

COURSE OVERVIEW

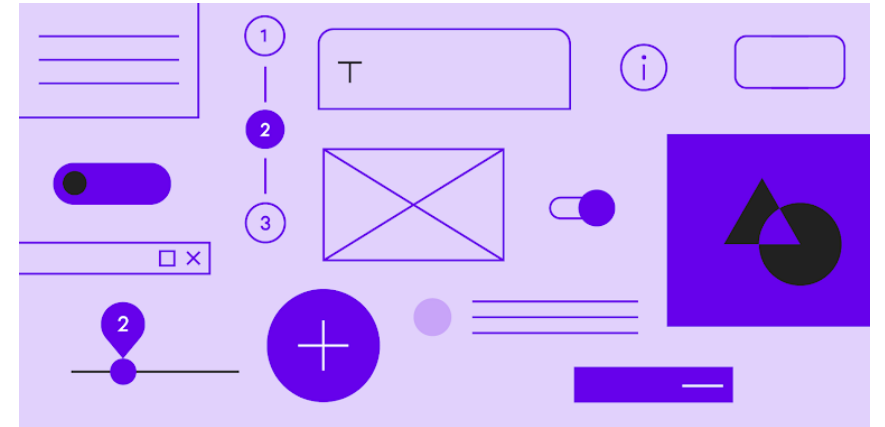
WEB SKILL SETS



Front-End



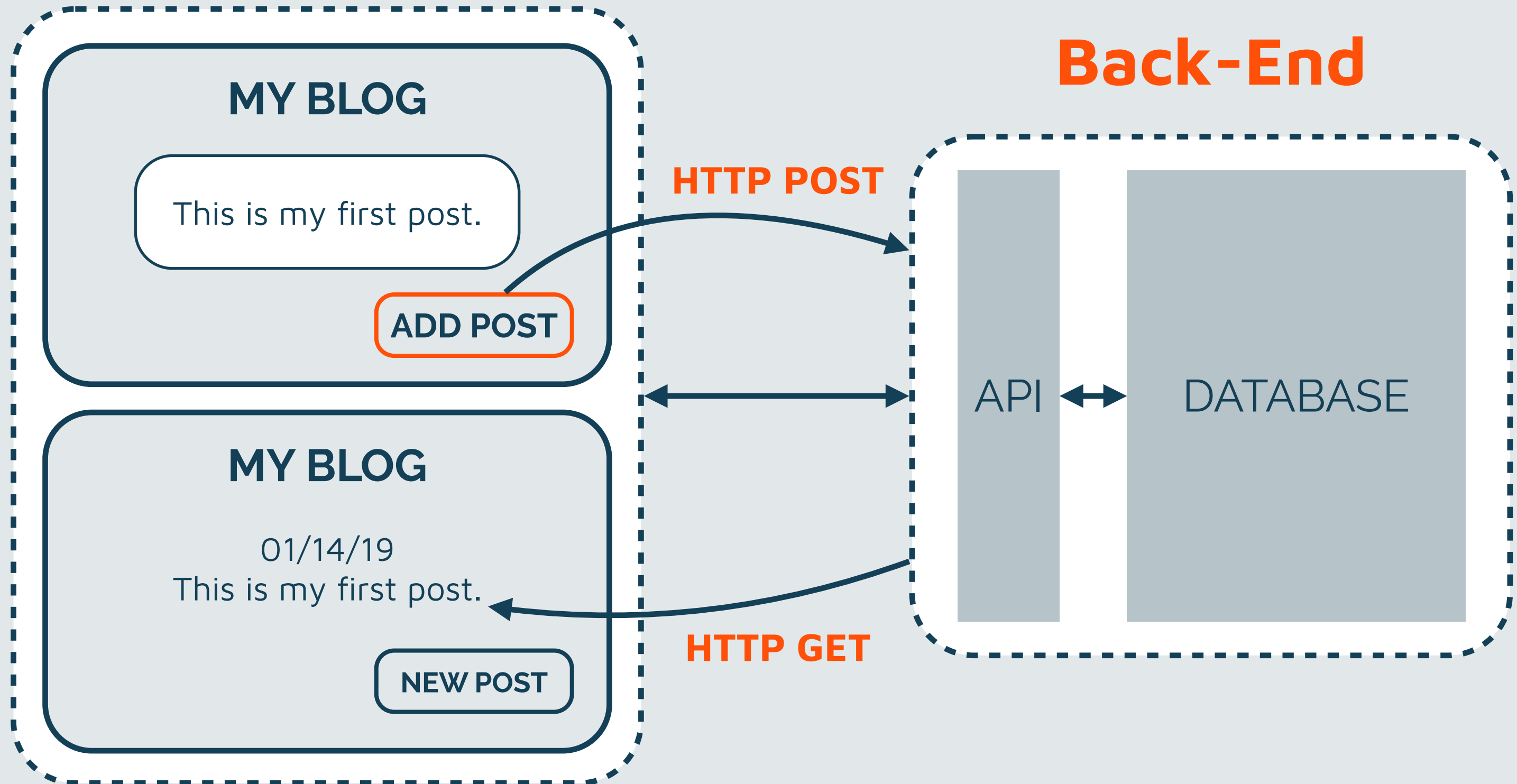
Back-End



Design

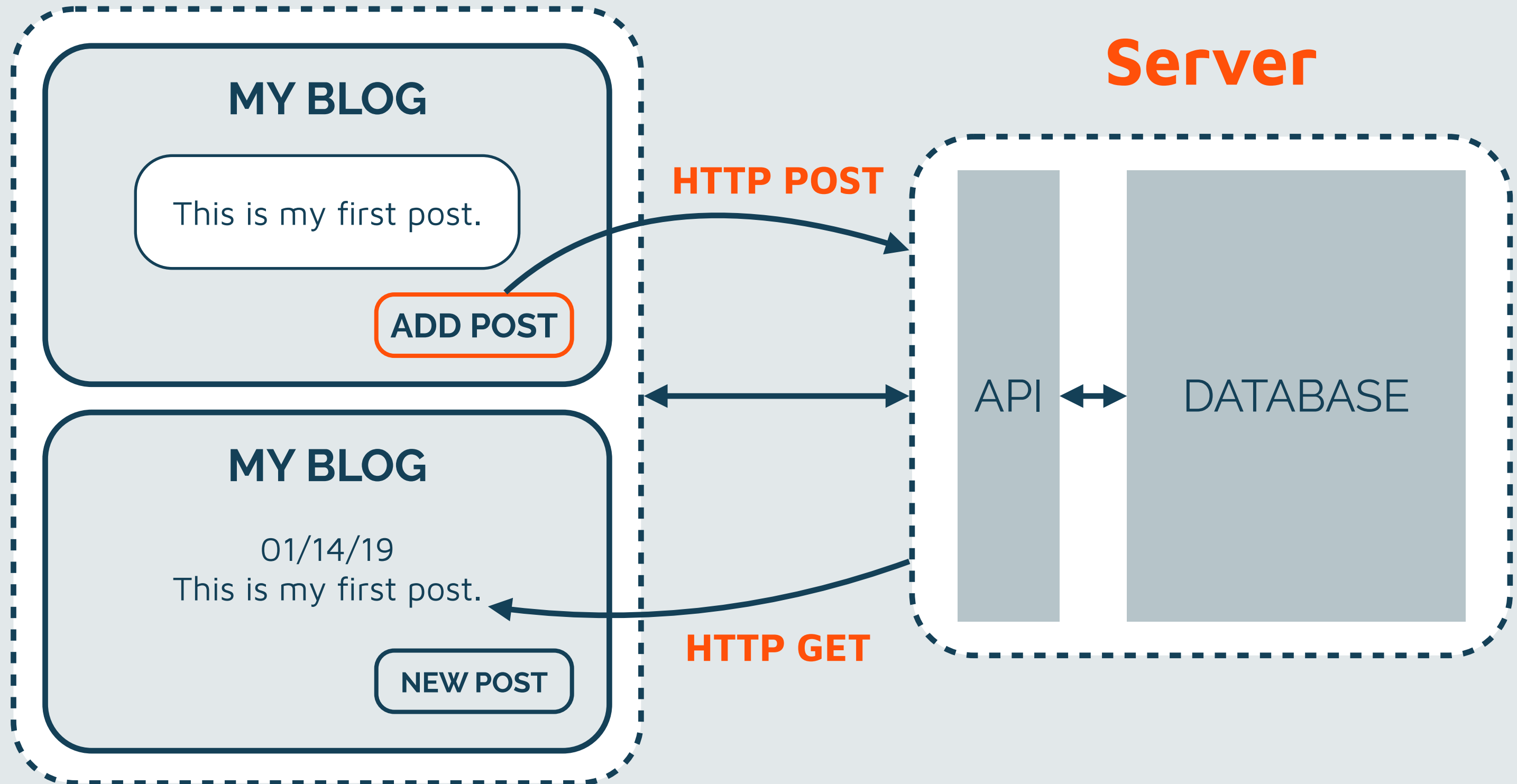
Front-End

Back-End



Client

Server



Client

Server

HTML

CSS

Preprocessors

UI Frameworks

Javascript

React

REST

HTTP

AJAX

RESTful

APIs

Data

Binding

Sockets

SQL vs NoSQL

MySQL

MongoDB

Node.js

Express

The NERD Stack 🧐

Node

Express

React

(any) Database

HTML

Most web pages are written in HTML

Content is embedded in a set of nested HTML tags

Layout engine parses HTML into a Document Object Model (DOM)

Web browsers use generated DOMs to render pages

```
<!DOCTYPE html>
<html>
  <head>
    <title>Photo Gallery</title>
  </head>
  <body>
    <div class="photo">
      <h3>My first photo</h3>
      
    </div>
    .
    .
    .
  </body>
</html>
```

CSS

Language for specifying presentation

Selectors map styles to markup

Describes how to render

Separation of content from presentation

```
html {  
  line-height: 1.15;  
}
```

```
body {  
  margin: 0;  
}
```

```
h1 {  
  font-size: 2em;  
  margin: 0.67em 0;  
}
```

```
img {  
  border-style: none;  
}
```


JAVASCRIPT

Front-end interactions

Dynamic content

Server-side programming (Node.js)

Object-oriented, imperative,
functional

JAVASCRIPT IS WEIRD

```
[10, 20, 9, 8, 30].sort()
```

JAVASCRIPT IS WEIRD

[10, 20, 30, 8, 9]

DATA TRANSFER

HTTP: request-response protocol

AJAX: send and receive data
without reloading the page

JSON: data exchange format

DATABASES

SQL (MySQL)

NoSQL (MongoDB)

Graph (Neo4j)

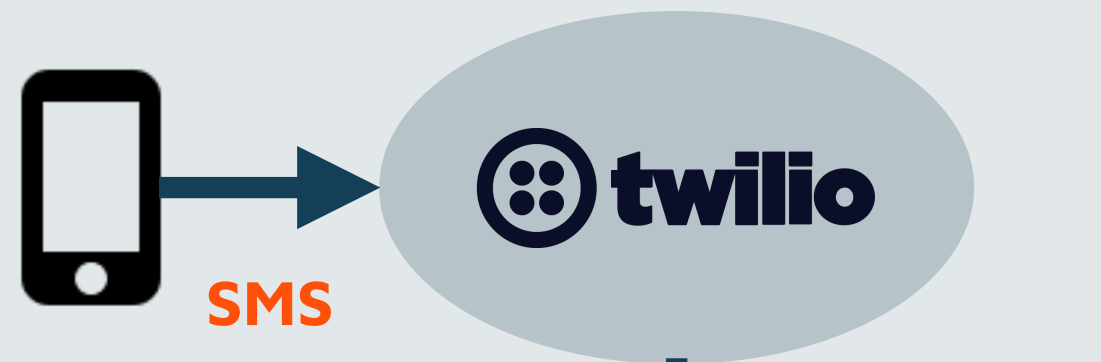
APIS AND SERVER LOGIC

HTTP requests: GET, POST, DELETE,
UPDATE

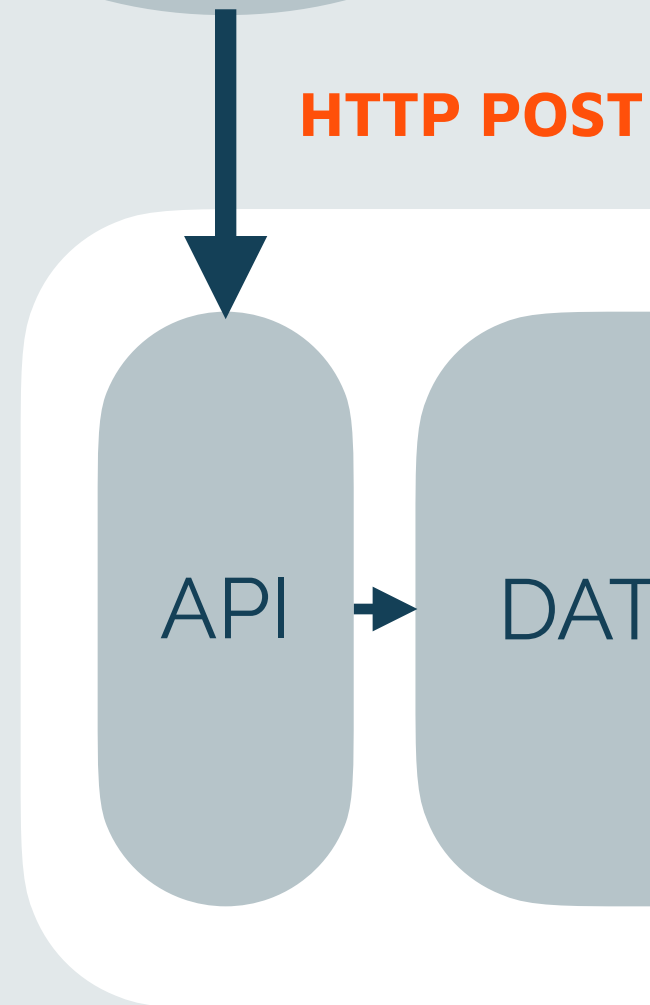
Designing a RESTful API

Node.js and Express

Web Sockets



How Did the Demo Work?



API → DATABASE



HAVE YOU BUILT A
WEB PAGE BEFORE?
TEXT A OR B TO (980)
819-2848

A: YES 0
B: NO 1

Server

Client

WILL THIS COURSE BE OUTDATED NEXT YEAR?

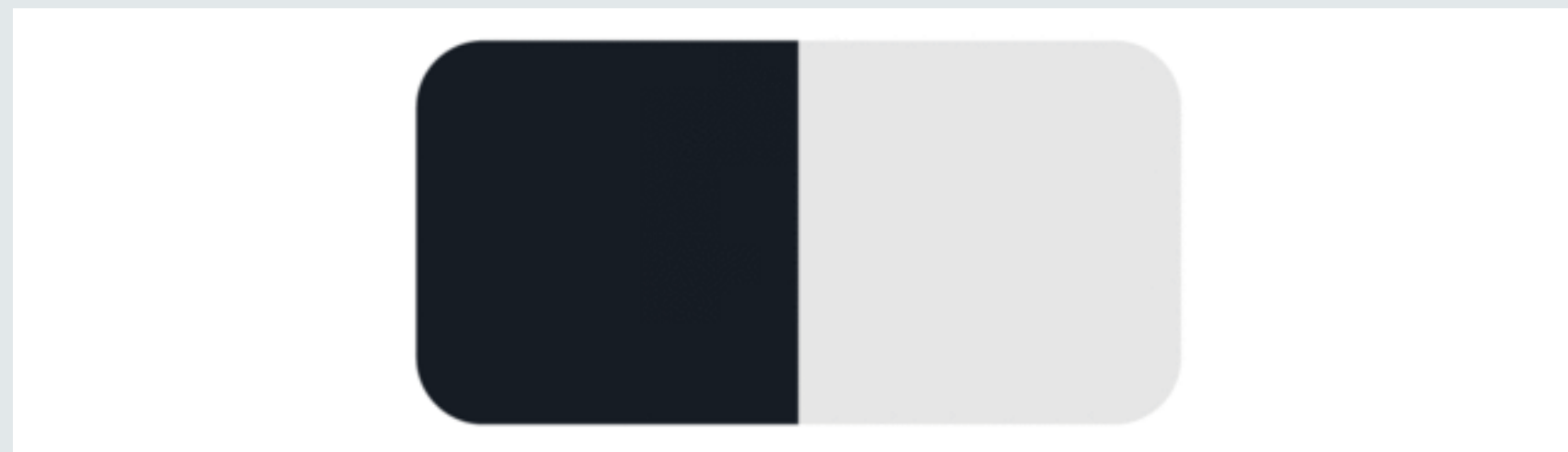
Focus on concepts not just specific
technologies

Understand how trends rose and
have changed

~1989: Unix-based web browsers



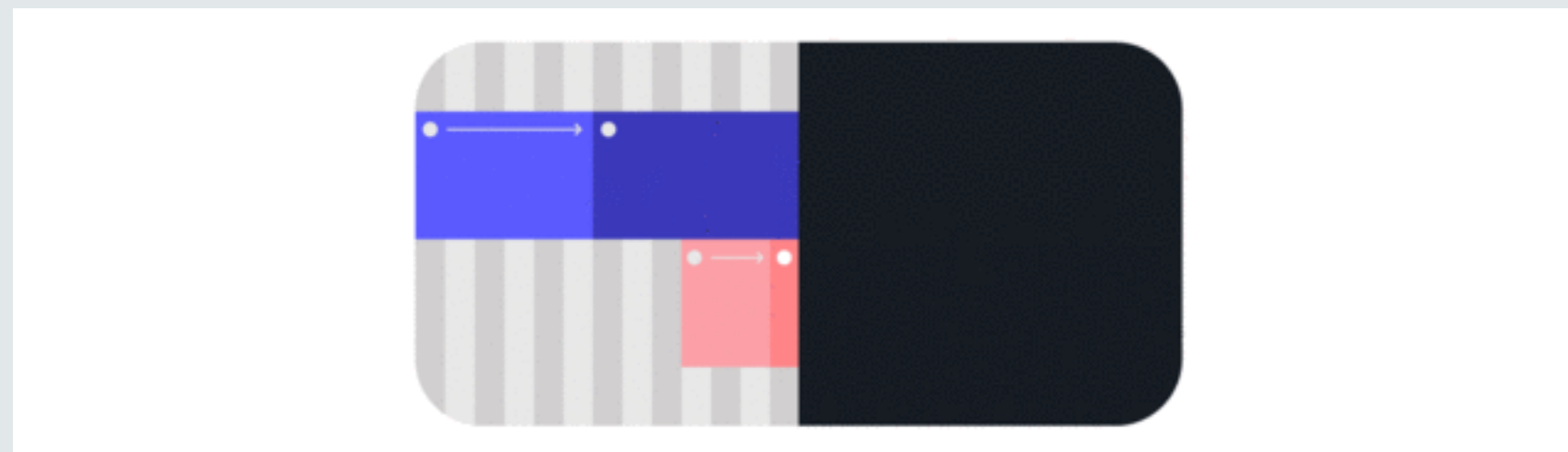
~1995: First graphical Web browsers



~1995: Javascript & Dynamic Content



~1996: Flash animations



~1998: CSS came on the scene



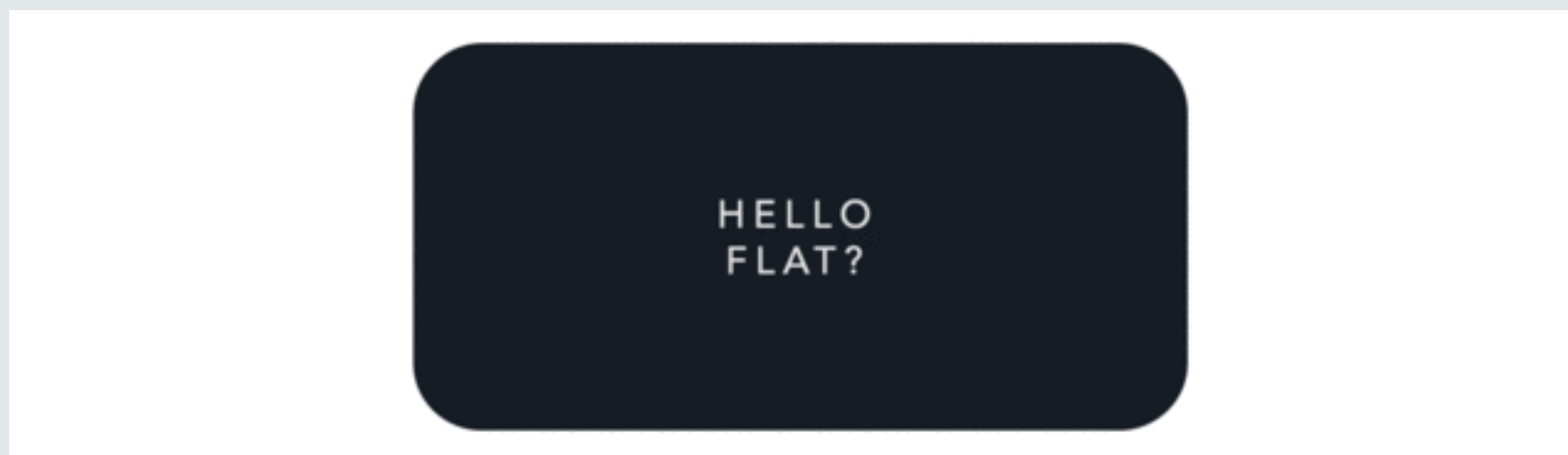
~2007: Grid systems



~2010: Responsive design

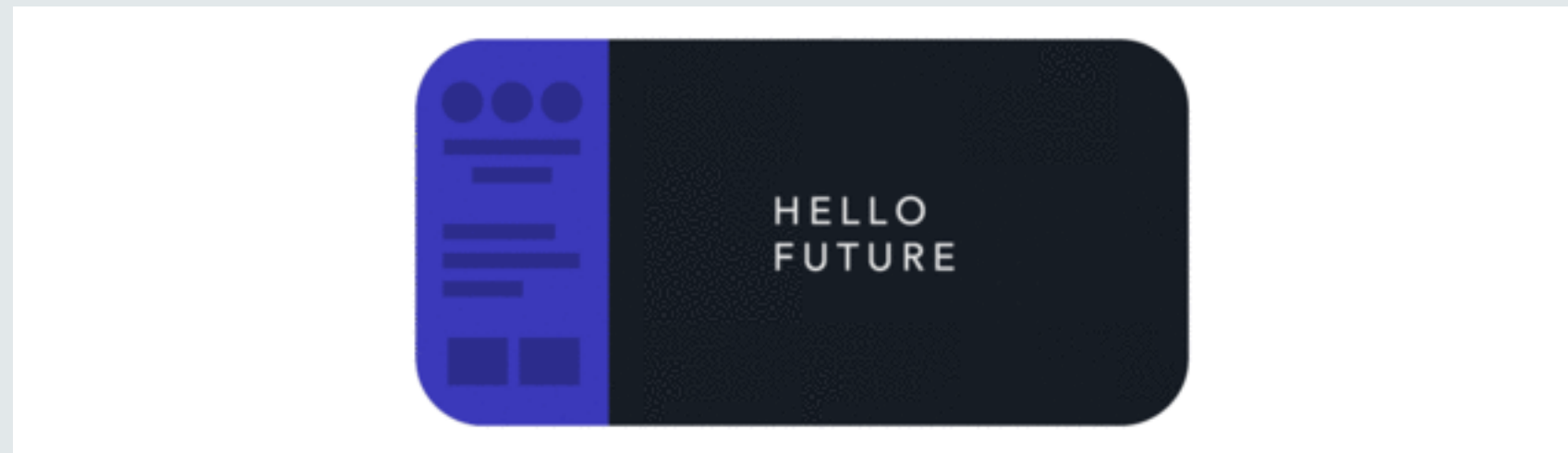


Last few years: Flat design



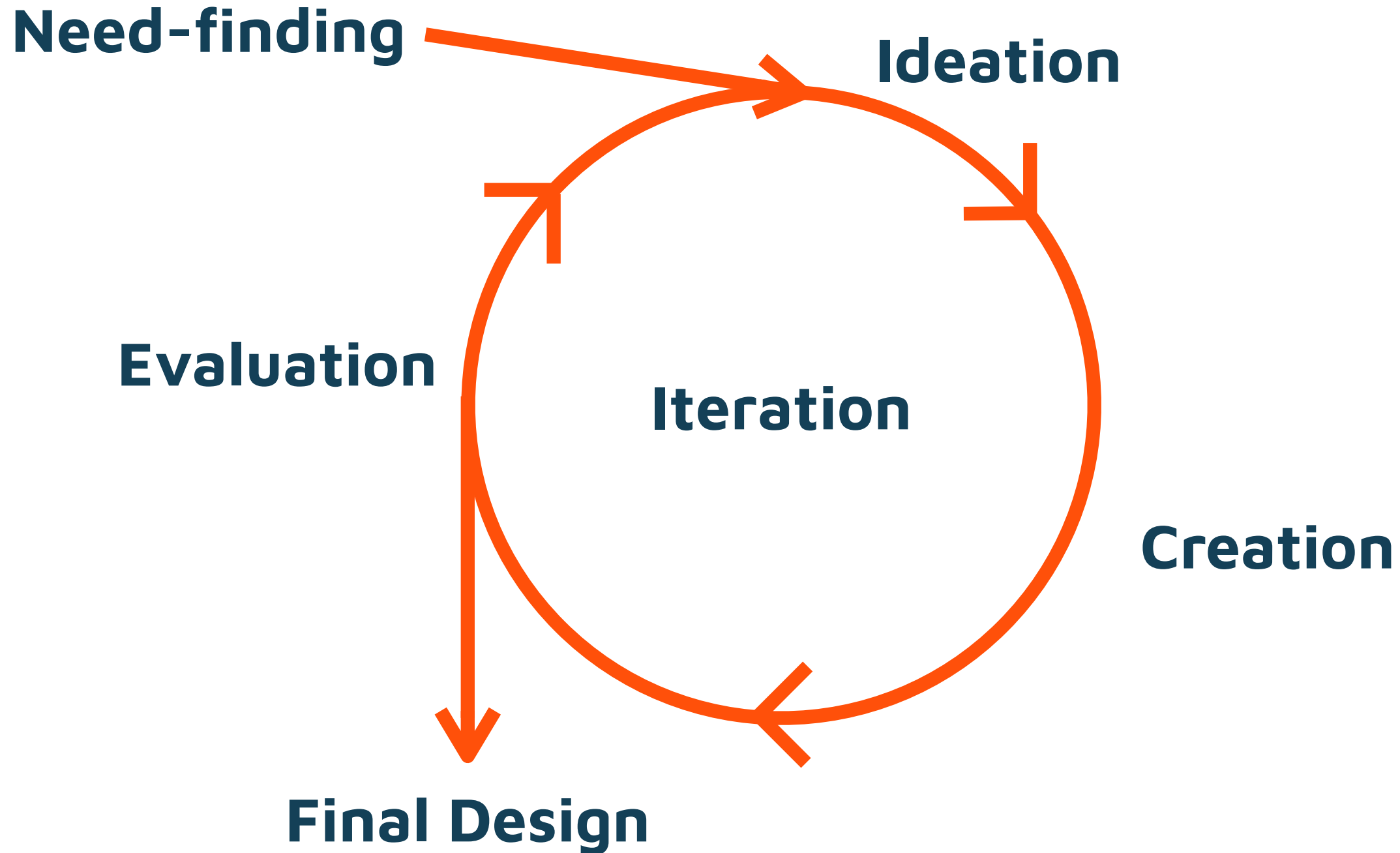
<https://blog.froont.com/brief-history-of-web-design-for-designers/>

Future? Chatbots, AR/VR, ...



<https://blog.froont.com/brief-history-of-web-design-for-designers/>

DESIGN EMPHASIS



NEXT CLASS: HTML

Course Web Page

<https://uiuc-web-programming.gitlab.io/fa21/>

Piazza

<http://piazza.com/illinois/fall2021/cs498rk>