

JAVASCRIPT DEVELOPMENT

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HELLO!

1. Pull changes from the `svodnik/JS-SF-16-resources` repo to your computer
2. Open the `15-crud-firebase` folder in your code editor

JAVASCRIPT DEVELOPMENT

INTRO TO CRUD AND FIREBASE

LEARNING OBJECTIVES

At the end of this class, you will be able to

- Explain what CRUD is.
- Explain the HTTP methods associated with CRUD.
- Implement Firebase in an application.
- Build a full-stack app with CRUD functionality.

AGENDA

- CRUD
- Firebase intro and setup
- Create
- Read
- Update
- Delete

INTRO TO CRUD AND FIREBASE

WEEKLY OVERVIEW

WEEK 8

Closures & `this` / CRUD & Firebase

WEEK 9

Deploying your app / Choice (React, other topics)

WEEK 10

Final Project Lab / Graduation!

EXIT TICKET QUESTIONS

1. How often are these things used, and you mentioned that larger companies are utilizing closures, so in a smaller setting should we implement them or is it extra work?
2. What is the diff between objects and constructors?
3. The topic came up as to what other subject matter we'd like to go over on React day. What topics come to mind for you that might be useful to us? Anything that might be supplemental to React, or perhaps some alternatives?

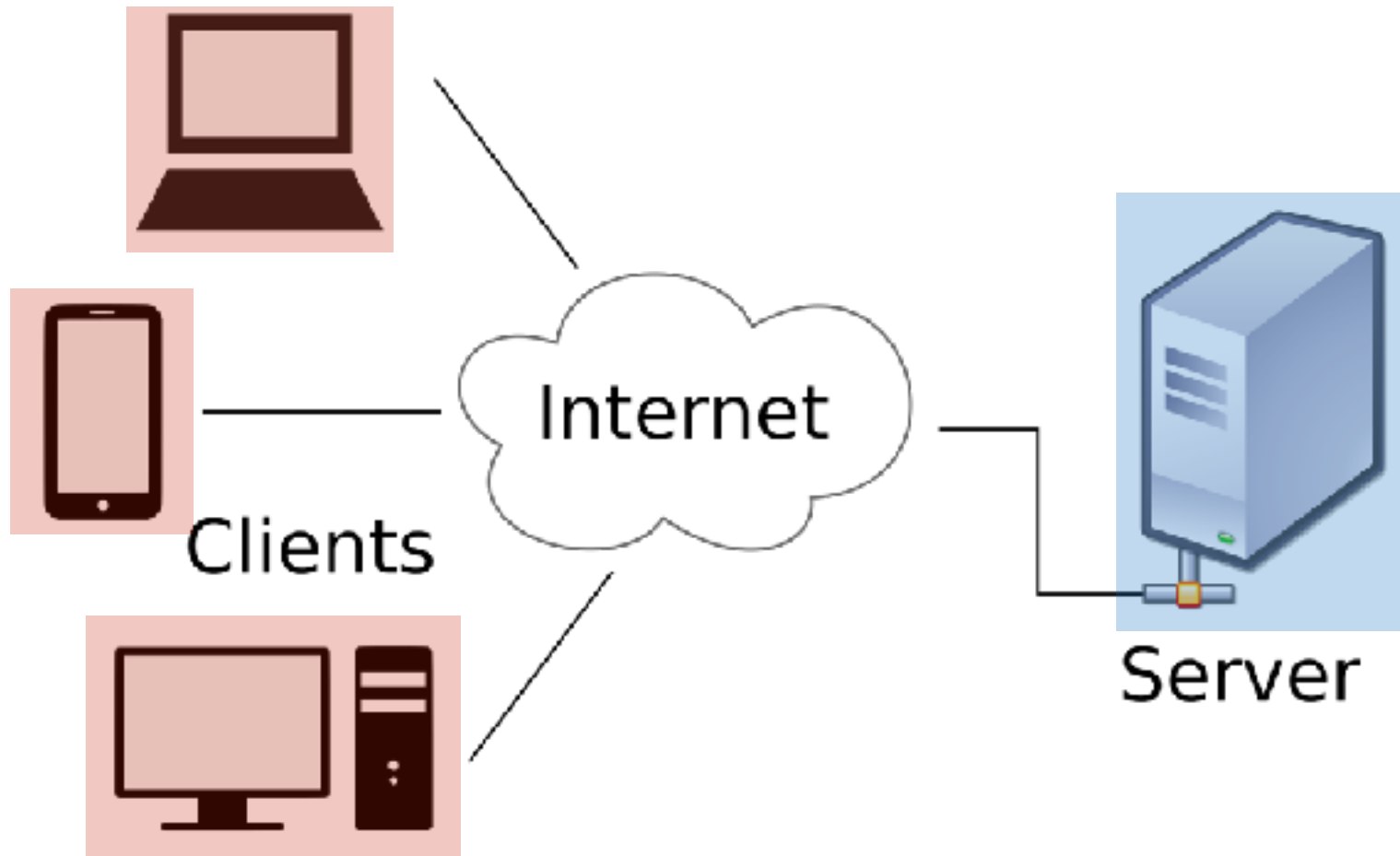
CRUD

What are some apps that allow you to create, read, update, and delete data?

Back-end review

Front end

- HTML
- CSS
- JS



Back end

- JS
- Python
- Ruby
- PHP
- ...

CRUD

- Create
- Read
- Update
- Delete

CRUD and HTTP

CRUD action	HTTP verb
Create	POST
Read	GET
Update	PATCH/PUT
Delete	DELETE

EXERCISE — API METHODS



EXERCISE

KEY OBJECTIVE

- Identify API methods that let you implement CRUD functionality using a popular web service

TYPE OF EXERCISE

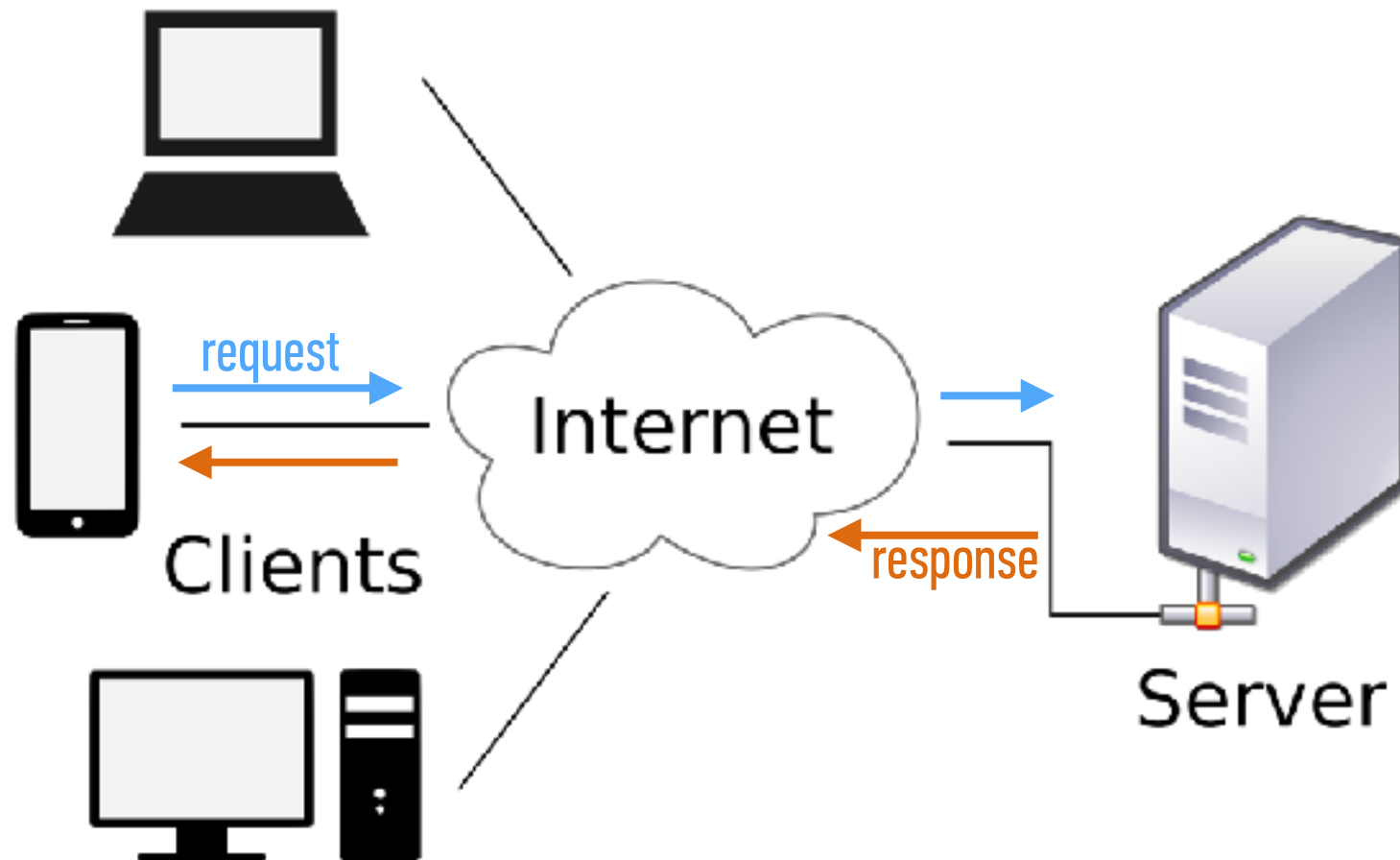
- Groups of 2-3

TIMING

5 min

1. Research your assigned API to see what API methods a developer must use to perform at least one instance of create, read, update and delete. (If your API doesn't fully support CRUD, note any limitations.)
2. Further, define what exactly is being created, read, updated or deleted. For example, for Facebook what HTTP method on what endpoint must you ping in order to create a post in a feed?

THE CLIENT-SERVER MODEL WITH CRUD



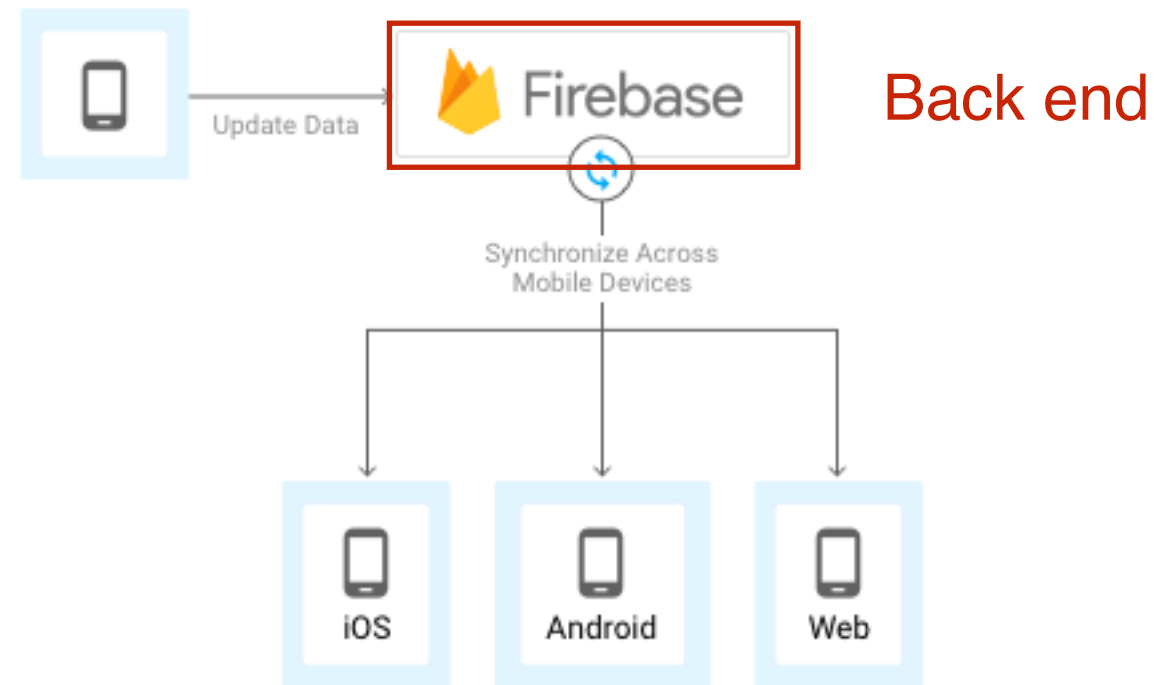
Stores HTML/CSS/JS code

- Accepts HTTP requests
- Generates HTTP responses

Stores database







- Provides create access
- Provides read access
- Provides update access
- Provides delete access

FIREBASE



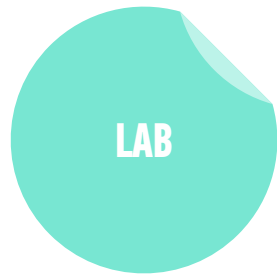
ALTERNATIVE “SERVERLESS” SERVICES

THE MAJOR PROVIDERS
The biggest names in serverless, providing wide swaths of functionality.

 <p>Amazon Web Services Lambda (Cloud Functions), S3 (File Storage), Amplify/Console (Hosting with CI/CD and HTTPS), AppSync (Real-time GraphQL), and Cognito (Auth) are probably the most relevant things to front-end developers. There are frameworks that help you deploy to Lambda, like Amplify, Gatsby, Function, Fleet, Serverless, and Architect.</p>	 <p>Google Cloud Platform More of a major infrastructure provider in vein of Amazon Web Services than a toolkit for building out an app like Firebase is.</p>	 <p>Google Firebase Google Firebase is very powerful while being very easy to use. For example, you can run cloud functions, but you don't even need to for most data storage and retrieval stuff. It might be expensive to scale or though.</p>
 <p>Microsoft Azure A major infrastructure provider with solutions for about just everything, and generally considered the least expensive. For working with cloud functions, there is an online editor, but it also allows GitHub sync and integrates directly with VS Code. Data storage is through Cosmos DB.</p>	 <p>Netlify Netlify is an all-in-one workflow that combines global deployment, continuous integration, and automatic HTTPS. Netlify allows you to build, deploy, and manage modern web projects with local development, functions and smooth development experience.</p>	 <p>ZEIT Now is a global deployment network built on top of all existing cloud providers. It makes teams productive by removing servers and configuration, giving you a seamless developer experience to build modern scalable web apps.</p>

<https://thepowerofserverless.info/services.html#major-providers>

LAB — PLAN A CRUD APP



KEY OBJECTIVE

- › Plan a full-stack app with full CRUD functionality

TYPE OF EXERCISE

- › Solo or in pairs

TIMING

10 min

1. Come up with an idea for an app that implements CRUD. You'll build your app this week in class (this is not your final project). Your app must be able to Create, Read, Update and Delete data.
2. Build out your HTML, CSS, and JS files.
3. Add code generated from your Firebase project to your HTML and JS files.

CRUD and HTTP

CRUD action	HTTP verb	Firestore method
Create	POST	push()
Read	GET	ref()
Update	PATCH	update()
	PUT	set()
Delete	DELETE	remove()

LAB — IMPLEMENT CREATE FUNCTIONALITY



KEY OBJECTIVE

- Build the Create functionality of a full-stack app

TYPE OF EXERCISE

- Solo or in pairs

TIMING

20 min

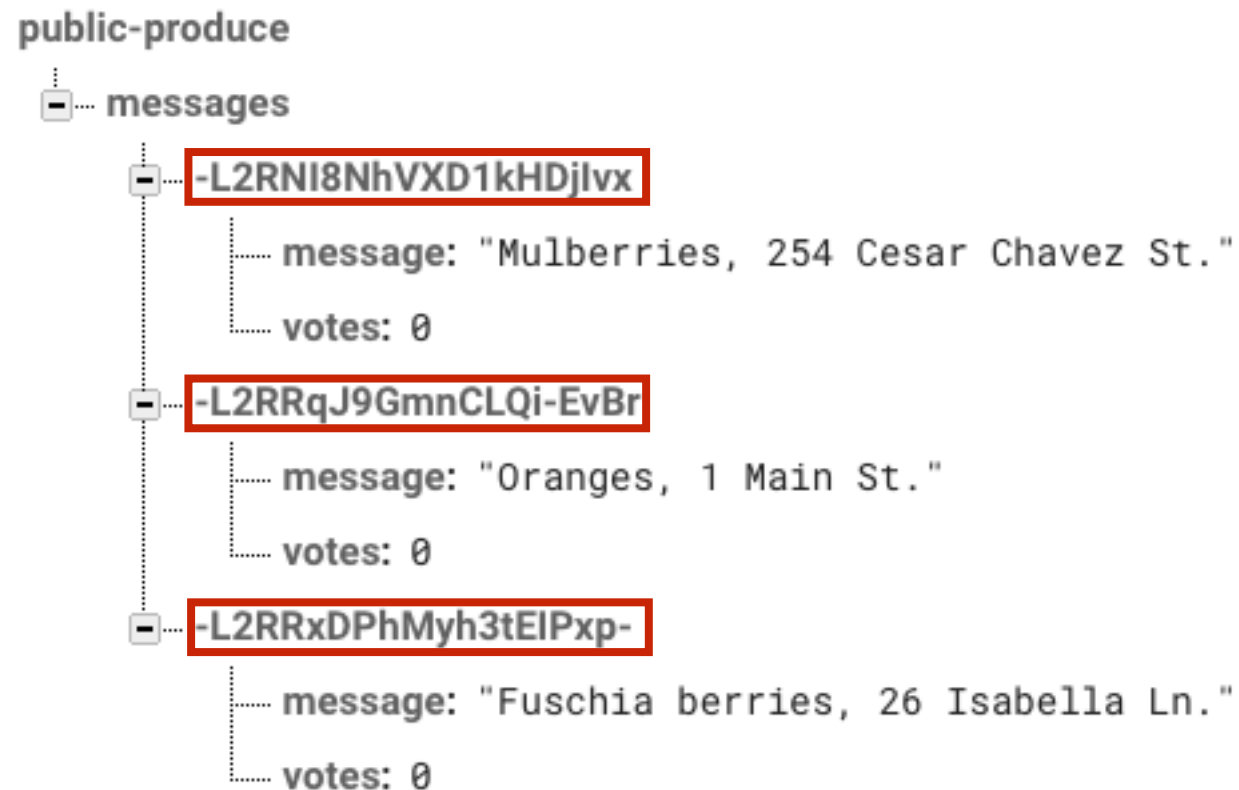
1. Create a form
2. Get user input
3. Create a section in your database for your data
4. Save your data to the database
5. Change security rules to allow access without authentication
6. View your data in the Firebase dashboard

ASSOCIATING DOM ELEMENTS WITH DATABASE RECORDS

HOW TO ASSOCIATE LIST ITEMS WITH DATABASE ENTRIES?

```
<ul class="message-board">  
  <li>Mulberries, 254 Cesar Chavez St.</li>  
  <li>Oranges, 1 Main St.</li>  
  <li>Fuschia berries, 26 Isabella Ln.</li>  
</ul>
```

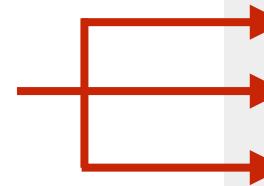
EACH RECORD SAVED IN FIREBASE HAS A UNIQUE ID



HTML data **ATTRIBUTE**

Allows us to associate metadata with DOM elements

Attribute name is data-
plus any string



```
<article  
  id="electriccars"  
  data-columns="3"  
  data-index-number="12314"  
  data-parent="cars">  
  ...  
</article>
```

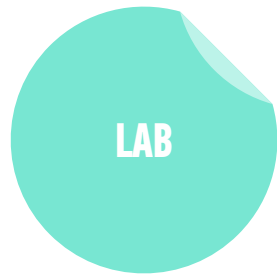
DOM WITH CUSTOM data-id ATTRIBUTES

```
<ul class="message-board">
  <li data-id="-L2RNI8NhVXD1kHDjIvx">Mulberries, 254 Cesar Chavez St.</li>
  <li data-id="-L2RRqJ9GmnCLQi-EvBr">Oranges, 1 Main St.</li>
  <li data-id="-L2RRxDPhMyh3tEIPxp-">Fuschia berries, 26 Isabella Ln.</li>
</ul>
```

Custom attribute
named data-id

Each attribute value is
a database record ID

LAB — IMPLEMENT READ FUNCTIONALITY



KEY OBJECTIVE

- Build the Read functionality of a full-stack app

TYPE OF EXERCISE

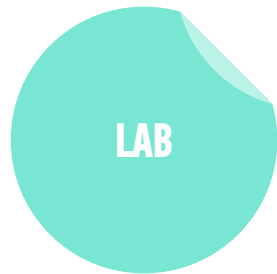
- Solo or in pairs

TIMING

20 min

1. Examine the API documentation at <https://firebase.google.com/docs/reference/js/firebase.database.Reference>
2. Listen for changes (use `.ref()` and `.on()`)
 - <https://firebase.google.com/docs/reference/js/firebase.database.Reference#ref>
 - <https://firebase.google.com/docs/reference/js/firebase.database.Reference#on>
3. Add returned data to your front end using DOM manipulation

LAB — IMPLEMENT UPDATE FUNCTIONALITY



KEY OBJECTIVE

- › Build the Update functionality of a full-stack app

TYPE OF EXERCISE

- › Solo or in pairs

TIMING

20 min

1. Examine the API documentation at
 - › <https://firebase.google.com/docs/reference/js/firebase.database.Reference#update>
 - › <https://firebase.google.com/docs/reference/js/firebase.database.Reference#set>
2. Create a function to make updates to the database
3. Add calls to your new function when data is changed in your app

LAB — IMPLEMENT DELETE FUNCTIONALITY



KEY OBJECTIVE

- Build the Delete functionality of a full-stack app

TYPE OF EXERCISE

- Solo or in pairs

TIMING

10 min

1. Examine the API documentation at <https://firebase.google.com/docs/reference/js/firebase.database.Reference#remove>
2. Create a function to delete records from the database
3. Add calls to your new function when data is deleted in your app

Exit Tickets!

(Class #15)

LEARNING OBJECTIVES – REVIEW

- Explain what CRUD is.
- Explain the HTTP methods associated with CRUD.
- Implement Firebase in an application.
- Build a full-stack app with CRUD functionality.

NEXT CLASS PREVIEW

Deploying your app

- Understand what hosting is.
- Identify a program's needs in terms of host providers.
- Ensure backward compatibility by using Babel to transpile code.
- Optimize code before deployment
- Deploy to a web host.

Q&A