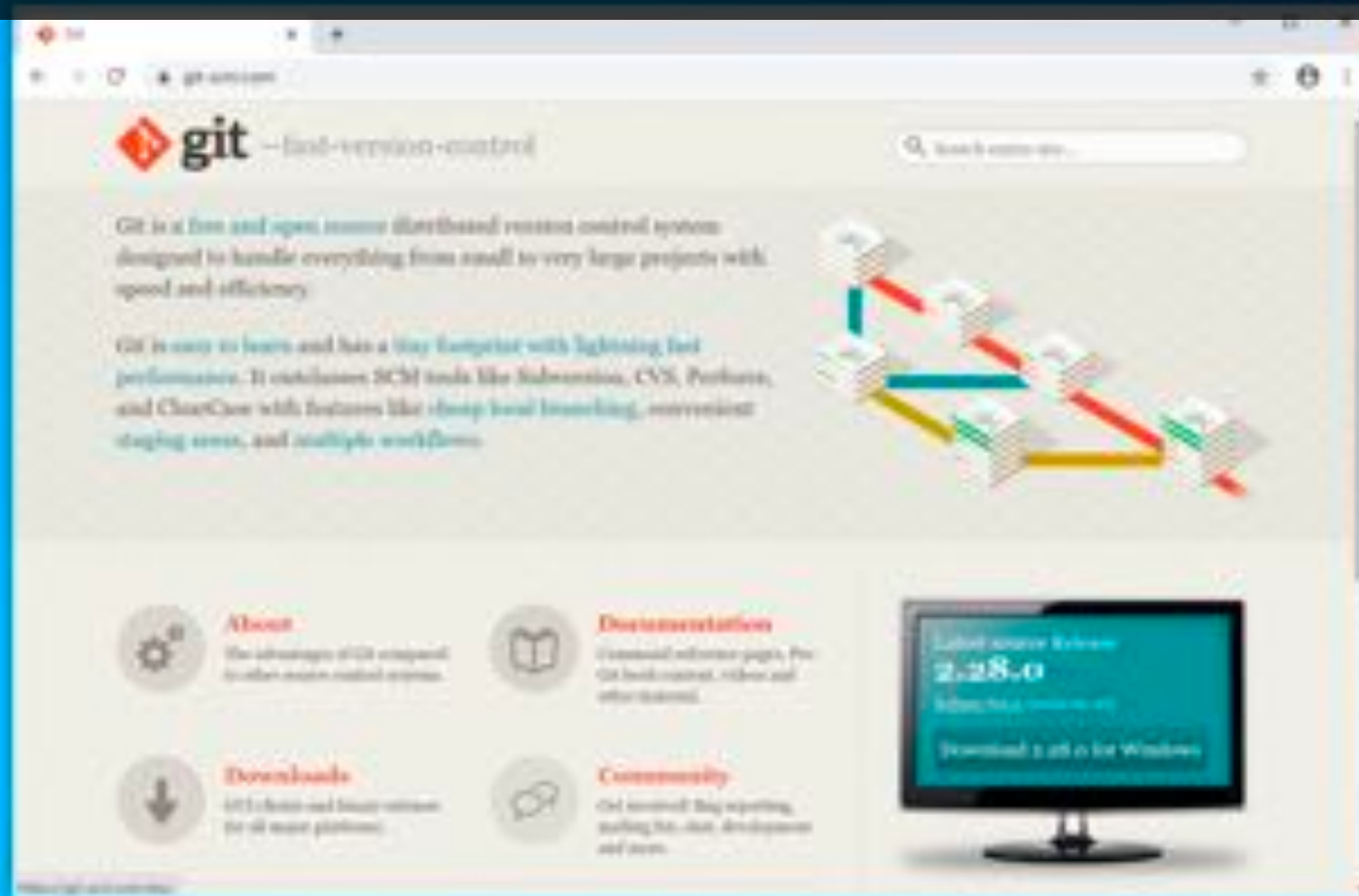
Google Chrome

19. Sep 09:31 bin -> usr/bin
21. Sep 15:50 boot
19. Sep 09:32 dev
21. Sep 15:52 etc
30. Sep 2015 home
30. Sep 2015 lib -> usr/lib
23. Jul 10:01 lib64 -> usr/lib
1. Aug 22:45 lost+found
30. Sep 2015 mnt
21. Sep 15:52 opt
21. Sep 08:15 private -> /home/encrypted
12. Aug 15:37 proc
21. Sep 15:50 root
30. Sep 2015 run
21. Sep 15:51 sbin -> usr/bin
12. Aug 15:45 srv
23. Sep 15:51 sys
23. Sep 15:51 tmp

Goal: basic commands and navigation



Windows: search for “git” on google



Choose all the defaults



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

MINGW64 ~/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

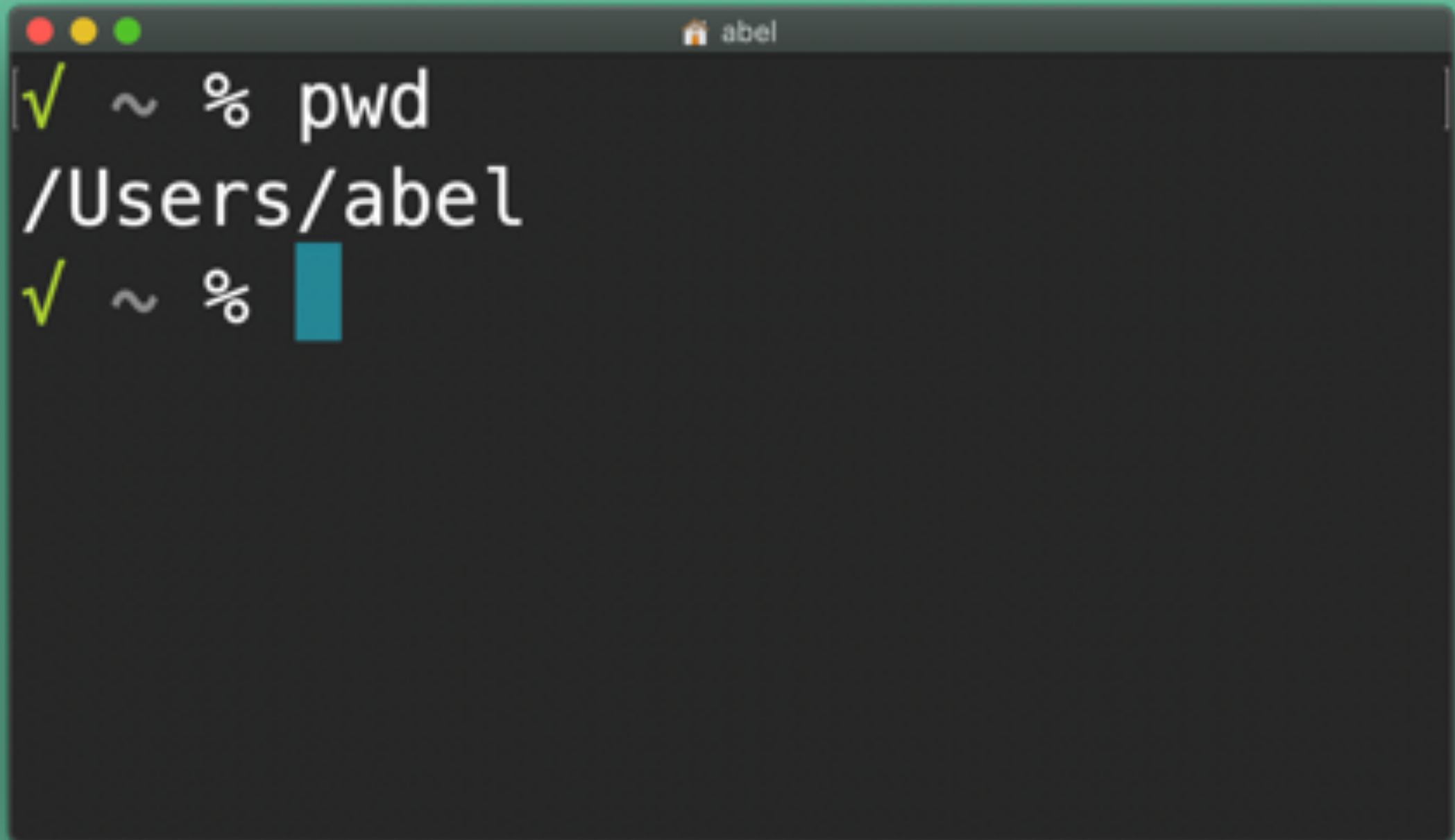
The default interactive shell is now zsh.

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 screenshot of a macOS-style terminal window with a dark gray background. The window title bar at the top shows three colored window control buttons (red, yellow, green) on the left and a title 'abel' with a small house icon on the right. The terminal content shows a zsh prompt consisting of a green checkmark, a tilde, and a percent sign. The user has entered the 'pwd' command, and the output '/Users/abel' is displayed on the next line. A new prompt line is visible below the output, with a teal-colored cursor block positioned after the percent sign.

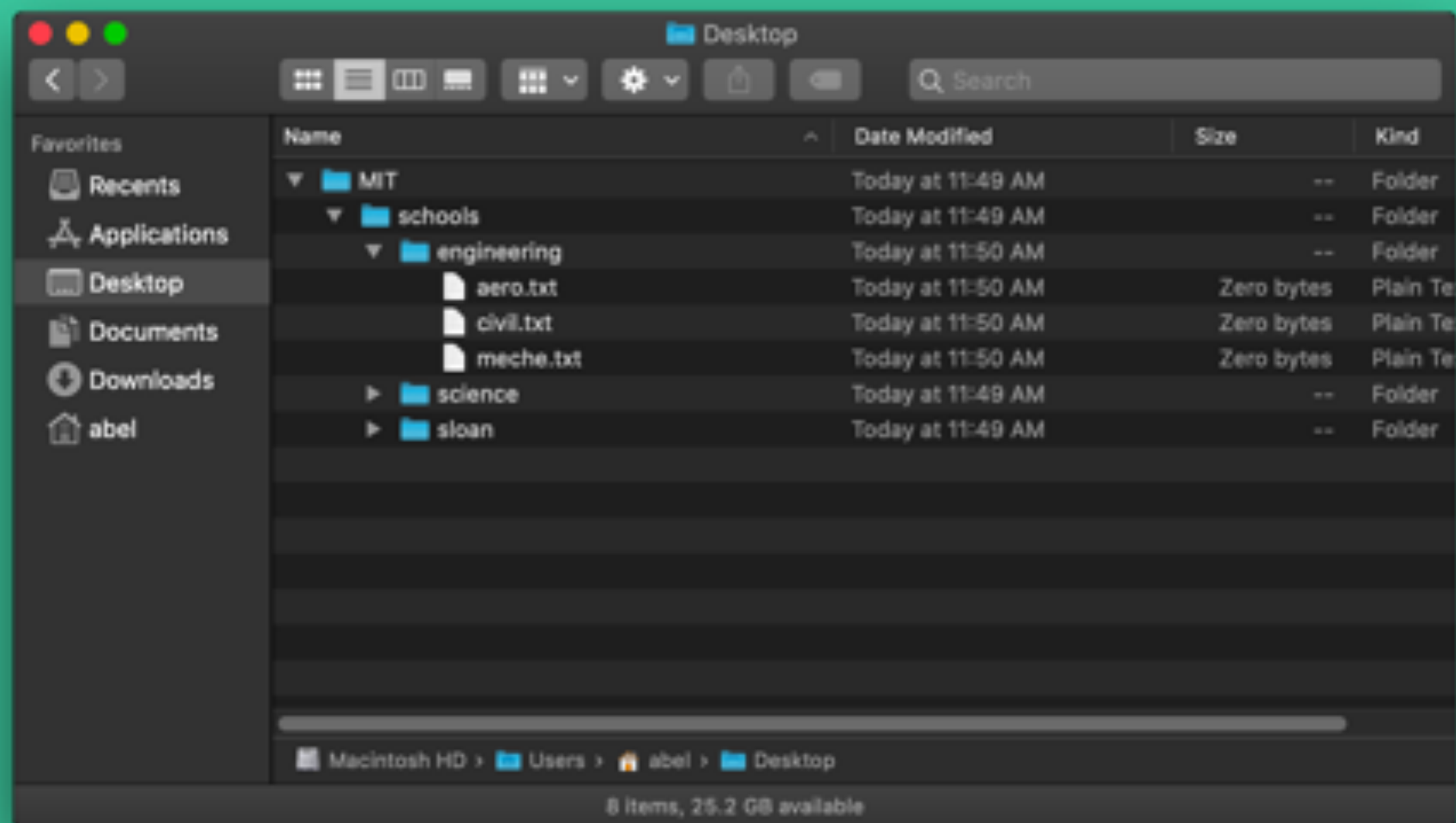
```
[✓ ~ % pwd  
/Users/abel  
✓ ~ % █
```

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

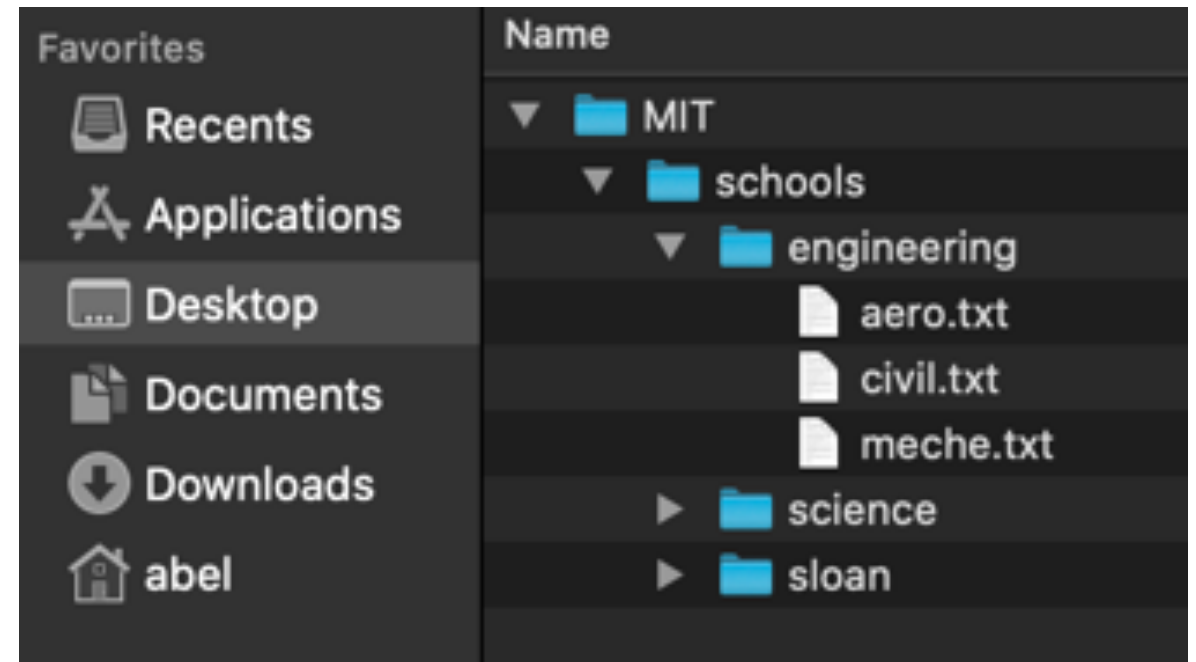
Active learning

- Create the following directory structure using terminal commands



A few commands

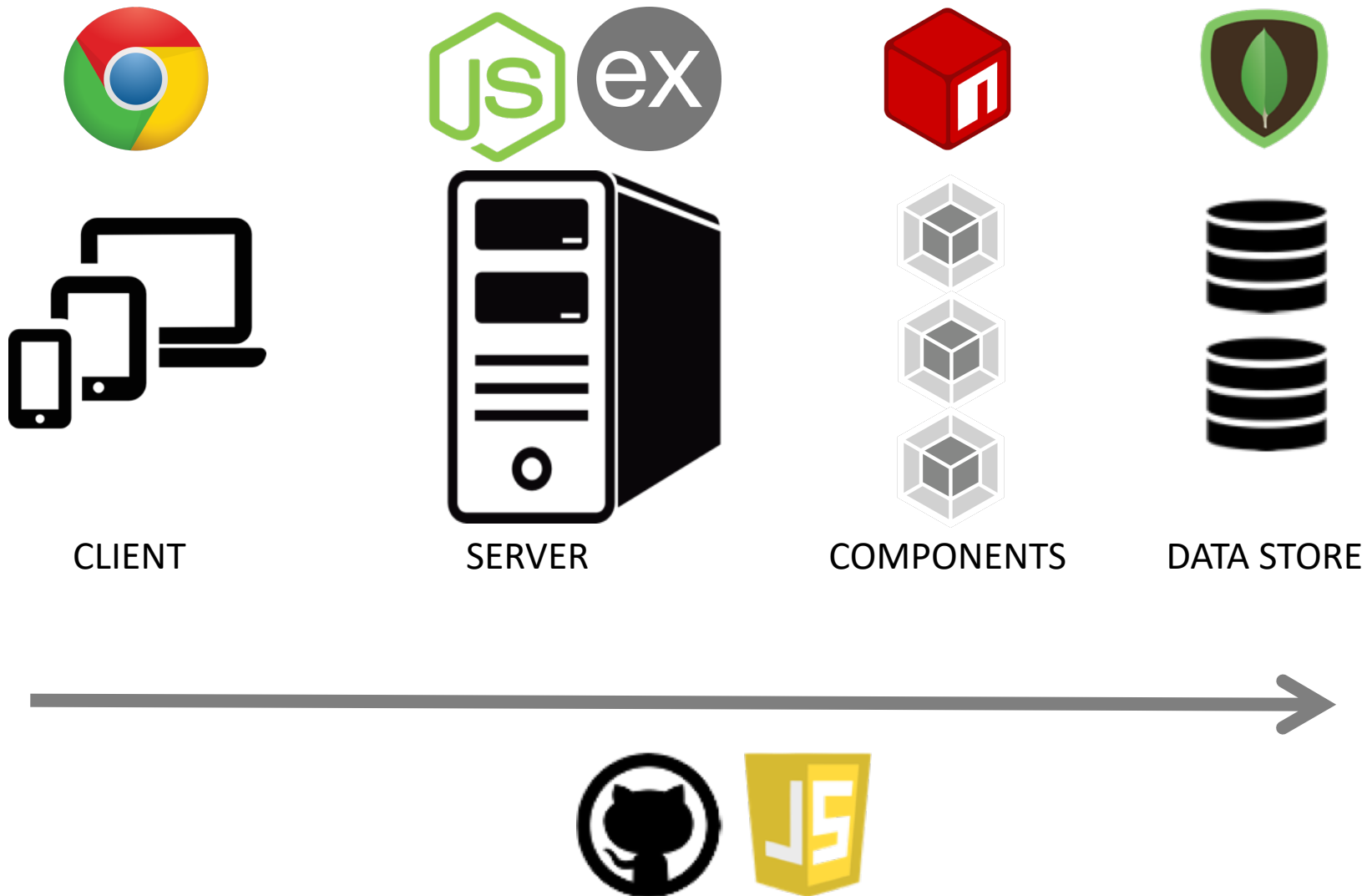
pwd	current working directory
ls	list files in current directory
cd	current directory
~/	home directory
mkdir	make directory
rmdir	remove directory
touch	create file
cat/more	file content
sudo	superuser do
cp	copy
mv	move
man	help



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



A top-down photograph of a rustic wooden table. In the center is a rectangular chalkboard with a light-colored wooden frame. The word 'HELLO' is written in white, uppercase, sans-serif letters. To the right of the word is a small, light-brown wooden heart. To the left of the chalkboard, a bunch of white baby's breath flowers is draped over the edge. To the right of the chalkboard, a small, light-pink ceramic cup filled with a frothy beverage sits on the table. The table's wood grain is prominent and runs diagonally.

HELLO

Heading

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


Paragraph

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

Image

```

```

Link

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

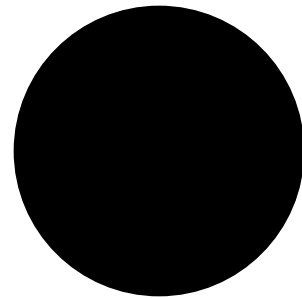

Active learning

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

Topics

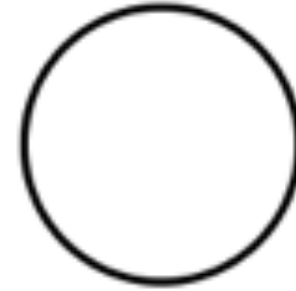
- HTML
- CSS
- Screen coordinate system
- Z-Index
- DIV properties

Add a shape



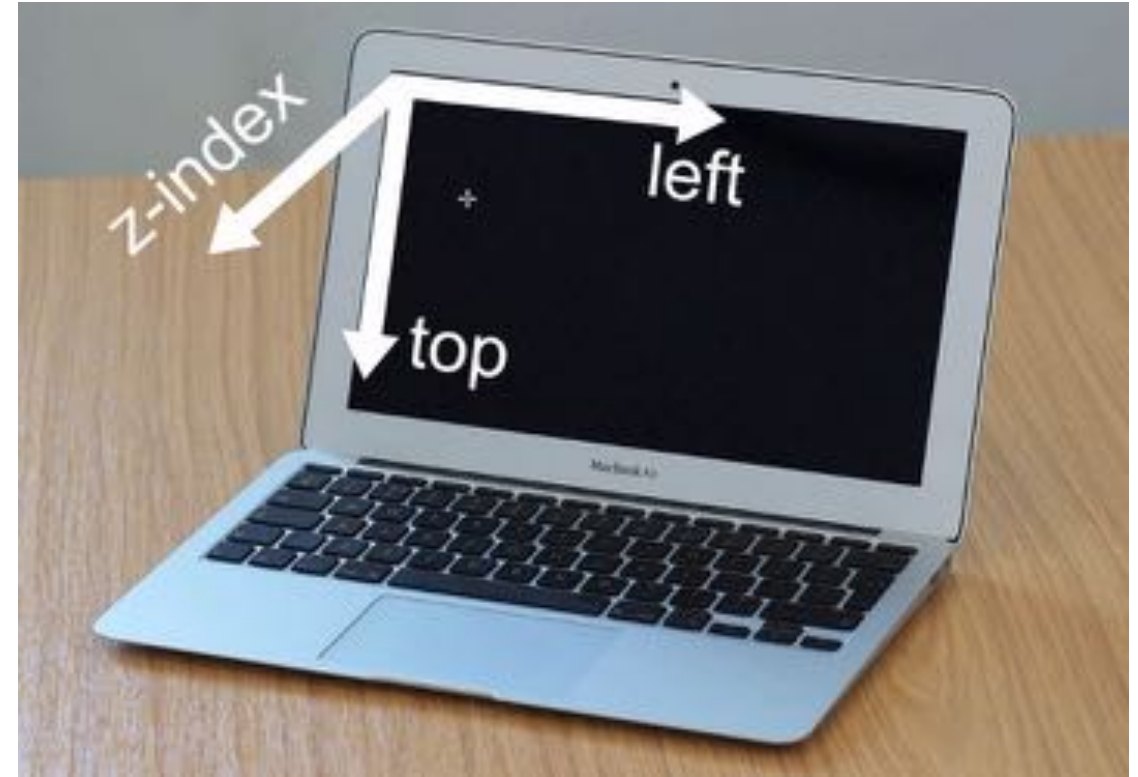
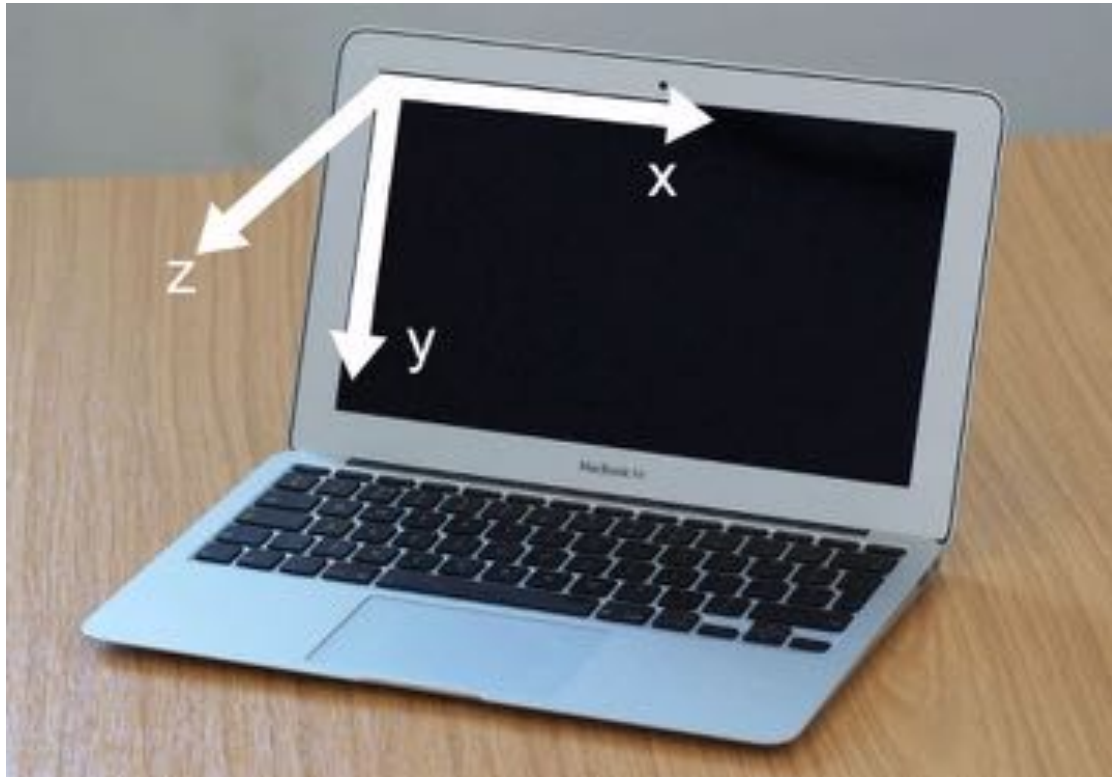


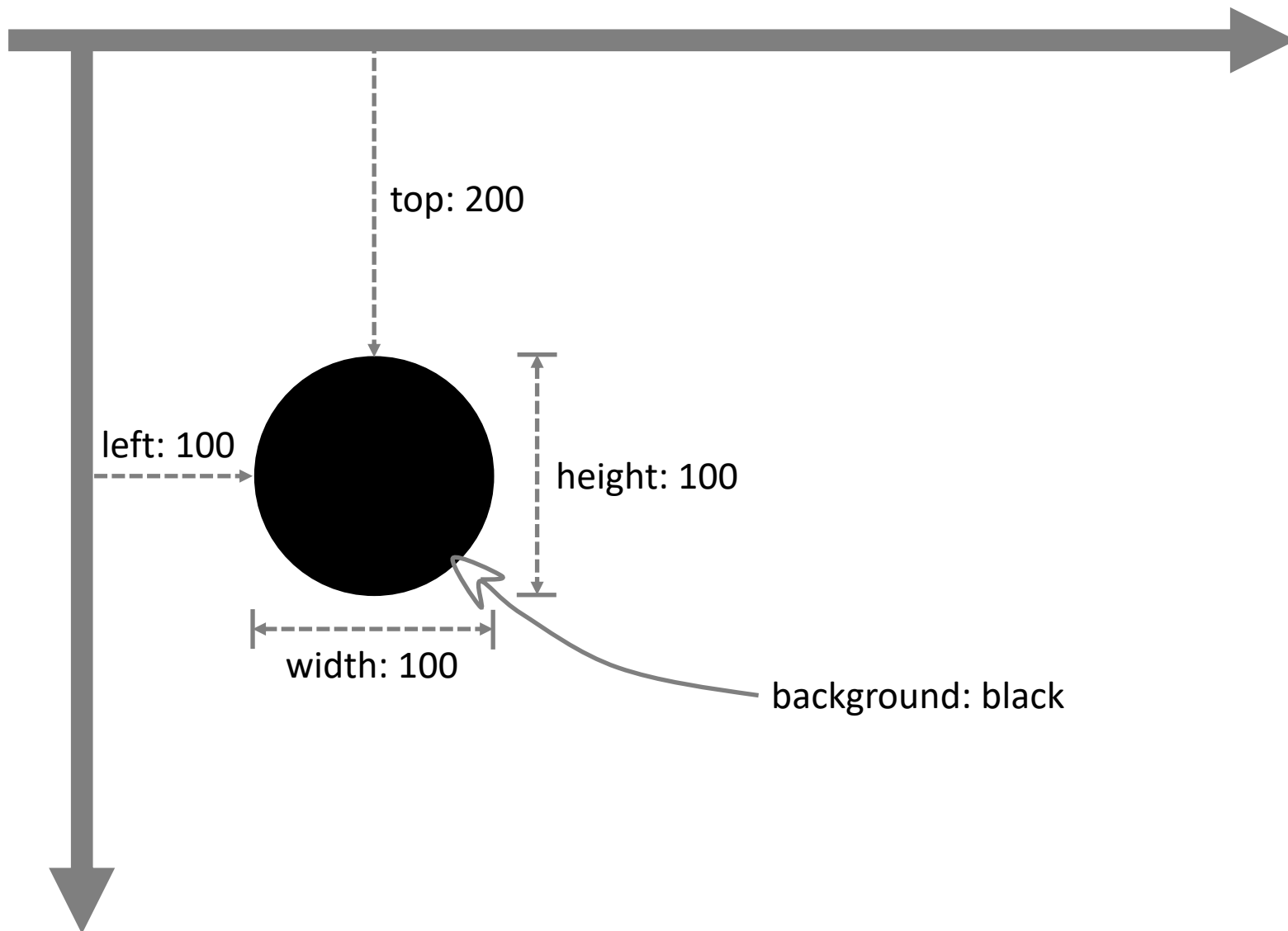
```
<div style="
  z-index:5;
  position:absolute;
  left:100px;
  top:200px;
  width:100px;
  height:100px;
  border-radius:50%;
  background:black">
</div>
```



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

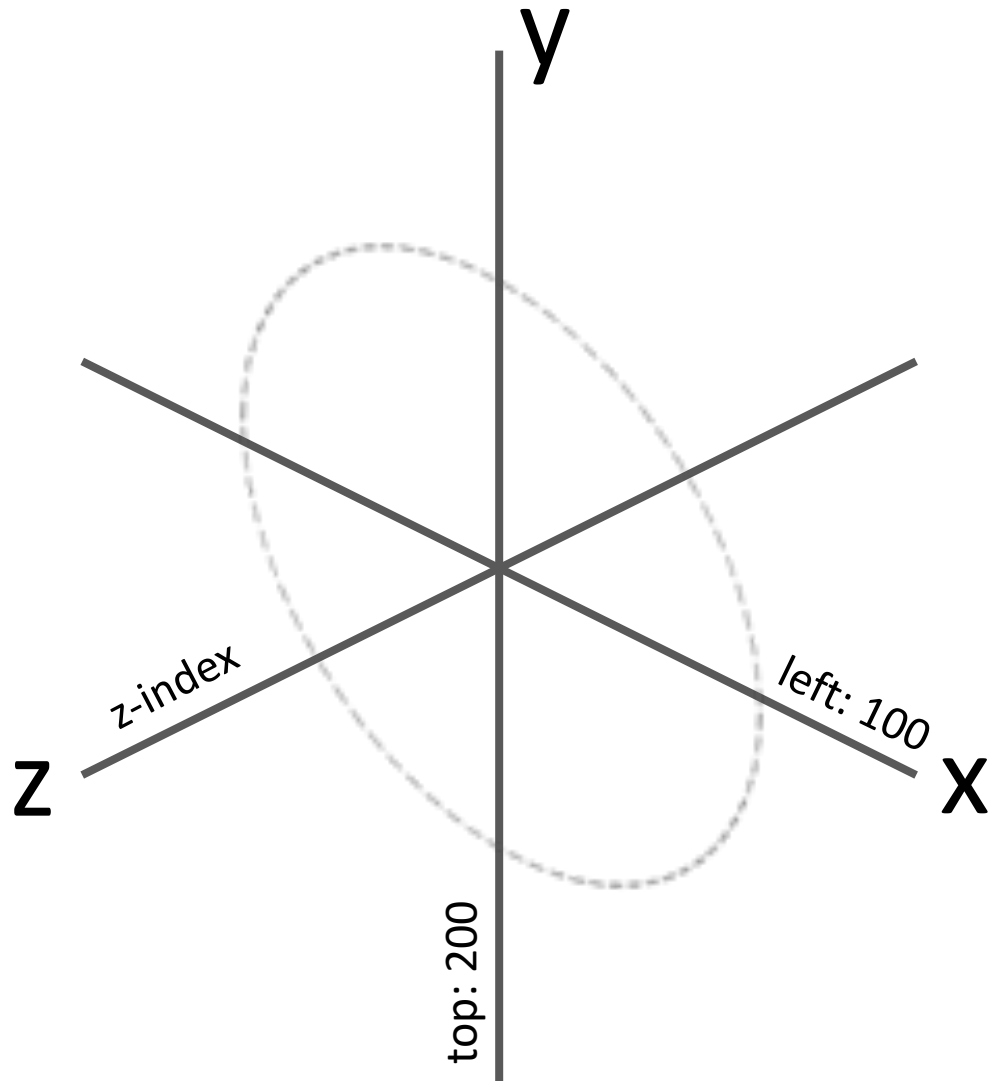
Coordinates



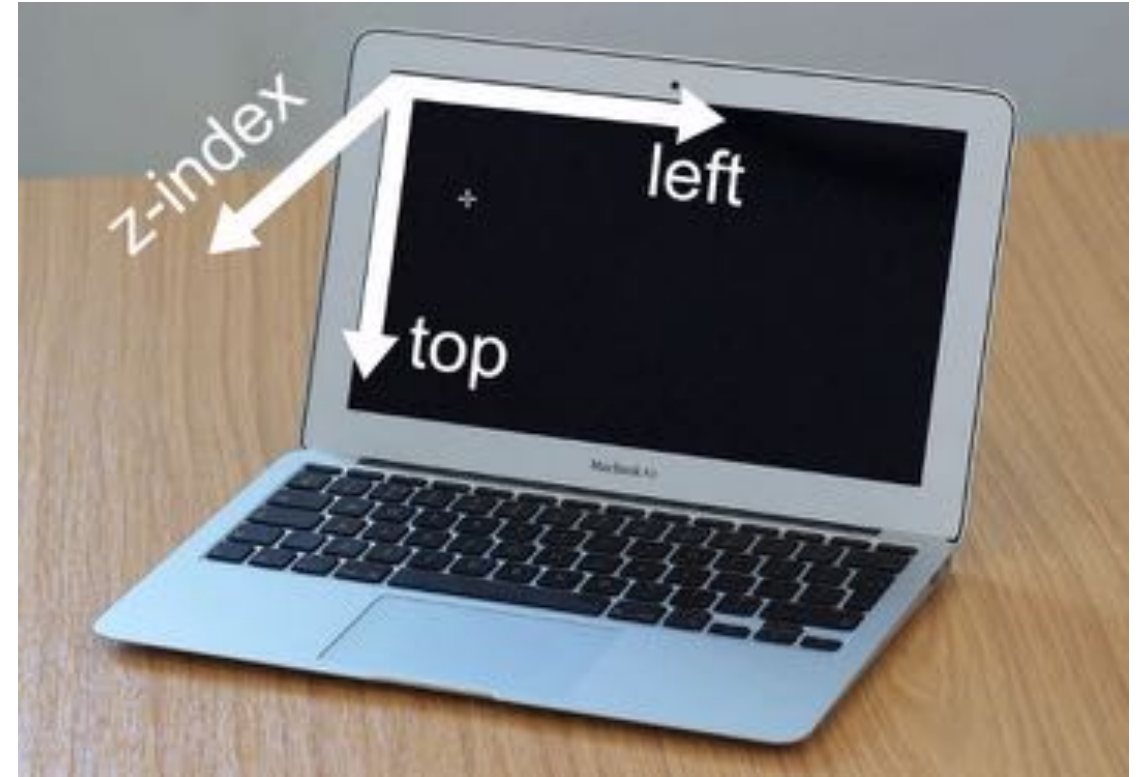
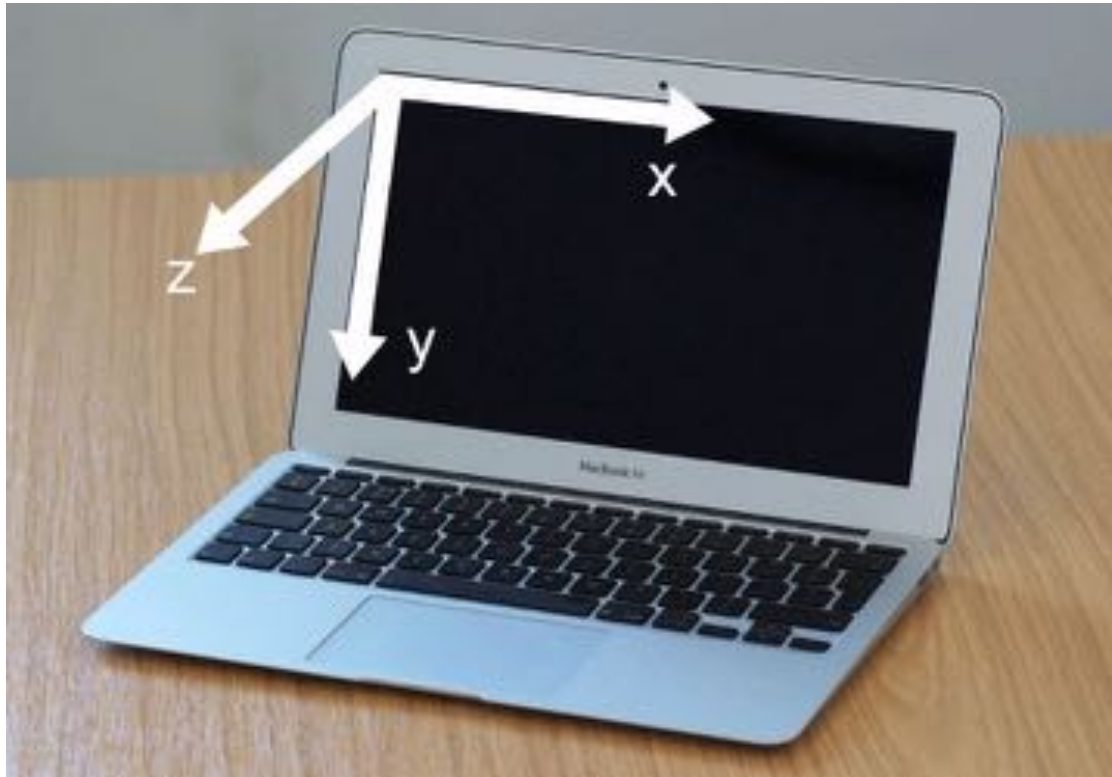


Active learning

- Create a couple of shapes



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

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



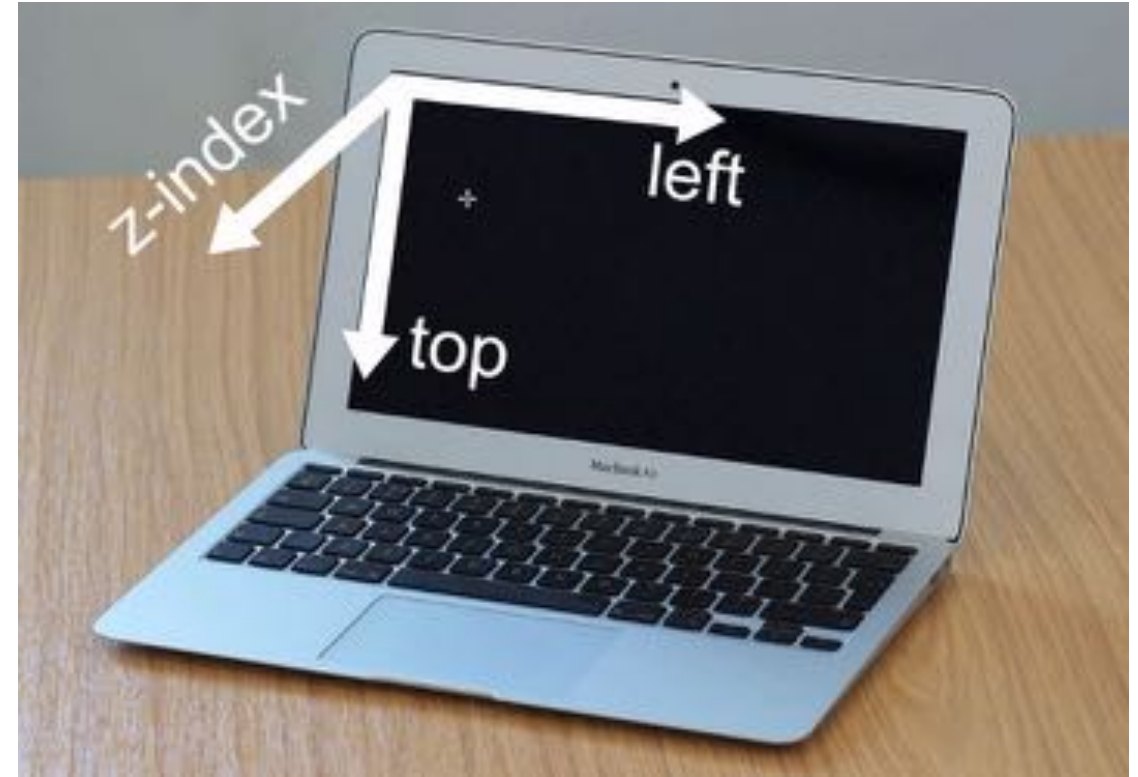
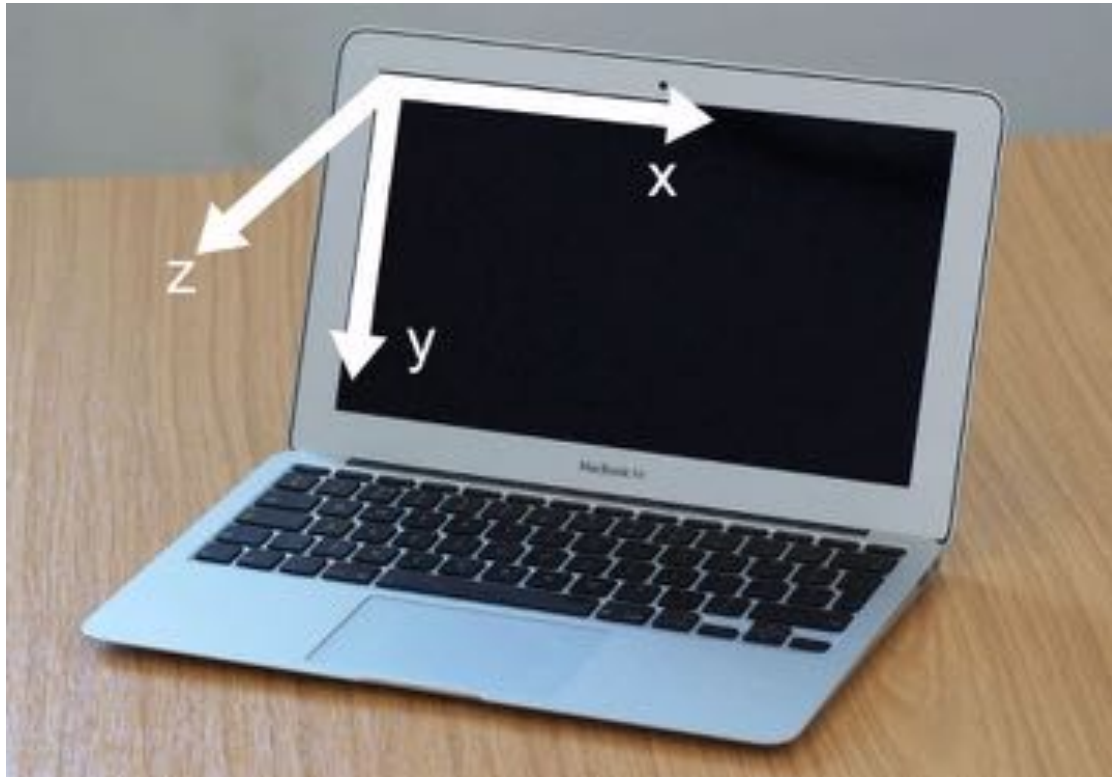
```
#circle {  
  width: 100px;  
  height: 100px;  
  border-radius: 50%;  
  background: red;  
}
```



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

B	H	E	y	&	Z	f	æ	9	z
@	J	t	B	ê	7	U	ä	<i>m</i>	g
X	ÿ	<i>n</i>	f	M	j	fi	r	<i>k</i>	0



41,951,020,353,400

2020 Sep 1 – 2020 Sep 8

7 DAY

30 DAY

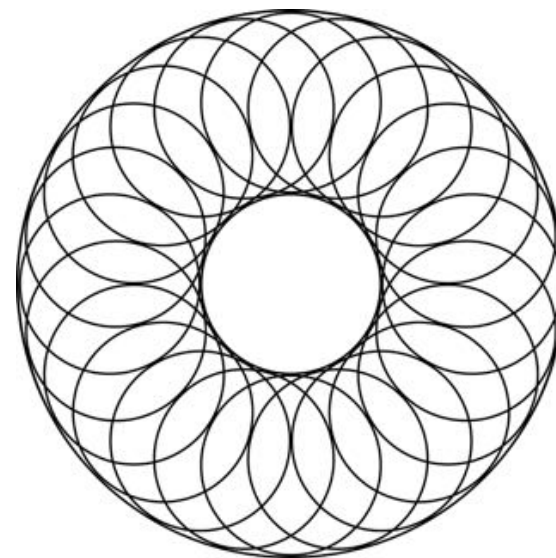
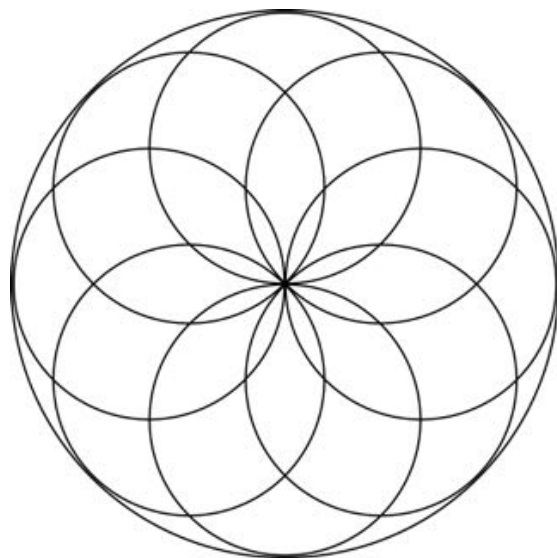
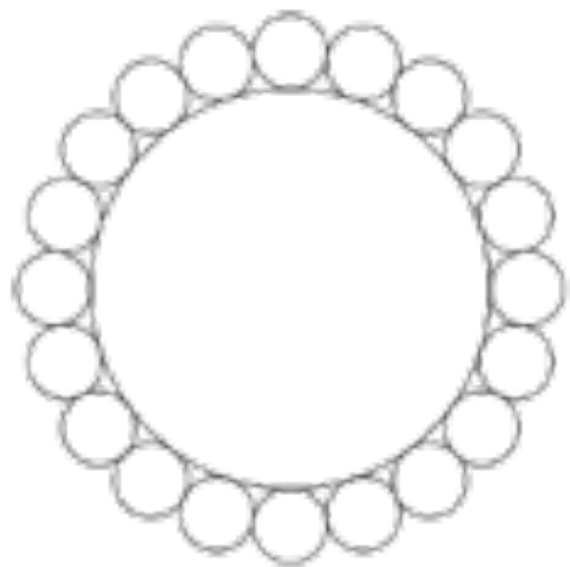
90 DAY

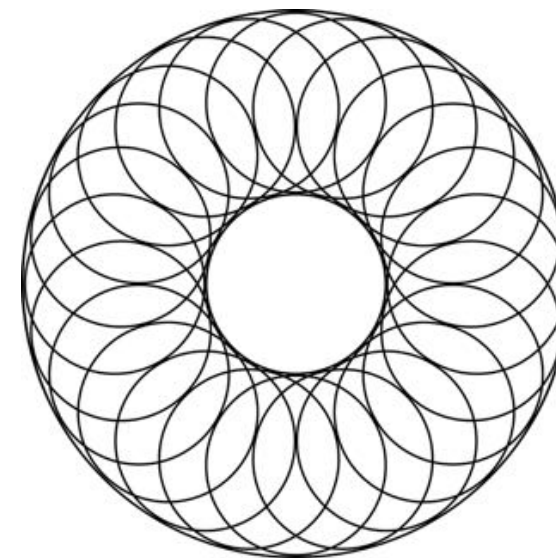
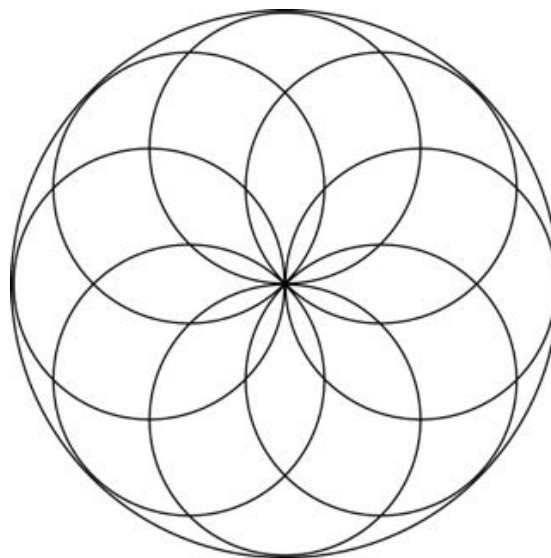
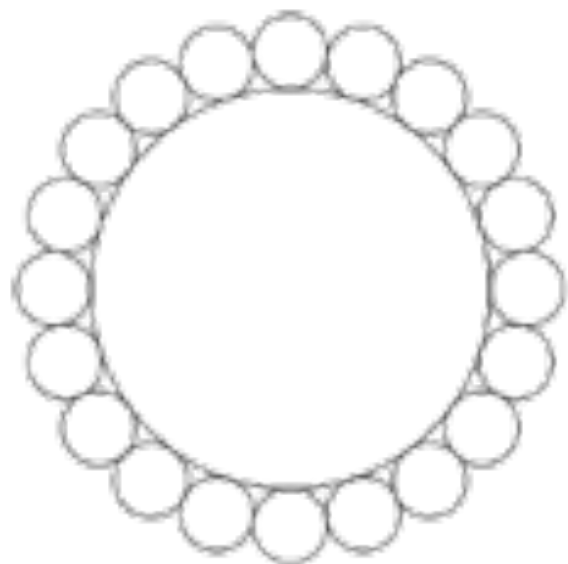
1 YEAR

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";
```

