

# Welcome to CS571!

# Building User Interfaces

**Cole Nelson**

# Instructor



Cole Nelson  
*ctnelson2@wisc.edu*

B.S. Software Engineering  
M.S. Computer Science

<https://coletnelson.us>

<https://github.com/ctnelson1997>

# Course Staff

Hongtao Hao

Zhaoyang Liu

Amy Koike

Kassie Povinelli

Daniel Killough

... and many other peer mentors and graders!

## Who are you?

We'll get to know you in HW0! This information will be shared with your classmates in HW2 & HW4, BadgerBook.

You *can* make this up! :)

# Alan Turing

## Computer Science

Alan is taking 12 credits and is from Wisconsin.

They have 4 interests including...

- Reading
- Lifting
- Running
- Sudoku

# What is **CS571** about?

→ UX Development

...but what is UX Development?

***The realm of the UX developer exists **somewhere between that of the traditional developer and the designer**. We're not really designers, yet to be a good UX developer you certainly need to have an eye for design. In the same vein, we're not traditional developers but we certainly need to have development experience and expertise. Often this experience spans multiple technologies, languages, and platforms.***

— Tim R. Todish

***It falls on **the UX developer** to bridge the gap between design and technology. We need to be able to think and speak the language of designers. It's our job to help translate their vision to the development team in a way that they can understand and accept. This can be a critical piece of the puzzle in a project, especially if the design and the interactions behind it are complex.***

—Tim R. Todish



***Similarly, we need to speak on behalf **the developers to help reign in the designers**, at times. If they are coming up with concepts that will be extremely difficult or time consuming to implement, we can explain the limitations of the technology and the complexity involved in implementing their designs, and try to come up with an acceptable alternative.***

—Tim R. Todish



# UX Development

**= Software Engineering + UX Design**

# What does a **Software Engineer** do?<sup>1</sup>

<sup>1</sup>Kantega | The Mysterious Life of Developers

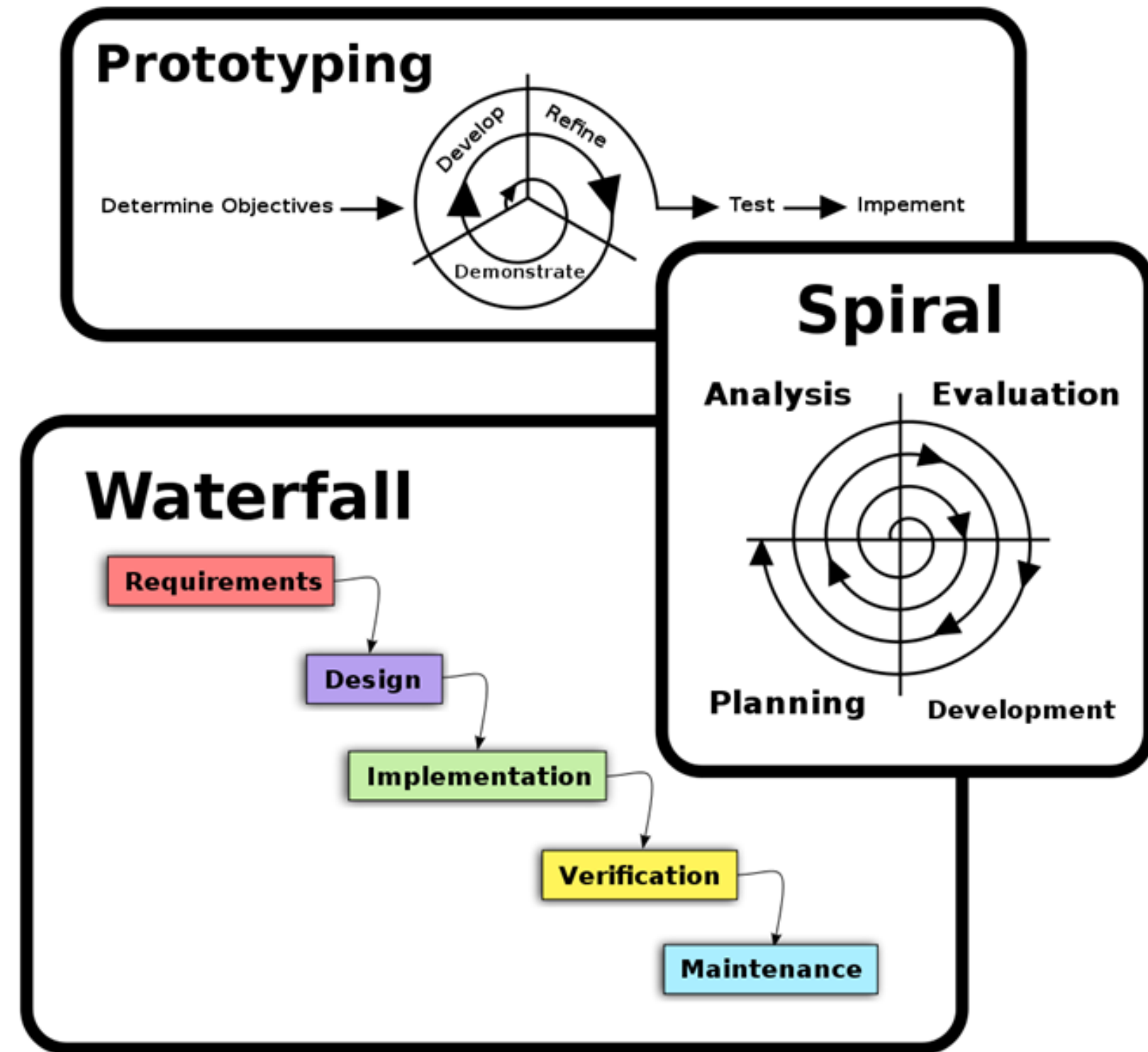
**Definition:** A software engineer is a person who applies the principles of software engineering to the design, development, maintenance, testing, and evaluation of computer software.

But how does a Software Engineer go about this?<sup>2</sup>

<sup>2</sup>What is a Software Engineer?

# Software Development Lifecycle<sup>3</sup>

<sup>3</sup>SDLC Process



# What does a UX Designer do?<sup>4</sup>

<sup>4</sup> Kantega | The Mysterious Life Of UX Designers

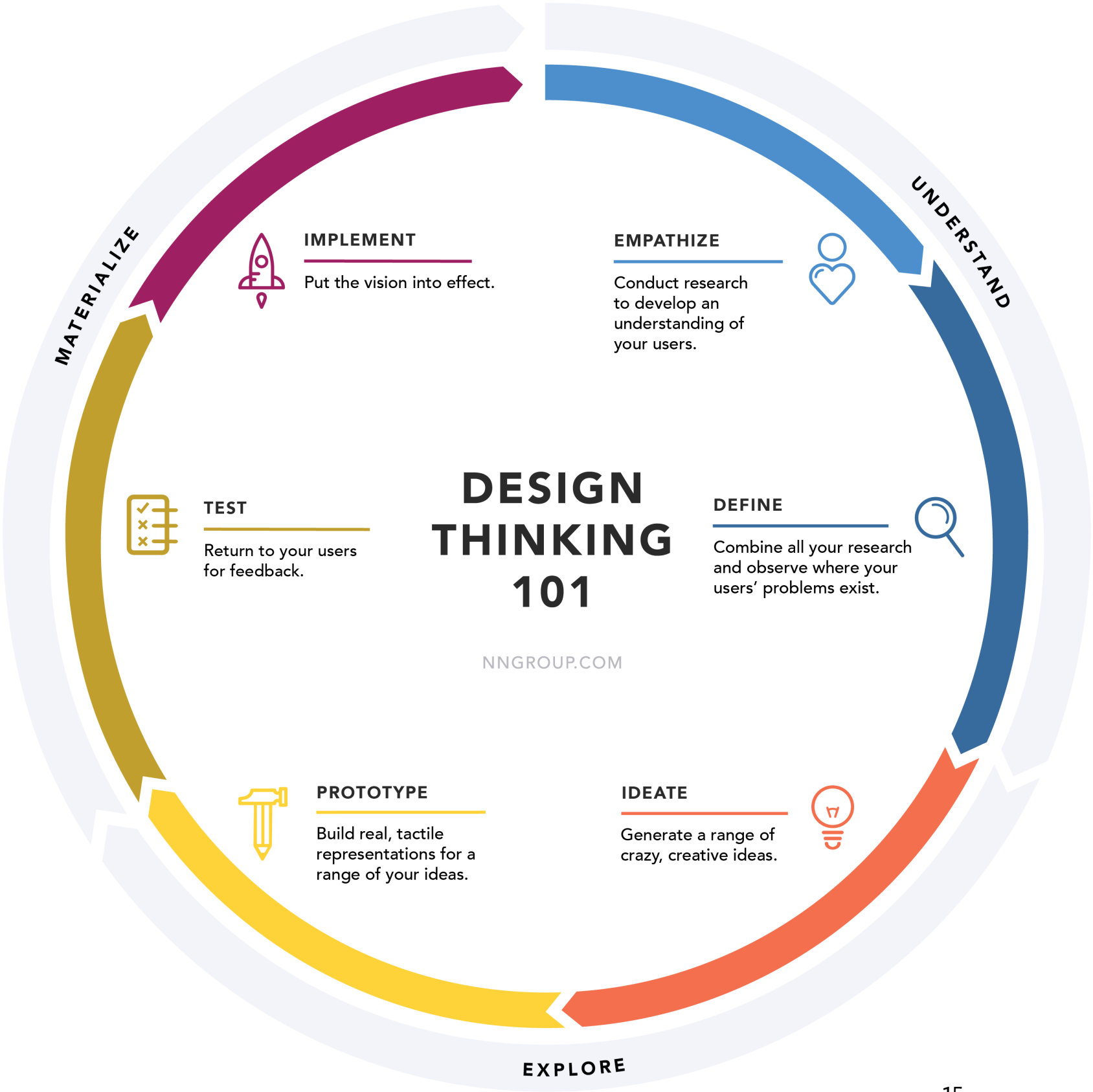
**Definition:** User experience (UX) design is the process that design teams use to create products that provide meaningful and relevant experiences to users. A UX designer is concerned with the entire *process* of acquiring and integrating a product, including aspects of branding, design, usability, and function.<sup>5</sup>

How does a UX designer go about this?

<sup>5</sup>Interaction Design Foundation

# UX Design Process<sup>6</sup>

Looks familiar?



<sup>6</sup>NN/g Design Thinking



# So then, what is **UX Development**?<sup>7</sup>

<sup>7</sup>Don Norman: The term "UX"

# UX Development Trajectories

- One-person development team to build full-stack applications
- A developer who speaks the language of the designers
- A designer who can also build native prototypes
- A bridge/translator between designers and developers in large/complex organizations

# Course Information

Please see the course syllabus!

# TopHat

Attendance code will always be written on board.

# Today's Topic

## The Web.

# A Website<sup>9</sup>

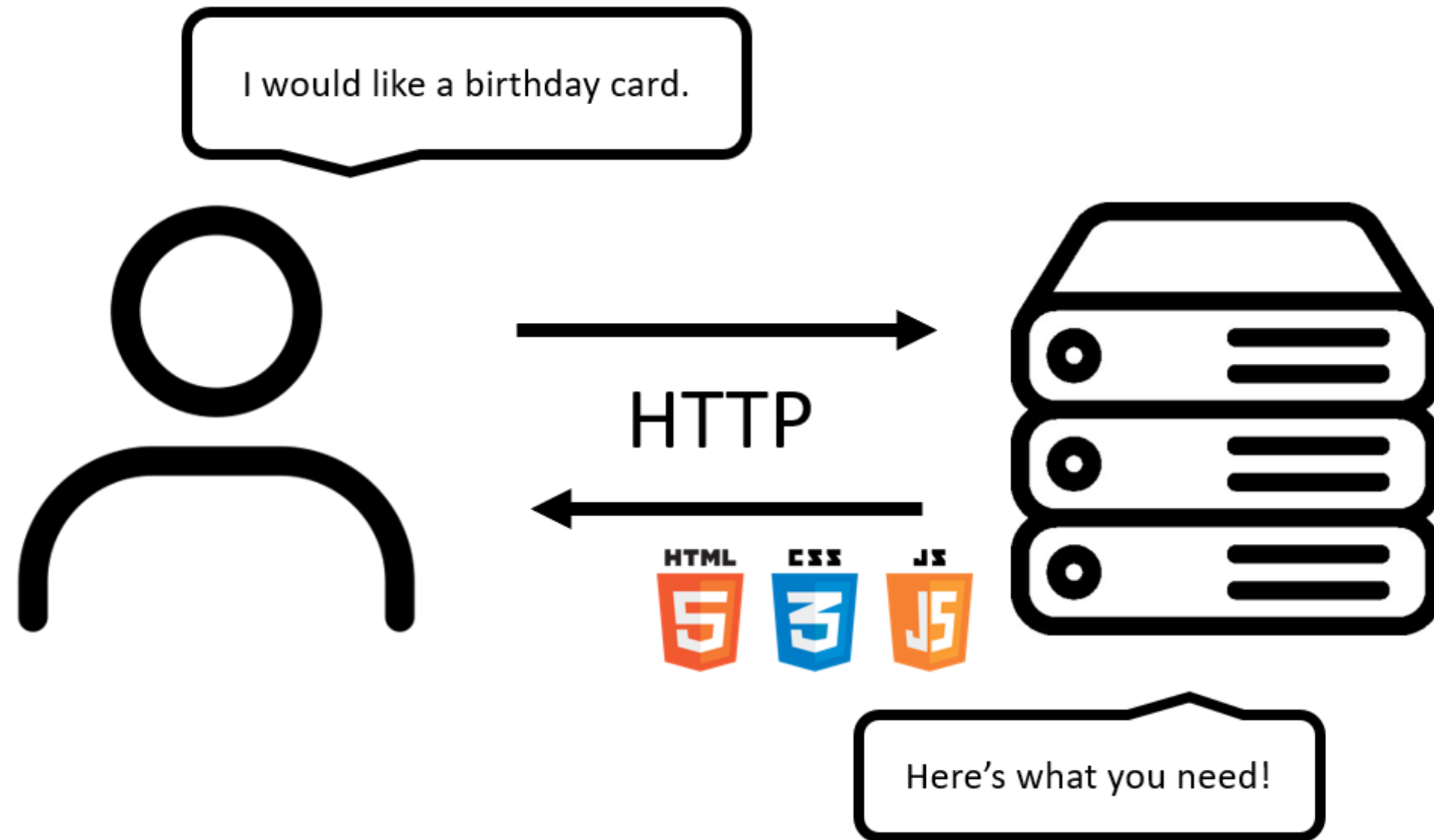
It's like a birthday card!

Concept	Behavior
HTML	Structure
CSS	Design
JS	Behavior

How does it get delivered? HTTP!

<sup>9</sup>Personal Website Codepen





<sup>10</sup>Server Icon by Pixel Perfect



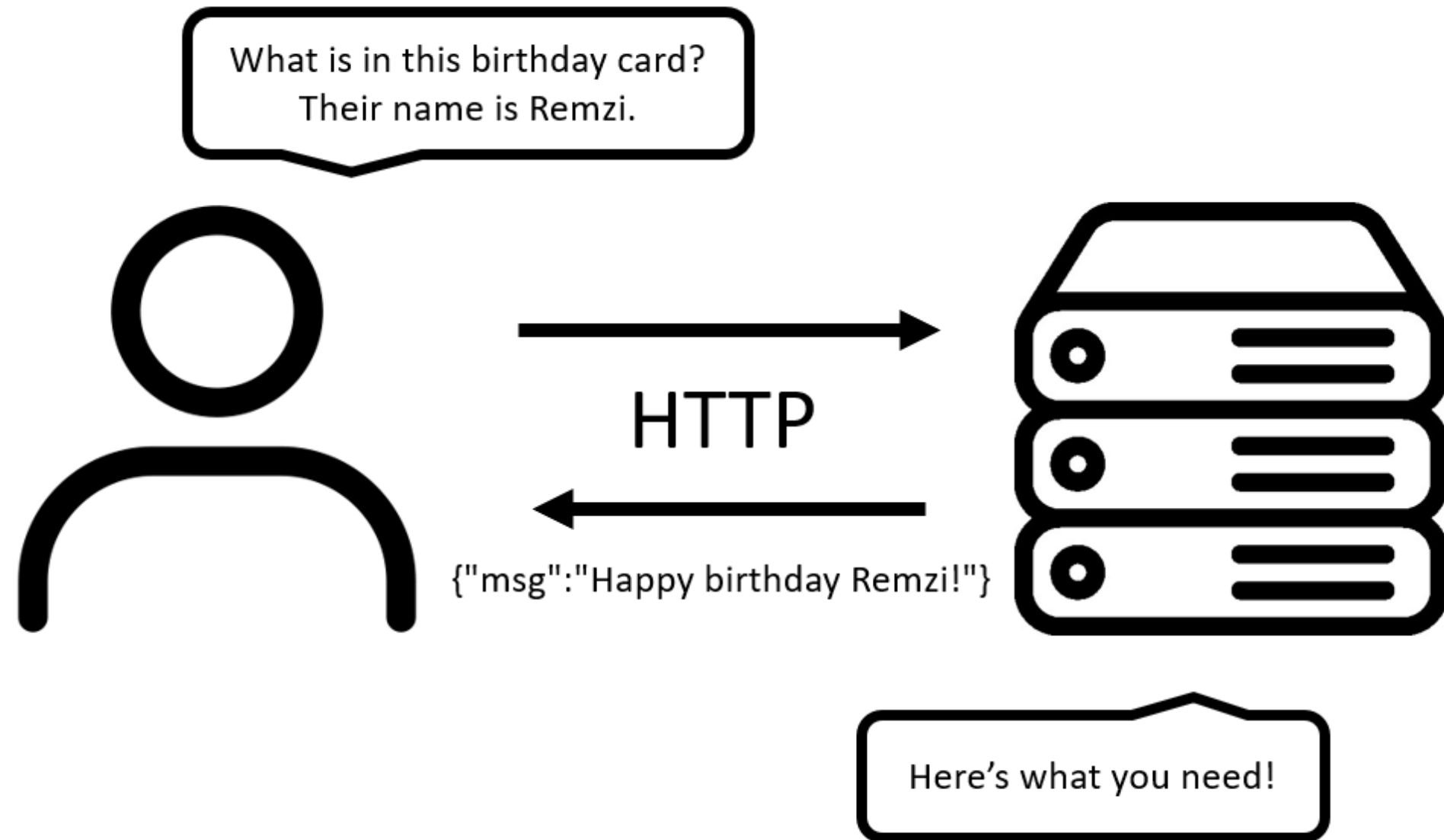


There's nothing inside of the card?!

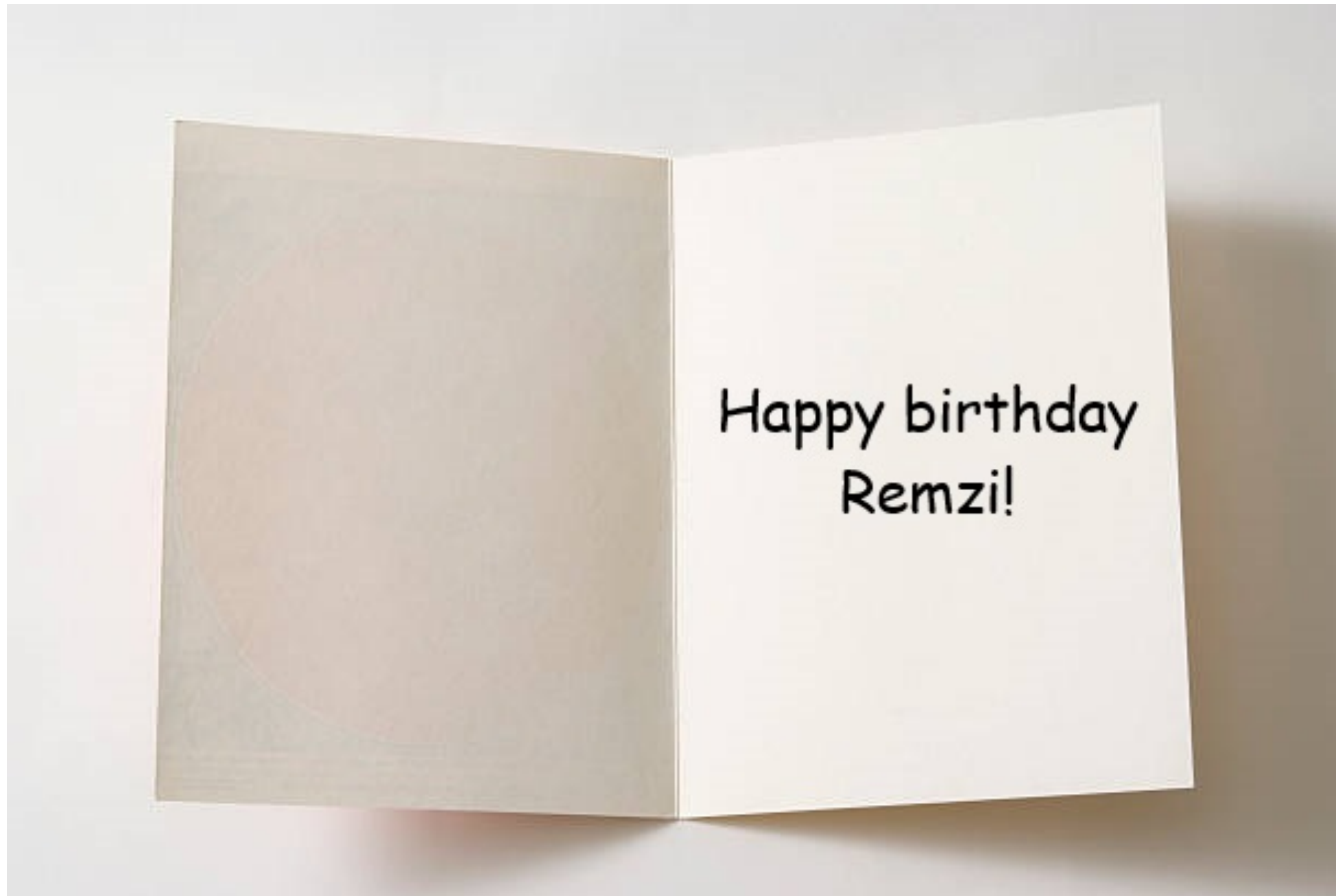
# Communication

We need a *structured* way to communicate data. We'll use **JSON**.

```
[
  {
    "id": 1,
    "title": "New interactive mural invites
              exploration and engagement with
              science",
    "img": "https://www.coletnelson.us
            /cs571/f22/hw7/api/news/images
            /exhibit",
    "tags": [
      "science",
      "entertainment"
    ]
  },
  {
    "id": 2,
    "title": "Sewer sleuthing, air
```



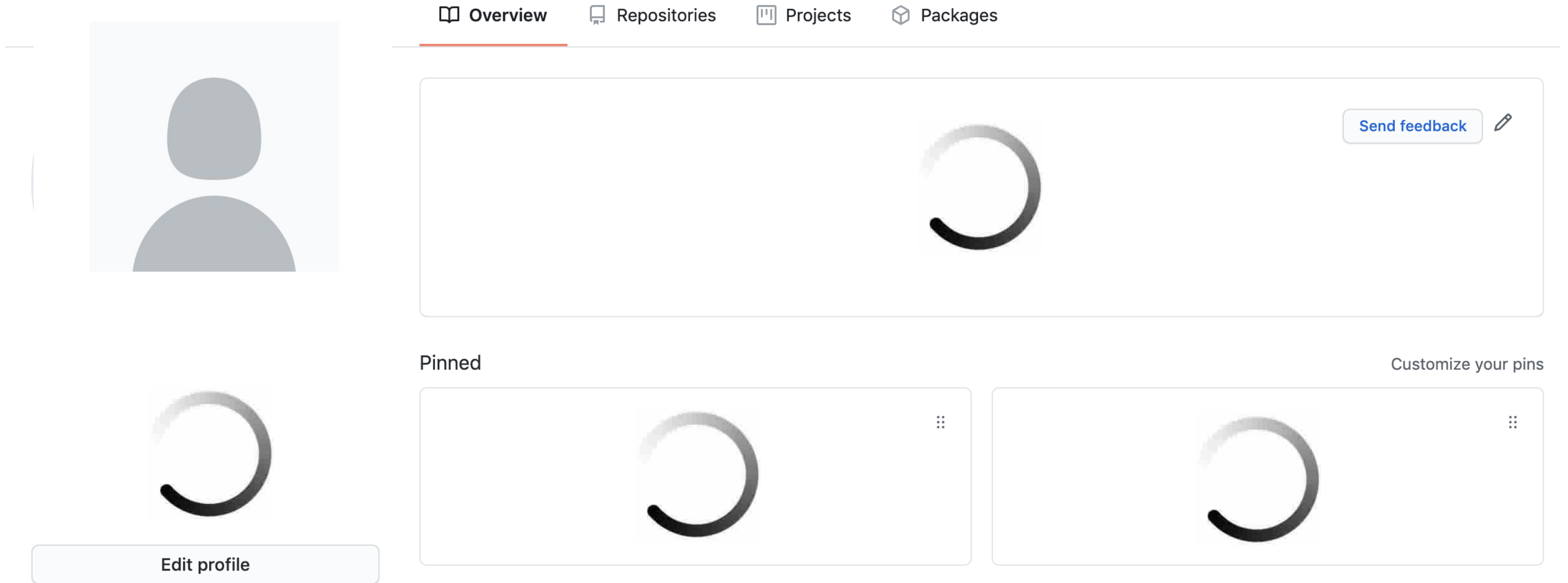
<sup>10</sup>Server Icon by Pixel Perfect



Better!

# Real-World Example

How does GitHub display profile webpages?



What can be displayed with HTML/CSS/JS on load...

```
HTTP/1.1 200 OK
Server: GitHub.com
Date: Fri, 20 Jan 2023 21:36:04 GMT
Content-Type: application/json; charset=utf-8
Cache-Control: public, max-age=60, s-maxage=60
Vary: Accept, Accept-Encoding, Accept, X-Requested-With
Last-Modified: Fri, 20 Jan 2023 12:09:09 GMT
{
  "login": "ctnelson1997",
  "id": 37457808,
  "node_id": "MDQ6VXNlcjM3NDU3ODAA",
  "avatar_url": "https://avatars.githubusercontent.com/u/37457808?v=4",
  "gravatar_id": "",
  "url": "https://api.github.com/users/ctnelson1997",
  "public_repos": 6,
  "public_gists": 1,
  "followers": 3,
  "following": 3,
  "created_at": "2018-03-16T20:56:14Z",
  "updated_at": "2023-01-20T12:09:09Z"
}
```

**Response Code**

**Response Headers**

**Response Body**

JSON data received!





## Mona Lisa Octocat

octocato

Hi, I'm Mona 🙋 You might recognize me as **@github**'s mascot 🐙🐱

Edit profile

Overview

Repositories

Projects

Packages

octocato / README.md

Send feedback

Hi there 🙋

- 🔧 I'm currently working on something cool!
- 🌱 I'm currently learning with help from [docs.github.com](https://docs.github.com)
- 💬 Ask me about GitHub

### Pinned

Customize your pins

atom

Forked from atom/atom



The hackable text editor

JavaScript

vscode

Forked from microsoft/vscode

Visual Studio Code

TypeScript

# Why JSON?<sup>11</sup>

- easy to understand
- human-readable
- language agnostic
- easily convertible to JS objects

```
[
  {
    "id": 1,
    "title": "New interactive mural invites
              exploration and engagement with
              science",
    "img": "https://www.coletnelson.us
            /cs571/f22/hw7/api/news/images
            /exhibit",
    "tags": [
      "science",
      "entertainment"
    ]
  },
  {
    "id": 2,
    "title": "Sewer sleuthing, air
```

<sup>11</sup>Try json

# JSON Basics

- Valid value types include...
  - string e.g. "hello world"
  - number e.g. 24
  - boolean e.g. false
  - array e.g. [1, true, 2, 4.2, "smith"]
  - object e.g. {"name": "Carl", "age": 24}
  - null
- Values can be nested!

# **HWo & GitHub Classroom**

Expressing yourself in JSON.

# What's next?

- Complete HWo.
- See you next Tuesday!