# Announcements

- Catalog: CS 198-750
- Gradescope Enrollment Code: **2PGYZV**
- Edstem: https://edstem.org/us/join/hAbV5D


# Welcome to Cubstart Web

# Intros

# Lecturers

**Jessica Ng**
jessica_n@berkeley.edu

**Major:** CS, 2nd year
**Interests:** Crocheting, reading, web dev (obviously)

**Madhav Varshney**
madhav.v@berkeley.edu

**Major:** CS, 4th year
**Interests:** Hiking, musical instruments, ping pong

# Web TAs

**Bryan Chu**
bryanchu8@berkeley.edu

**Major:** CS, 4th year
**Interests:** Gym, Basketball, Cooking

**Matt Hamilton**
matt.hamilton@berkeley.edu

**Major:** EECS, 4th year
**Interests:** Hiking, Science, Outerspace, Gym

# Course Expectations

# Logistics

- Website: cubstart.com
- Lecture
  - **5-6pm Mondays @ Soda 306**
  - Recordings and slides will be posted afterwards
- Lab
  - **Fridays 4-6pm @ Physics 3**
  - First hour required, second hour optional
  - First hour: mini-lecture/review, lab exercises, demos
  - Second half: OH for the HW and final project + HW walk through at the very end for the homework from the previous week
- Homework
  - Released Monday/Tuesday of each week and due the next Friday @ midnight
  - Graded on a scale 1-5 based on correctness
  - **cubstart.com/#/schedule**

# Logistics

- Attendance policy (lecture + lab)
  - You are allowed up to 4 total unexcused absences and 2 homework drops. Email cubstart@calhacks.io for excused absences with valid reasons.
  - Absences and incomplete homeworks beyond our limit will automatically result in a grade of **NP**.
- Late work policy
  - No late work accepted. Email cubstart@calhacks.io for an extension due to extenuating circumstances.

# Logistics

- Final project
  - Nearing the end of the semester, you will be expected to create a final web project with a few group members (or alone, if you prefer)
  - Not completing the final project will result in an **NP**.
  - Your imagination is the limit! Create whatever you want, we just want to see you use your newfound skills!

# Enrollment

- Email us if you're a Concurrent Enrollment student!
- Add/drop with fee deadline: **Sept 13 (2 days from now!)**
  - Email us if you have any trouble (**cubstart@calhacks.io**)

# *Short Poll!*

## How many of you...

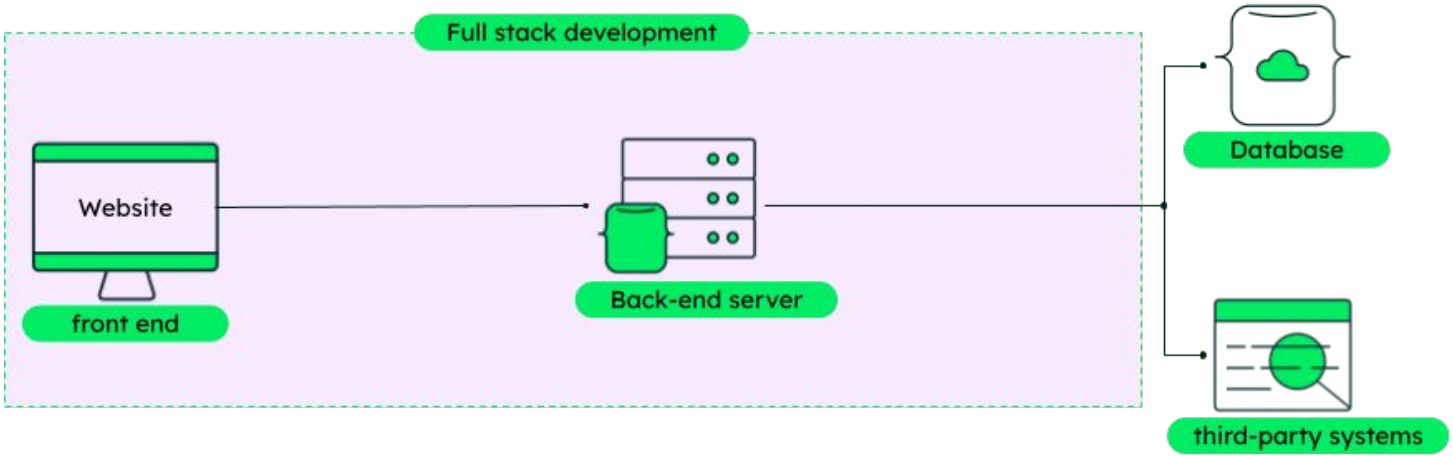
- Have no experience coding?
- Have made some simple websites?
- Have made a full-stack web-app?

# What is Full-Stack Web Dev?

# What is Full-Stack Web Dev?

“Full-stack” means building everything that goes into a web application:

Frontend (website, UI) & backend (server, databases, APIs)



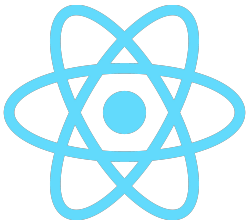
# Frontend

The website/webapp that you see and interact with in your browser


HTML - structure & content

CSS - styling

JS - interactivity & logic



React.js

# Backend

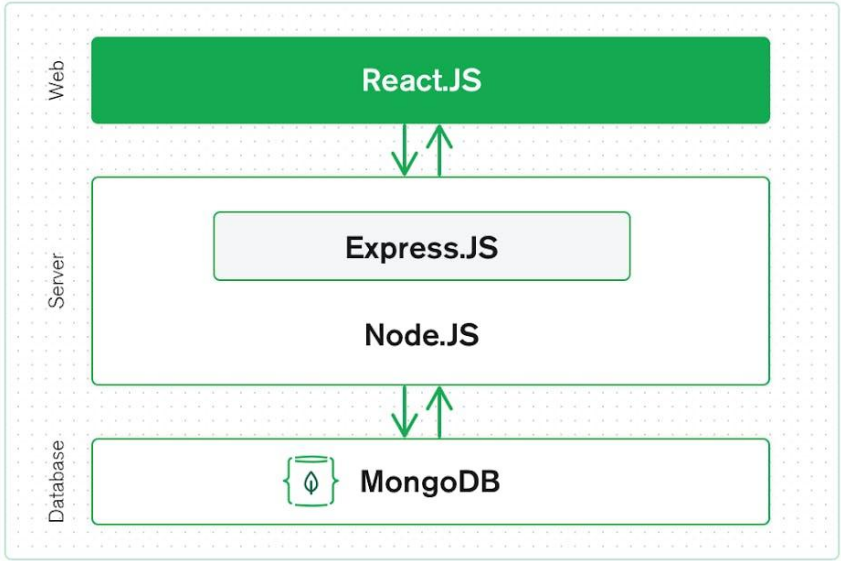
Consists of what you don’t see:


Server for business logic,

APIs to send/receive data,

databases to store information


# MERN Stack (Mongo, Express, Node, React)

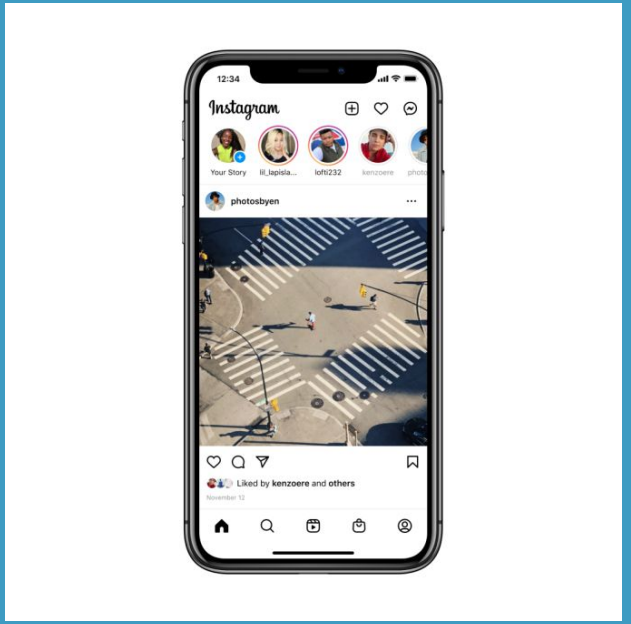


# Example: Instagram

Front-end: Site structure, UI (colors, buttons, etc.), logic to get/show content

Back-end: Business logic to determine what the user wants to see or profiles to follow, etc.

Database: Store all the information about posts/reels/users




Requests:

- Bringing the info stored in the database to your screen
- Send your new post to be stored in database

# What can you expect?

# cubstart web

an intro to the field of web dev

# Schedule (tentative)

| Week | Lecture | Lab Section | Homework/Project |
|---|---|---|---|
| 1 | Introduction to HTML and the Web | Lab 1 | HW 1: HTML Basics |
| 2 | CSS Basics and Browser Developer Tools | Lab 2 | HW 2: Personal Portfolio |
| 3 | Javascript Basics | Lab 3 | HW 3: JavaScript Playground |
| 4 | Using Git and Deployment (with Github Pages) & Introduction to APIs | Lab 4 | HW 4: Deployment |
| 5 | APIs, JSONs, Postman | Lab 5 | HW 5: OpenWeatherMap API |
| 6 | Express/NodeJS | Lab 6 | HW 6: Quizlet-ish Part 1 |
| 7 | MongoDB, Mongoose | Lab 7 | HW 7: Quizlet-ish Part 2 |
| 8 | React I | Lab 8 | HW 8: Social Media Website |
| 9 | React II | Lab 9 | HW 9: TBD |
| 10 | Auth0 | Lab 10 | Final Project |
| 11 | No Class (Thanksgiving Holiday) | | |
| 12 | Final Project OH | Final Project OH | Prep for Demo Day |
| 13 | Demo Day! | | |

# Introduction to HTML

How do we create
a barebones website?

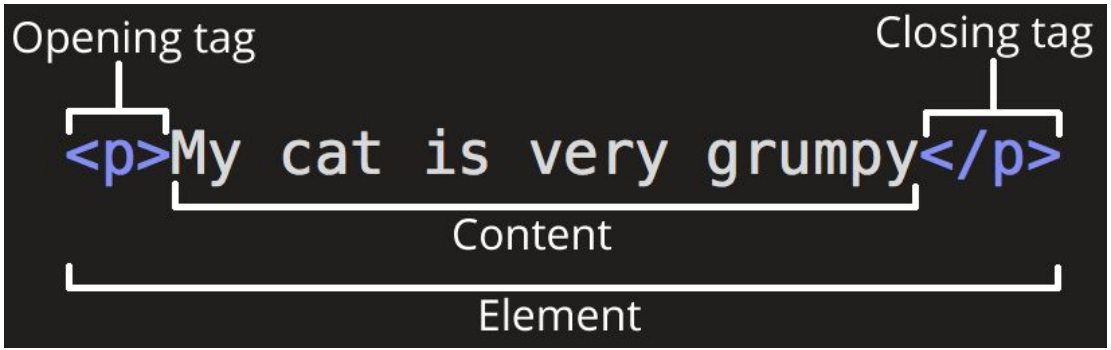
# What is HTML?

- HTML: HyperText Markup Language
  - The skeleton of the internet! How websites are STRUCTURED!
  - This, alongside some other tools/frameworks, results in what you see in your browser!

```
1   <!DOCTYPE html>
2   <html lang="en">
3   <head>
4       <meta charset="UTF-8">
5       <meta http-equiv="X-UA-Compatible" content="IE=edge">
6       <meta name="viewport" content="width=device-width, initial-scale=1.0">
7       <title>Document</title>
8   </head>
9   <body>
10      
11  </body>
12  </html>
```

# What are HTML elements?

- Elements generally consist of opening and closing tags with content
- HTML tags: keywords that define how to display and format content
- Tags give structure and meaning to content




# What are HTML elements?

- Different tags display content differently!

```
<h1> This is a header.</h1>
<p> This is a paragraph. </p>
```

*everything highlighted is an HTML tag!

Output

**This is a header.**

This is a paragraph.

# Attributes

- HTML tags can have attributes, which are parameters that are placed inside the opening tag
- Attributes adjust the behavior or display of an element


# Common HTML Tags

(code with us!)

www.programiz.com/html/online-compiler

Delete lines 15-21!

*Declares the type of the document to be HTML*

*Expresses the beginning and end of our HTML document*

*Contains metadata about the page, which is typically not displayed*

*Displays the page title in the tab space*

```
<!DOCTYPE html>
<html>
    <head>
        <title>NAME OF WEBSITE</title>
        <link rel="shortcut icon" type="img/png" href="favicon.png">
        <link rel="stylesheet" type="text/css" href="style.css">
        <meta name="viewport" content="width=device-width, initial-scale=1.0">
    </head>
    <body>
        <h1> This is a header. </h1>
    </body>
</html>
```

*Links an external stylesheet*

*Links to an icon that will be displayed on the tab space*

*Lays out all visible content and information on the web page*

# Text elements in HTML

```
<!DOCTYPE html>
<html>
    <head> ... </head>
    <body>
        <h1> Header 1 </h1>
        <h2> Header 2 </h2>
        <h3> Header 3 </h3>
        <p> I'm a paragraph! </p>
    </body>
</html>
```

Output

# Header 1

## Header 2

### Header 3

I'm a paragraph!

# Text Formatting

- Bold:   OR  
- Italics:   OR  
- Underline: <u> </u>

```
<!DOCTYPE html>
<html>
     <head> ... </head>
     <body>
          <p>I am <strong>bold!</strong></p>
     </body>
</html>
```

Output

I am **bold!**

Note the nested structure!

# Images

The image tag has a src attribute that specifies the path to the image.

```
<!DOCTYPE html>
<html>
      <head> ... </head>
      <body>
            <div>
                  <h1> Welcome to Cubstart! </h1>
                  <img src="https://calhacks-sierra.s3-us-west-2.amazonaws.com/assets/branding/cubstart.png" />
                  <img src="/assets/cubstart_logo.png" />
            </div>
      </body>
</html>
```

**Absolute** URL: links to external image hosted on another site

**Relative** URL: image hosted within the website, relative to the current page

# Links

```
<!DOCTYPE html>
<html>
      <head> ... </head>
      <body>
            <div>
                  <h1> Welcome to Cubstart! </h1>
                  <p> Cubstart is Cal Hacks' course for beginner hackers. </p>
                  <img src="https://calhacks-sierra.s3-us-west-2.amazonaws.com/assets/branding/cubstart.png">
                  <a href="https://calhacks.io/"> Learn more about Cal Hacks </a>
            </div>
      </body>
</html>
```

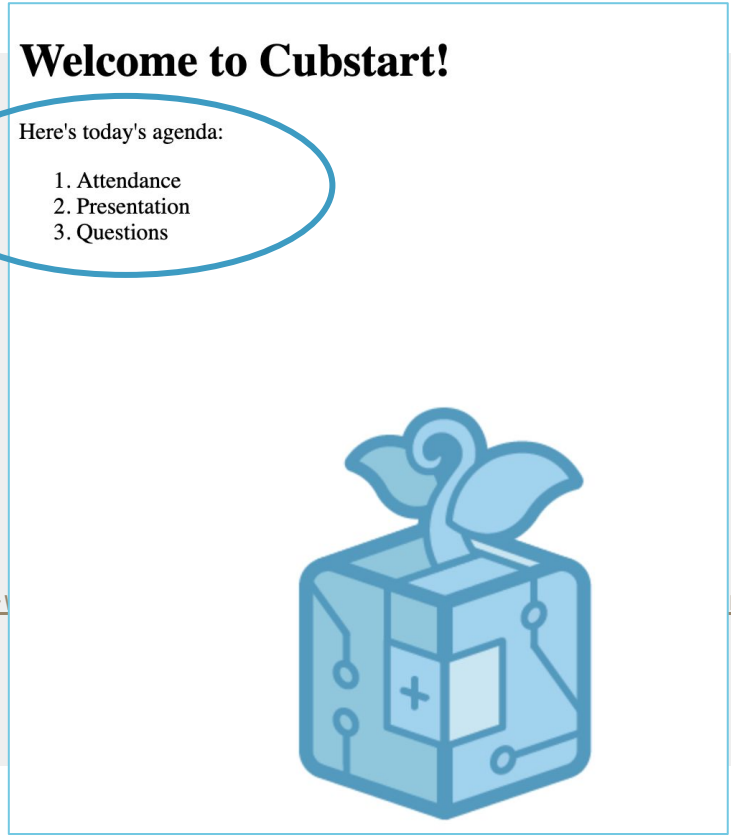
Result: Learn more about Cal Hacks

# Unordered Lists

```
<!DOCTYPE html>

<html>
      <head> ... </head>
      <body>
            <div>
                  <h1> Welcome to Cubstart! </h1>

                  <p> These are our two tracks: </p>

                  <ul>
                        <li> iOS Development </li>

                        <li> Web Development </li>

                  </ul>

                  <img src="https://calhacks-sierra.s3                                    tart.png">

            </div>

      </body>

</html>
```

# Ordered Lists

```
<!DOCTYPE html>

<html>
      <head> ... </head>
      <body>
            <div>
                  <h1> Welcome to Cubstart! </h1>
                  <p> Here's today's agenda: </p>
                  <ol>
                        <li> Attendance </li>
                        <li> Presentation </li>
                        <li> Questions </li>
                  </ol>
                  <img src="https://calhacks-sierra.s3-us-w                                    rt.png">
            </div>
      </body>
</html>
```



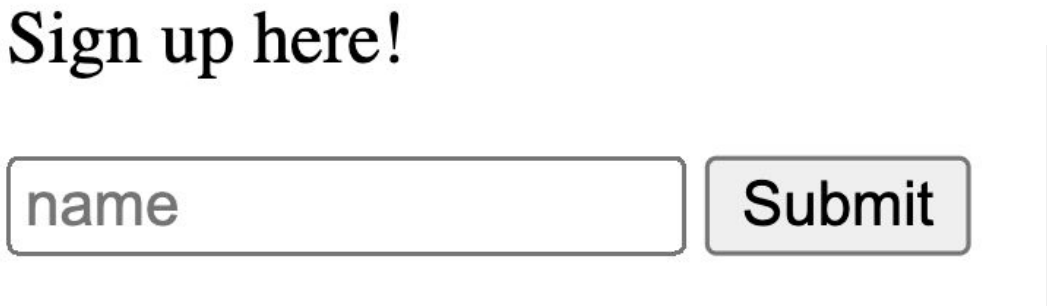
# Buttons

```
<!DOCTYPE html>
<html>
      <head> ... </head>
      <body>
            <div>
                  <h1> Welcome to Cubstart! </h1>
                  <p> Cubstart is Cal Hacks' course for beginner hackers. </p>
                  <img src="https://calhacks-sierra.s3-us-west-2.amazonaws.com/assets/branding/cubstart.png">
                  <button onclick="<function>"> Learn more about Cal Hacks </button>
            </div>
      </body>
</html>
```

Result: Learn more about Cal Hacks

# Forms

```
<!DOCTYPE html>
<html>
      <head> ... </head>
      <body>
            <div>
                  <form>
                        <p> Sign up here! </p>
                        <input type="text" placeholder="name"/>
                        <input type="submit"/>
                  </form>
            </div>
      </body>
</html>
```



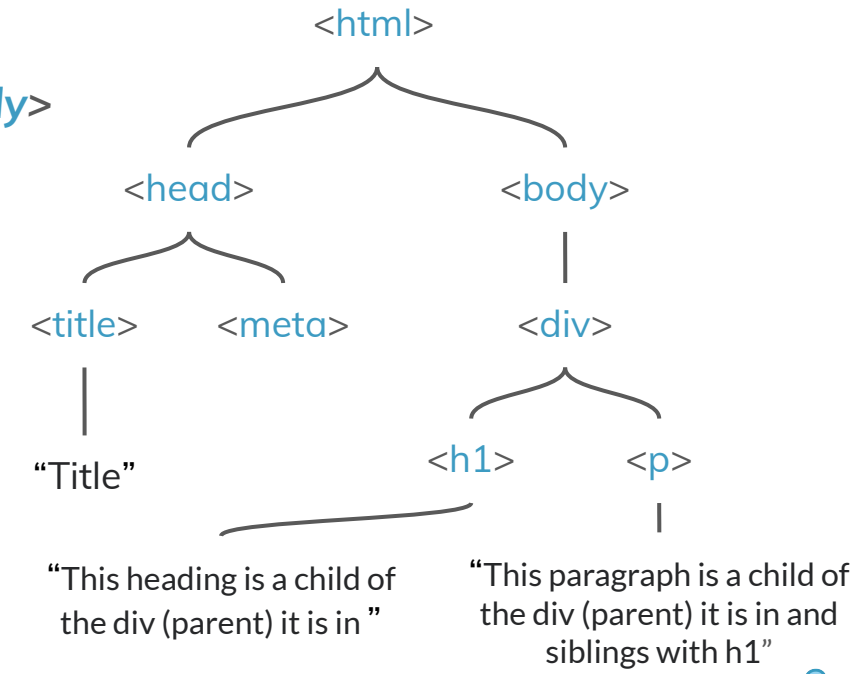

HTML Input Types:

- Checkbox
- Date
- File
- Radio
- Number
- Much more!

# Parent-Child-Sibling Structure

Html nesting as a family tree

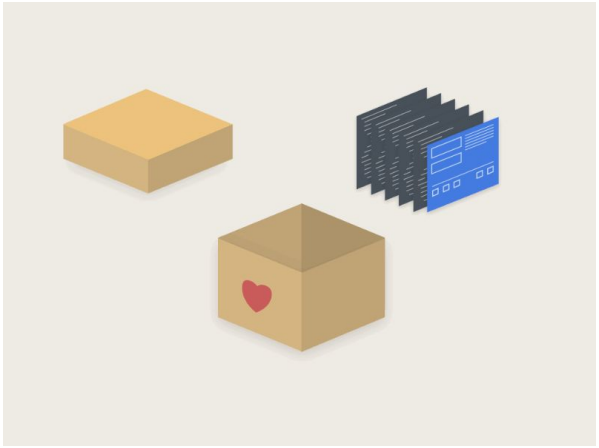
- **<*html*>** is the parent of **<*head*>** and **<*body*>**
- **<*h1*>** and **<*p*>** are siblings
- The text inside the **<*title*>**, **<*h1*>**, and **<*p*>** tags are their respective children

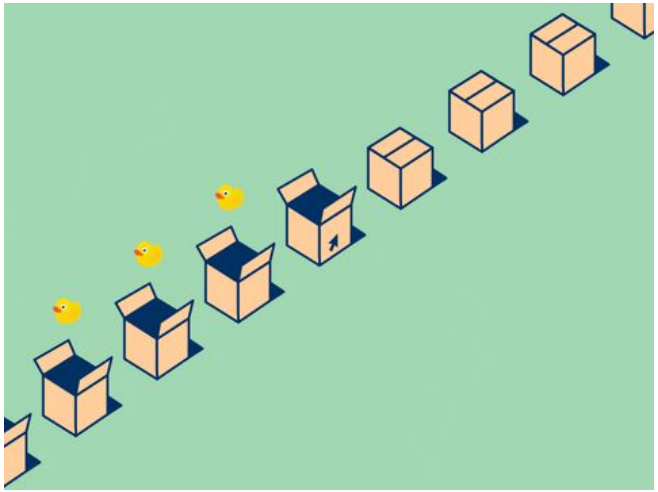


# What is the  tag?

Content Division

- **<*div*>** acts a container for your content
- No styling or effect until you add CSS
- Sorting content/information into groups with classes & ids





# What is the  tag?

```
<!DOCTYPE html>
<html>
     <head>...</head>
     <body>
          <div class="cubstart">
               <h1> Cubstart </h1>
               <p> Cubstart is Cal Hacks' course for beginner hackers. </p>
          </div>
          <div id="cal-hacks-1">
               <h1> Cal Hacks </h1>
               <p> The world's largest collegiate hackathon. </p>
          </div>
     </body>
</html>
```


# What does  look like?

HTML only (no CSS)

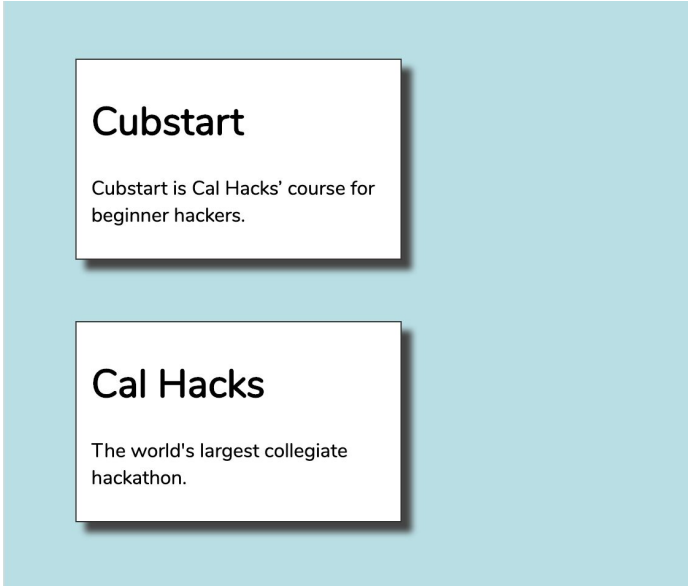
## Cubstart

Cubstart is Cal Hacks' course for beginner hackers.

## Cal Hacks

The world's largest collegiate hackathon.

Added CSS



# Sick demo incoming

https://people.eecs.berkeley.edu/~hilfingr/

Cal Hacks

questions? contact us!

you're invited to

# Cal Hacks 10.0

Oct 27 - 29, 2023 ~ The Metreon, San Francisco

calhacks.io

Apply! or be a mentor, volunteer, or a judge!

priority deadline: 09/22/23

# Secret word:

https://forms.gle/LAAZ28LAEzEcpfP59