

# Welcome to CS571!

## Building User Interfaces

**Cole Nelson & Professor Yuhang Zhao**

What is this course 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?



## 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.

How does a Software Engineer go about this?

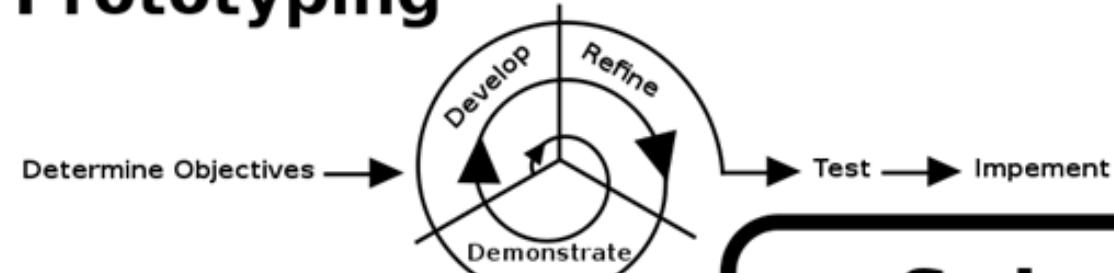
What is a Software Engineer?

# Software Development Lifecycle

SDL Process

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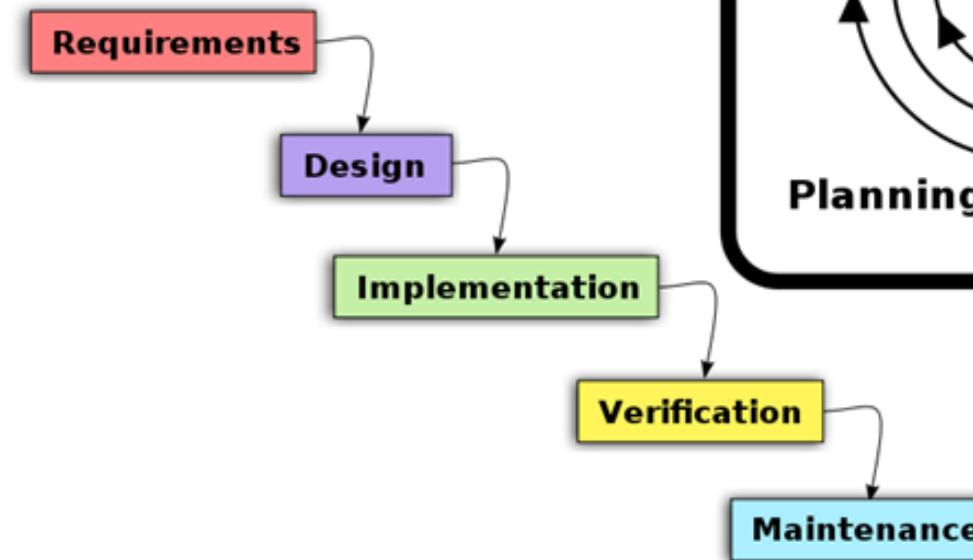
## Prototyping



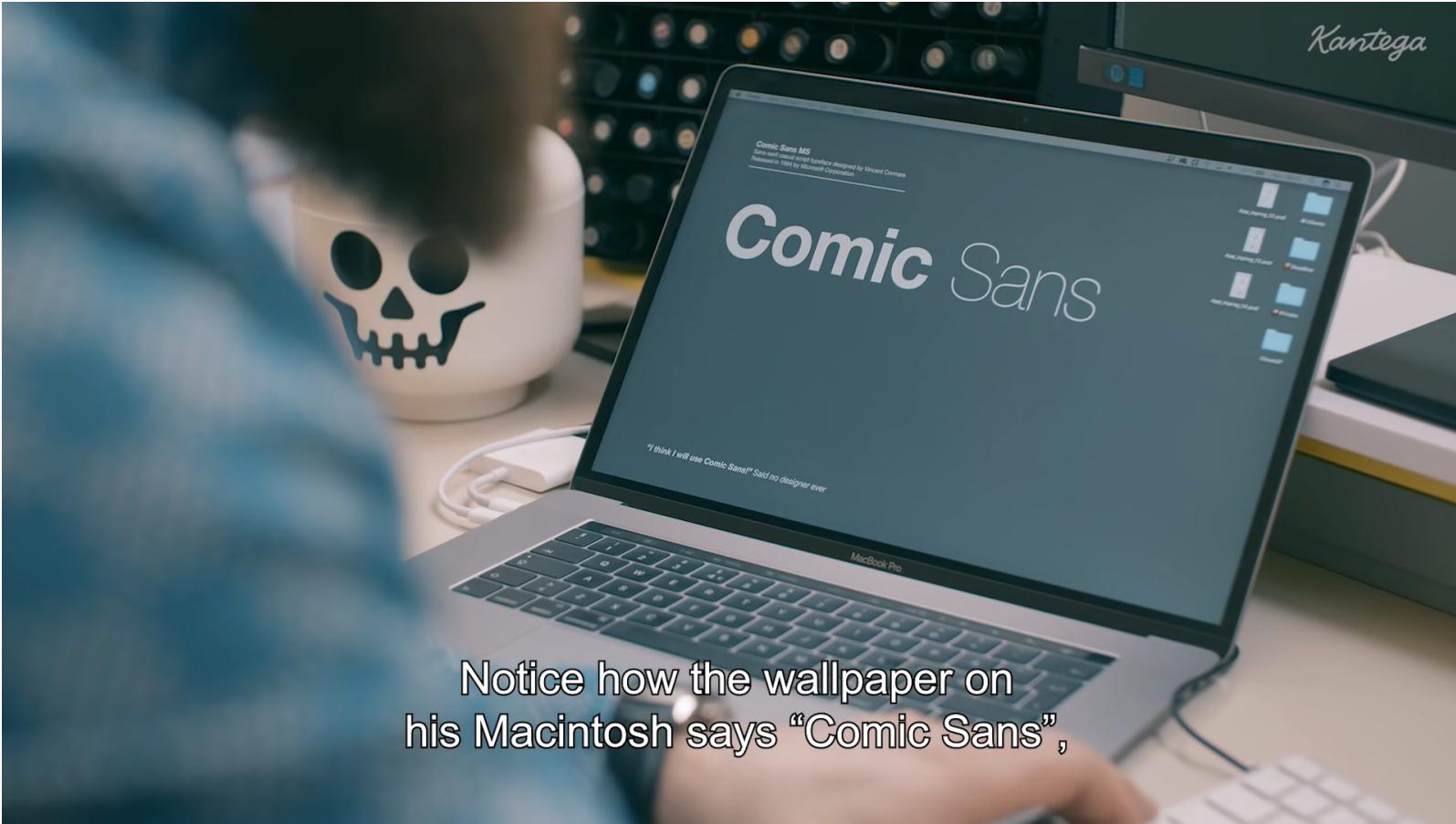
## Spiral



## Waterfall



# **What does a UX Designer do?**



Notice how the wallpaper on  
his Macintosh says “Comic Sans”,

## 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.

How does a UX designer go about this?

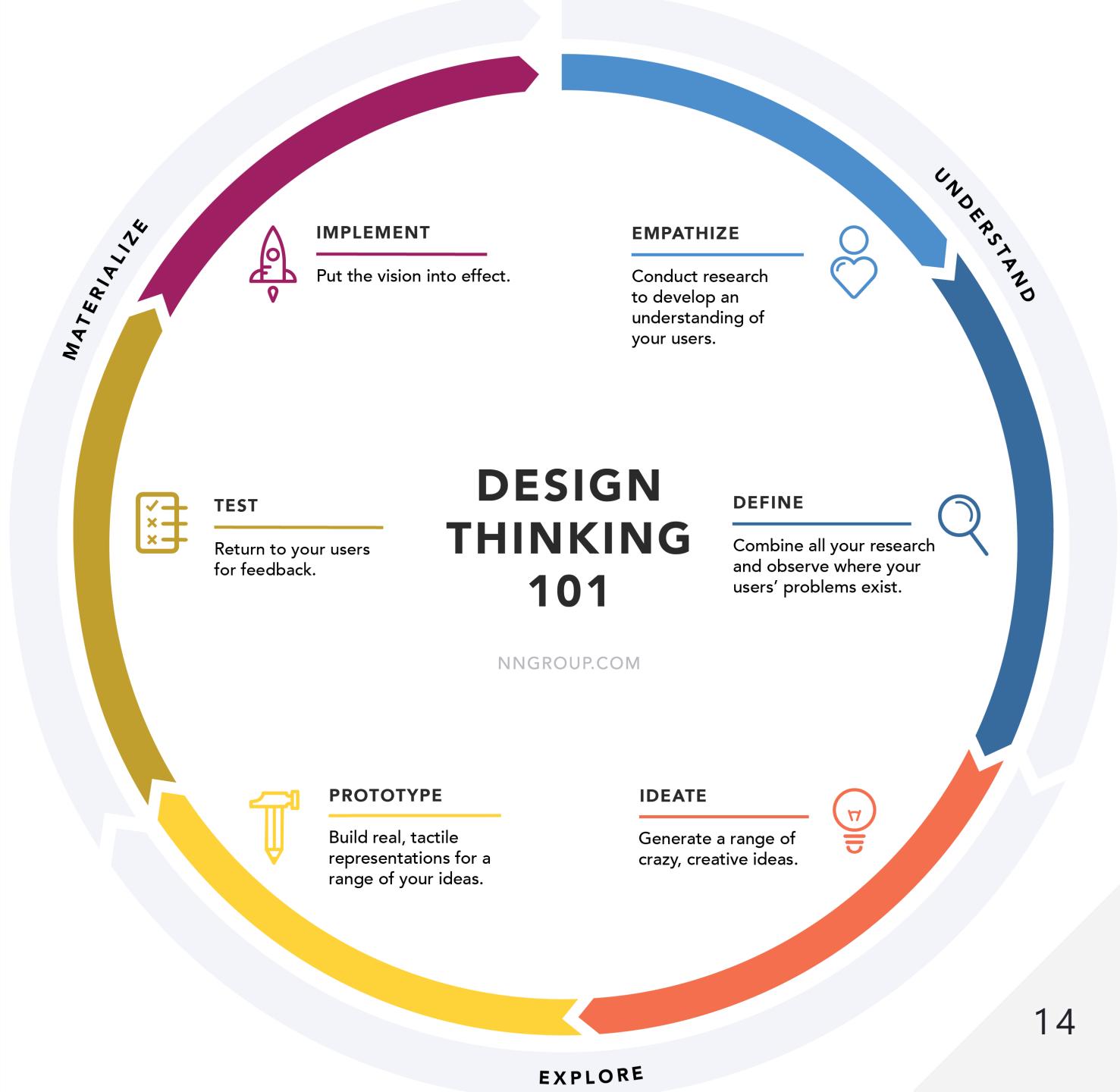
Interaction Design Foundation

# UX Design Process

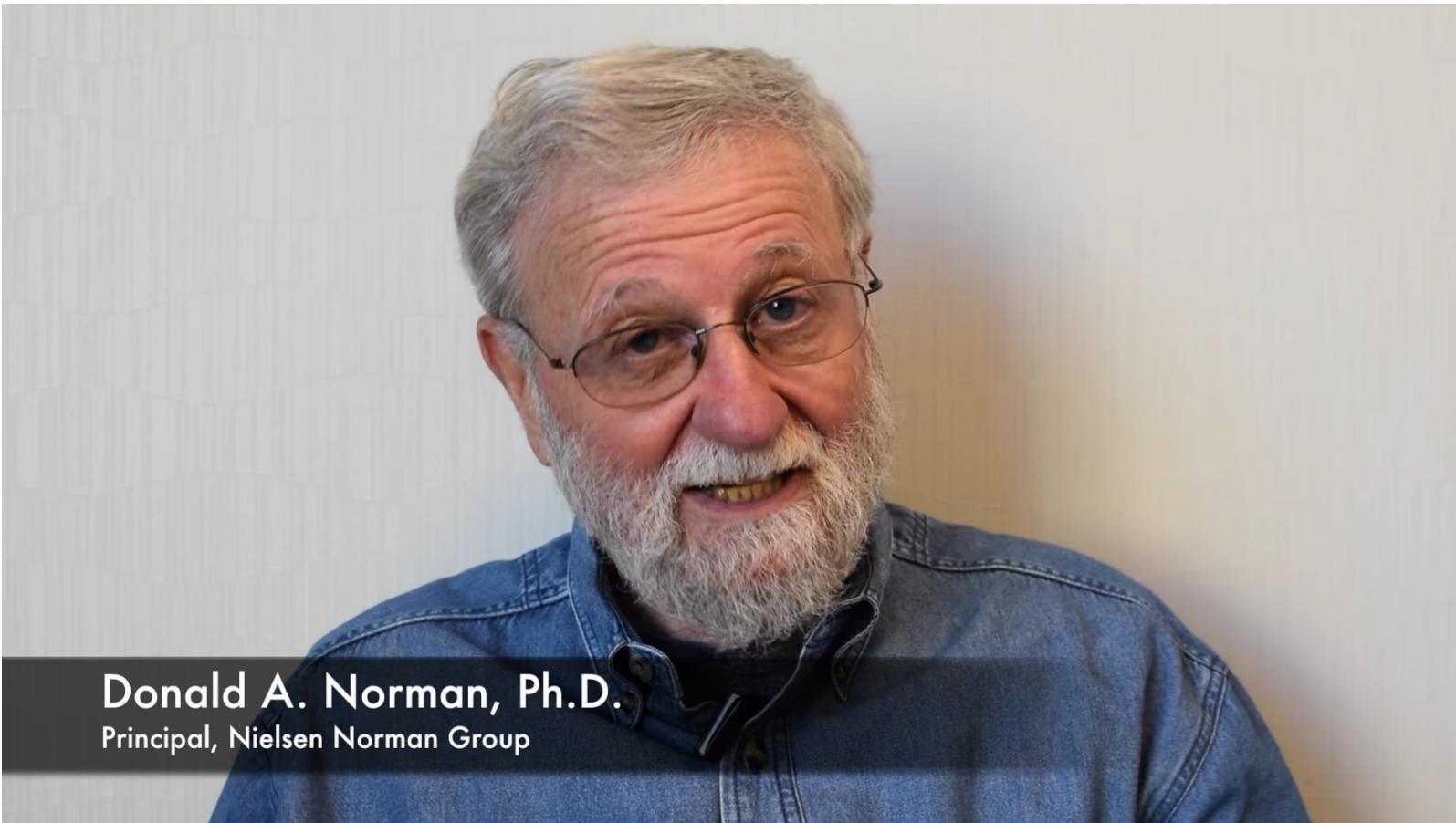
Look familiar?

NN/g Design Thinking

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# So then, what is UX Development?



**Donald A. Norman, Ph.D.**  
Principal, Nielsen Norman Group

## 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 Details

# Co-Instructors

Cole Nelson

[ctnelson2@wisc.edu](mailto:ctnelson2@wisc.edu)

Prof. Yuhang Zhao

[yuhang.zhao@cs.wisc.edu](mailto:yuhang.zhao@cs.wisc.edu)



# TAs

- Amy Koike
- Zach Potter
- Ru Wang
- Leo Cui
- Ruijia Chen
- Hongtao Hao
- Nithin Weerasinghe



# Peer Mentors

- Tom Rosen
- Xinyu Li
- Wai Linn
- Josh Charpentier
- Dante Smith
- Alicia Lyu
- Christopher Plagge

# Who are you?

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

## Alan Turing

### Computer Science

Alan is taking 12 credits and is from Wisconsin.

They have 4 interests including...

- Reading
- Lifting
- Running
- Sudoku

# Course Information

- Meet Tuesdays & Thursdays; lectures will be recorded and posted to Kaltura.
  - In-person attendance is *encouraged*.
- Tuesday's lecture will cover programming topics, Thursday's lecture will cover fundamental human-computer interaction topics.
- Bring a laptop!

<b>Week Of</b>	<b>Topics</b>	<b>Week Of</b>	<b>Topics</b>
Sept 4	Intro to CS571	Oct 30	React Native 1 & Prototyping
Sept 11	JavaScript 1 & Design Thinking	Nov 6	React Native 2 & Mobile Design
Sept 18	JavaScript 2 & JavaScript 3	Nov 13	React Native 3 & VUI Design/Exp Prototyping
Sept 25	React 1 & Visual Design	Nov 20	DialogFlow 1 & <b>Thanksgiving</b>
Oct 2	React 2 & Web/Interaction Design	Nov 27	DialogFlow 2 & User Evaluation/Agency
Oct 9	React 3 & Design Patterns	Dec 4	FullStack Development & Expert Evaluation
Oct 16	React 4 & Accessibility	Dec 11	Professor's Choice & <b>Study Day</b>
Oct 23	React 5 & <b>Midterm Exam</b>	Dec 18	<b>Final Exam</b>

<b>Item</b>	<b>Points</b>	<b>Notes</b>
Weekly Assignments	54	10 HWs (5 pts) & 3 HWs (1-2 pts each)
Weekly Quizzes	11	12 quizzes, 1 pt each, lowest dropped
Midterm Exam	15	Single-sided notesheet
Final Exam	20	Double-sided notesheet

## **Point Distribution**

<b>A</b>	<b>AB</b>	<b>B</b>	<b>BC</b>	<b>C</b>	<b>D</b>	<b>F</b>
[100, 93]	(93, 88]	(88, 80]	(80, 75]	(75, 70]	(70, 60]	(60, 0]

## **Grading Scale**

# Weekly Assignments & Quizzes

- Keep up with the lectures & course content!
  - Concepts build throughout the semester.
- Every weekly assignment and quiz is due on Monday at 11:59 pm.
  - Assignments are released on Tuesday.
  - Quizzes are released on Thursday.

# Midterm & Final Exam

- Exams will be held *in-person*.
  - A Canvas/HonorLock alternative will be provided for those unable to make the exam.
- Midterm Exam
  - Thursday, October 26th @ 5:45 pm on-campus
- (Cumulative) Final Exam on Finals week.
- See Canvas for past exams.

# Late Policies

- Weekly quizzes may *not* be submitted late.
- Weekly assignments may be turned in *up to* one week (7 days) late with the following restrictions...
  - Each late day is 10% off the assignment grade.
    - e.g. a score of 4.5/5.0 two days late is a 3.6.
  - Days are *rounded up*, e.g. 12:01 am is a late day.
  - The first 10 late days used are penalty-free.
    - These are intended to be used in case of sickness or extenuating circumstances.

# Academic Integrity

- **Do not share code with others!**
- **Do not use code from previous semesters!**
- You may *discuss* assignments with others, but all work must be done individually.
- Snippets taken from StackOverflow, ChatGPT, etc. must be cited with a comment.
- We use tools like MOSS... Don't risk it!

# Course Tools

- Quizzes will be completed via *Canvas*. They are open-book, but must be completed individually.
- Assignments will be submitted via *Github Classroom*.
  - See video on Canvas if you are new to Git.
- Questions will be asked via *Piazza*.
- Personal matters will be handled via *email*.

# Office Hours

## Office Hours Schedule

**Don't just show up,**  
use OHWL to queue.  
Made by a UW student  
using React!

Join w/ code **Q3C83PIE**

## OH Start Next Week

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CS571

Building User Interfaces - Fall 2023

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 Student Code: Q3C83PIE

### Office Hours

#### Monday Office Hours

 0

Start: Sun, 9/10/2023, 2:00 PM CDT

End: Sun, 9/10/2023, 4:00 PM CDT

Repeats Weekly

Location: [Meeting Link](#)

# FAQs

I have a question about grading.

→ Contact Zach Potter / [zmpotter@wisc.edu](mailto:zmpotter@wisc.edu)

I have a question about deadlines.

→ Contact Ru Wang / [ru.wang@wisc.edu](mailto:ru.wang@wisc.edu)

I have a question about personal matters.

→ Contact Cole Nelson / [ctnelson2@wisc.edu](mailto:ctnelson2@wisc.edu) OR

→ Contact Yuhang Zhao / [yuhang.zhao@cs.wisc.edu](mailto:yuhang.zhao@cs.wisc.edu)

# Badger IDs

The screenshot shows an email interface with the following details:

- Subject:** CS571 New Badger ID
- From:** uw.cs571@gmail.com
- To:** Cole Tyler Nelson
- Date:** Sun 9/3/2023 6:13 PM
- Message Content:**

Hello ctnelson2@wisc.edu,

A new Badger ID has been generated for you:

bid\_1acbb5 [REDACTED]

In order to use the CS571 APIs, you will need to enter this Badger ID at [cs571.org](https://cs571.org) > BadgerAuth > Use BadgerID.

Sincerely,  
The CS571 Course Staff

CS571 course staff and information systems will NEVER send you links or ask for personal information.
- Buttons:** Reply, Forward

This is a valid email! :) We will cover it in JS lectures.

# Software & Downloads

- **Visual Studio Code** for JS Development
- **Node 18 and NPM 9** for React Development
- **Postman** for API Exploration
- **Git** for Version Control/Submission

# McBurney & Accommodations

The University of Wisconsin-Madison supports the right of all enrolled students to a full and equal educational opportunity.

Please inform me of your need for instructional accommodations during the beginning of the semester, or as soon as possible after being approved for accommodations.

# Mental Health

UHS offers no-cost services in psychiatry, individual, couple, and group counseling, alcohol and drug abuse, and other mental health needs.

Schedule an access appointment at 608-265-5600 option 2 or contact 24/7 crisis support at option 9.

You matter!

# Today's Topic

The Web.

# A Website

It's like a birthday card!

## Concept Behavior

HTML Structure

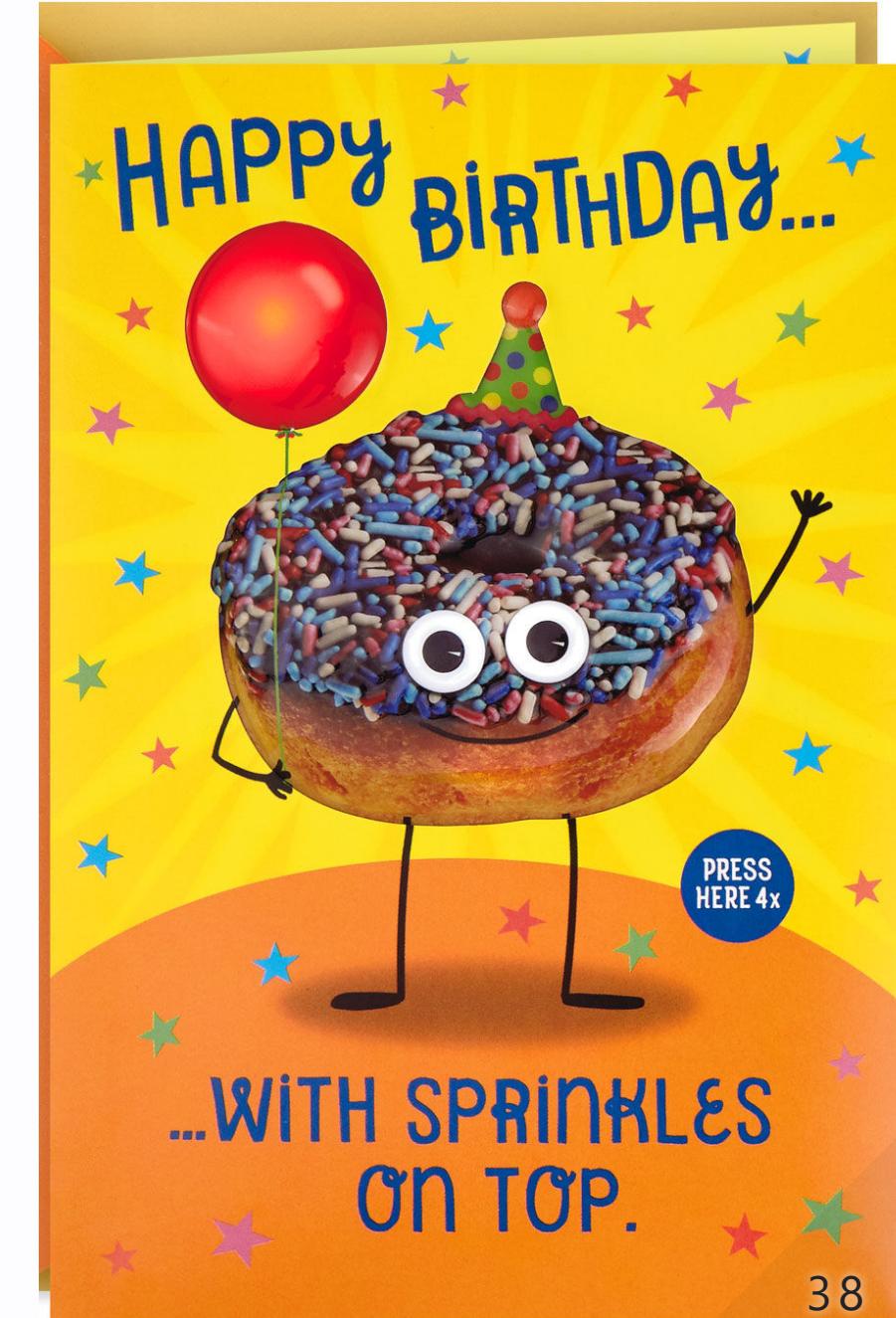
CSS Design

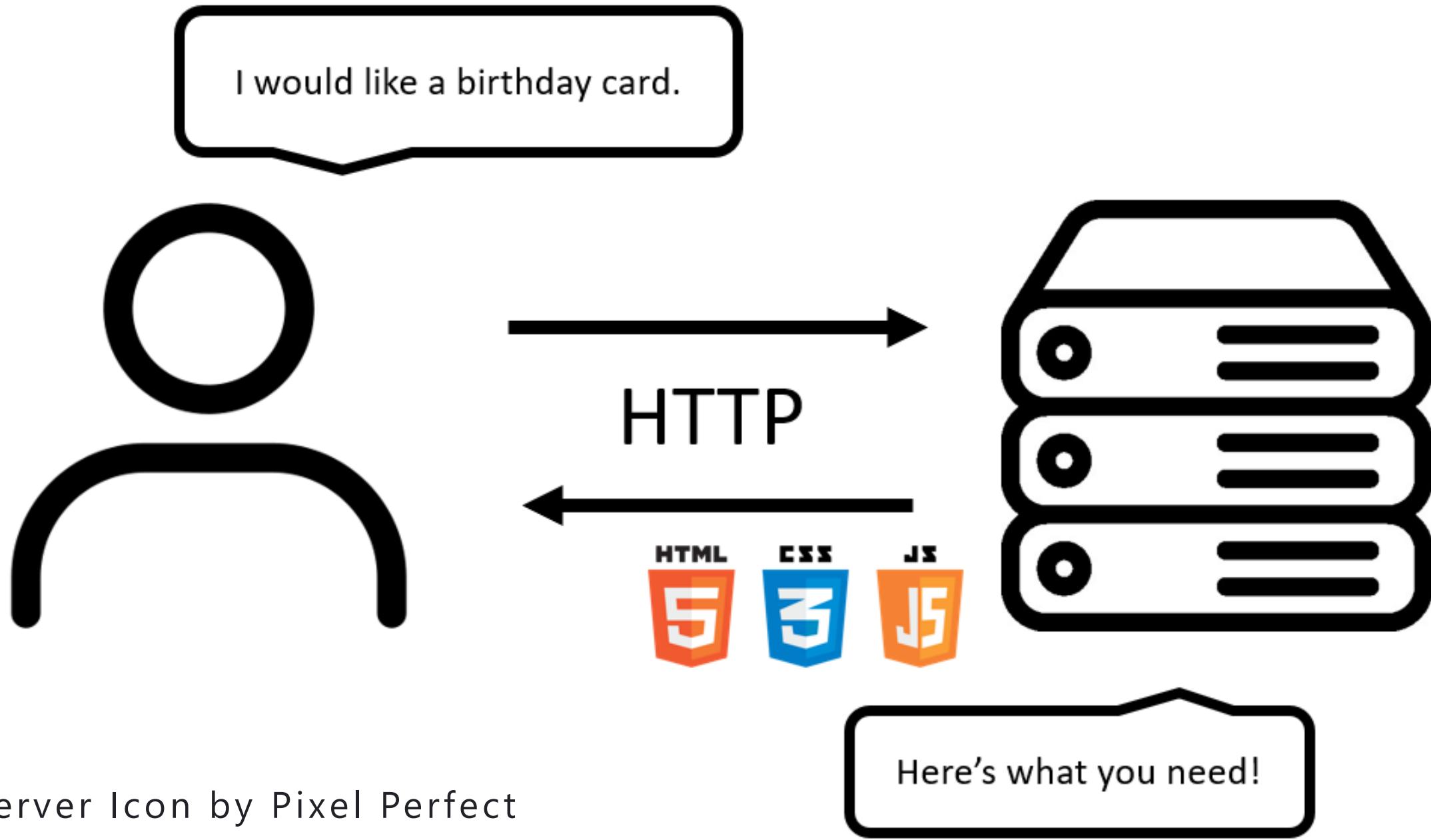
JS Behavior

How does it get delivered? HTTP!

Personal Website [Codepen](#)

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Lecture 01: Welcome to CS571!





Server Icon by Pixel Perfect



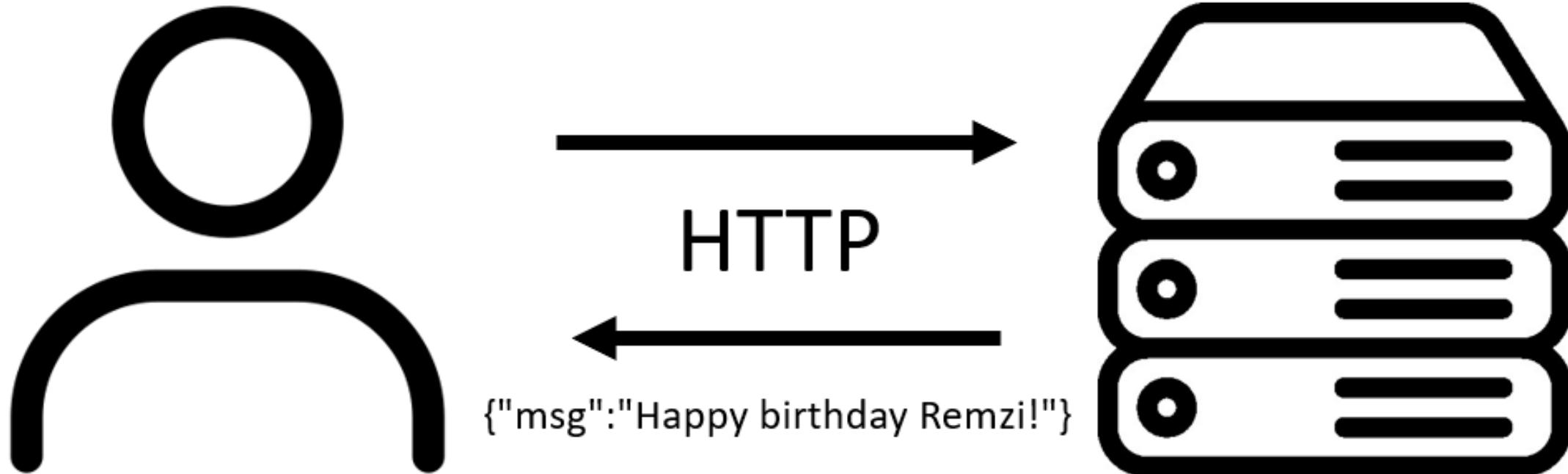
**There's nothing inside of the card?!**

# Communication

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

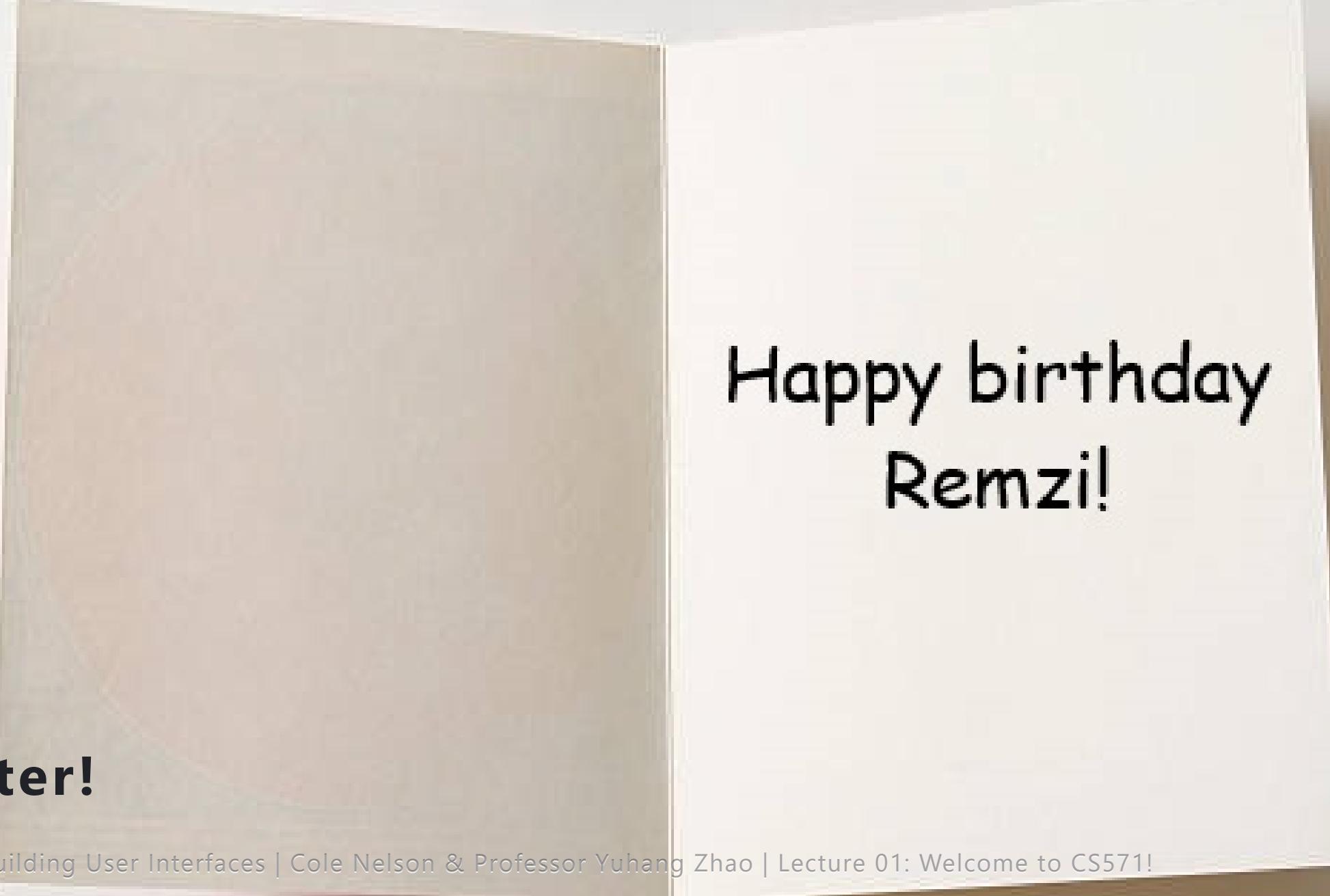
```
[  
 {  
   "id": 1,  
   "title": "New interactive mural invites  
             exploration and engagement with  
             science",  
   "img": "https://www.coletnelson.us  
          /cs571/f22/hw7/api/news/images  
          /exhibit",  
   "tags": [  
     "science",  
     "entertainment"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

What is in this birthday card?  
Their name is Remzi.



Here's what you need!

Server Icon by Pixel Perfect

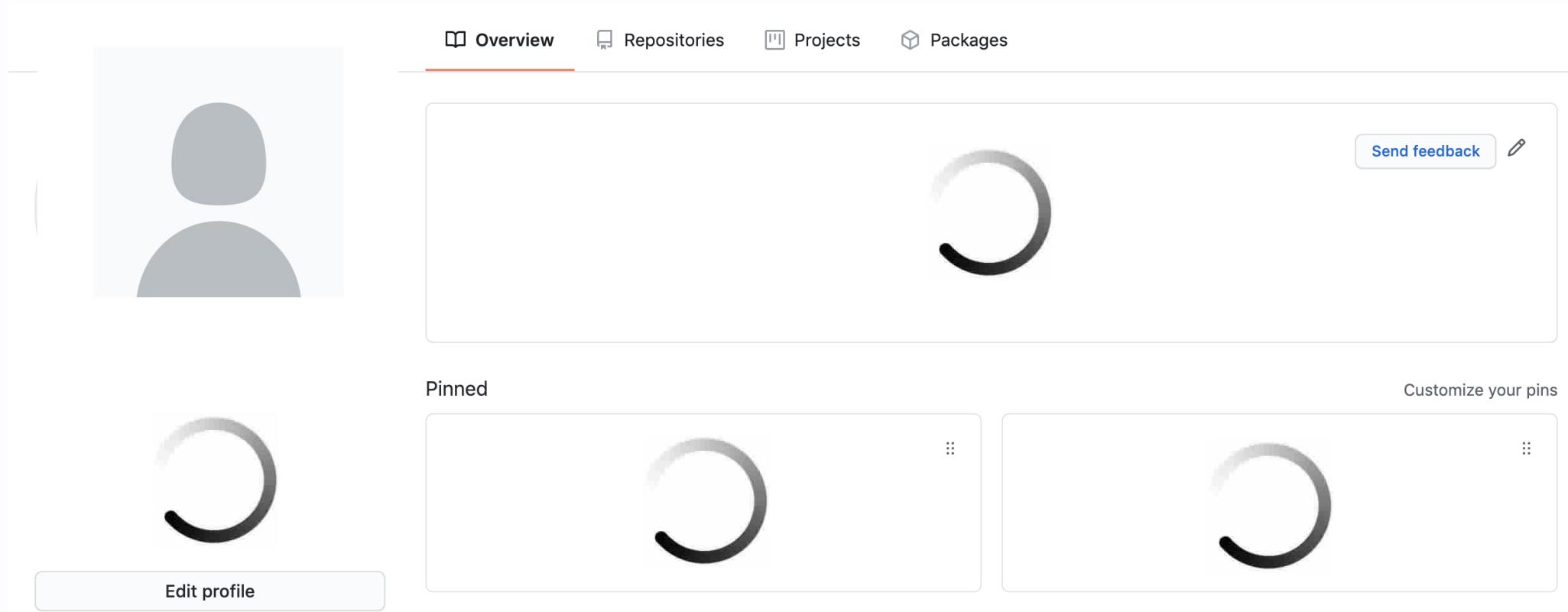


Happy birthday  
Remzi!

**Better!**

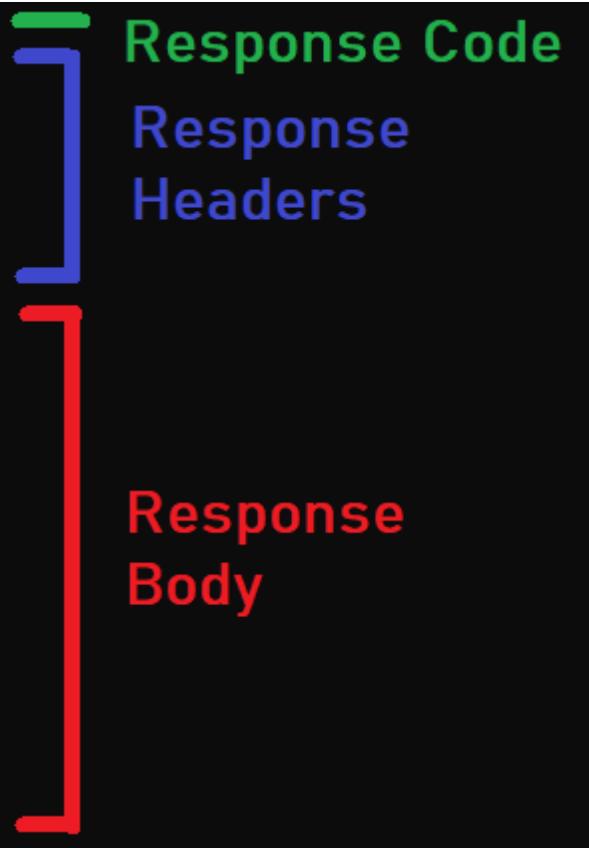
# Real-World Example

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": "MDQ6VXNlcjM3NDU3ODA4",
  "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"
}
```



# 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

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

[Send feedback](#)



### Pinned



**atom**

Forked from atom/atom



The hackable text editor



JavaScript



**vscode**

Forked from microsoft/vscode



Visual Studio Code



# Why JSON?

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

try 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
```

# 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.

# Questions?