

Web Security

Week 1- Administrivia, HTTP, DOM, Security

Old Dominion University

Department of Computer Science

CS 495/595 Spring 2022

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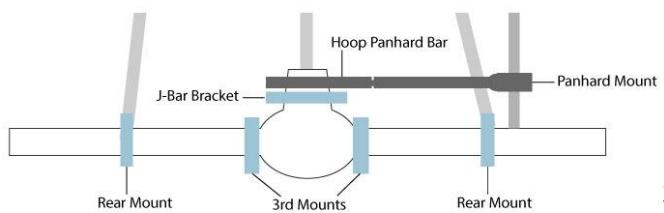
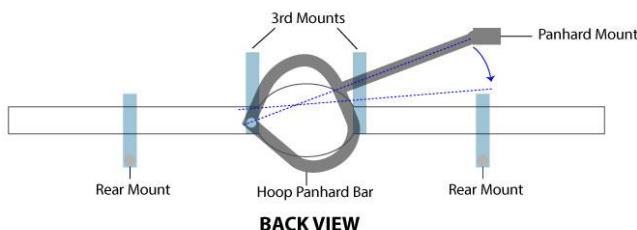
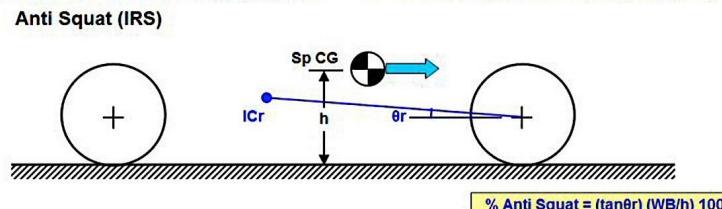
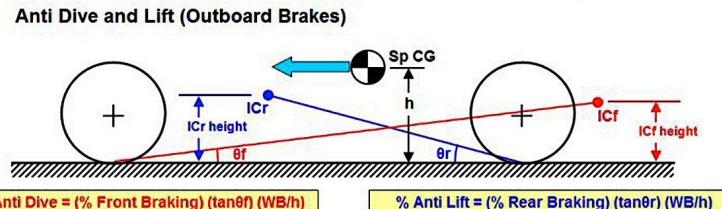
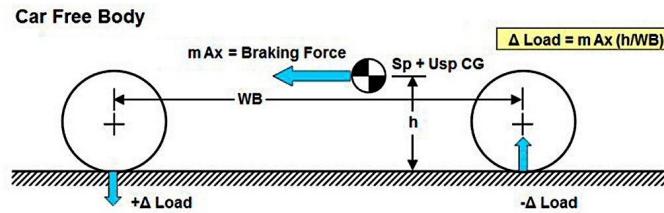
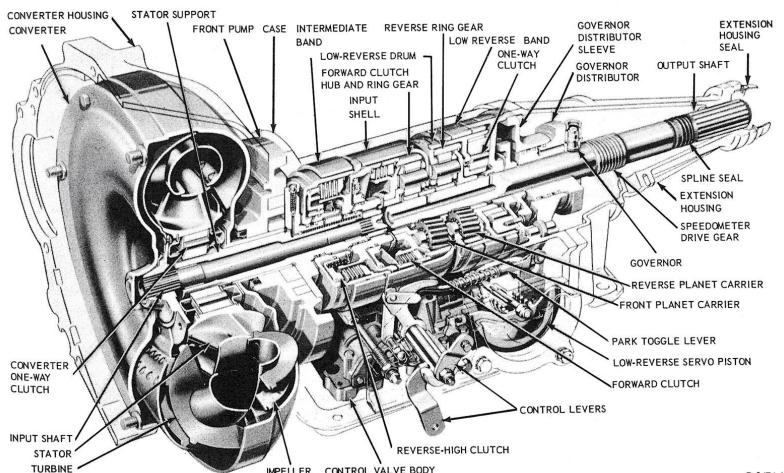
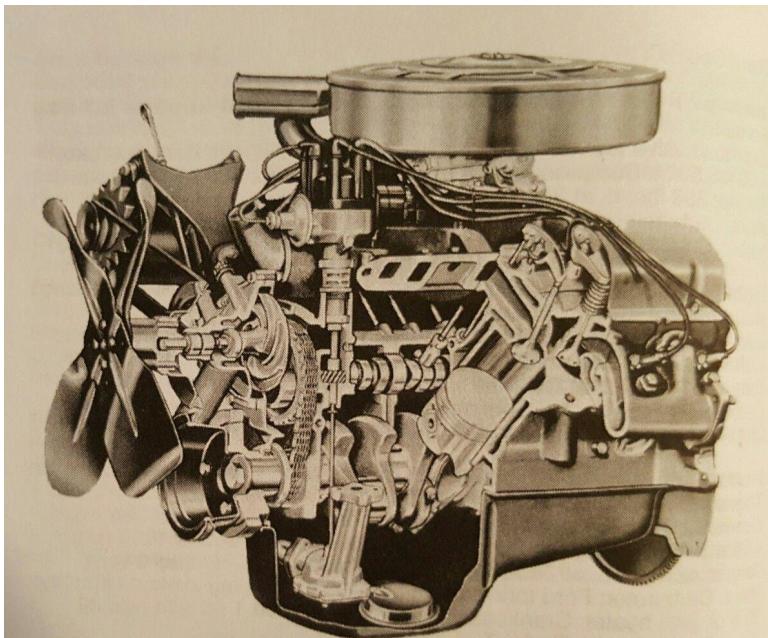
2022-01-10

Want to do this?

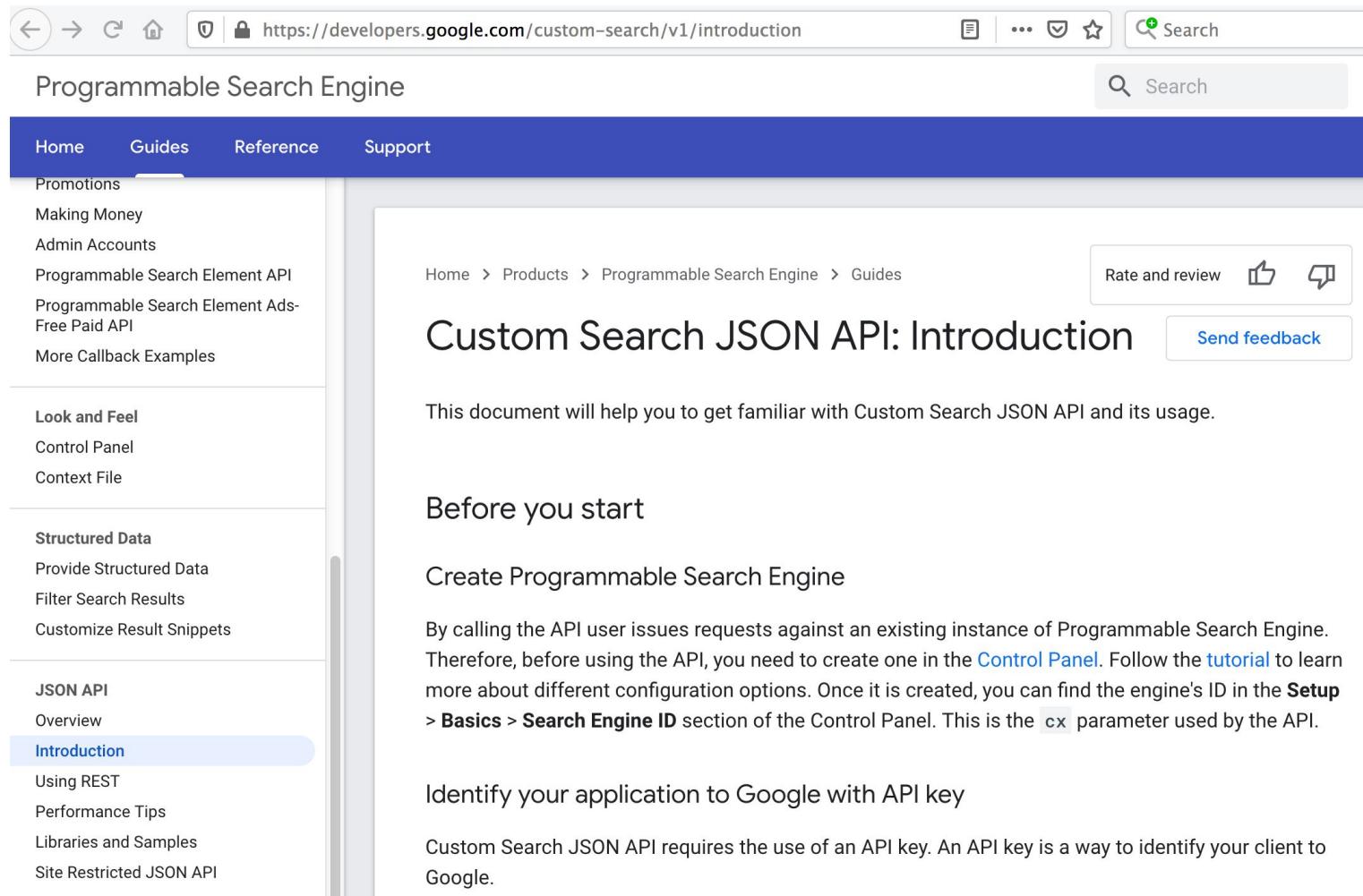


https://www.youtube.com/watch?v=RJI_WfU5rE

It will be better/safer if you know this...



Want to do this?



A screenshot of a web browser displaying the "Programmable Search Engine" documentation for the "Custom Search JSON API: Introduction". The URL in the address bar is <https://developers.google.com/custom-search/v1/introduction>. The page has a blue header with navigation links for Home, Guides, Reference, and Support. On the left, there's a sidebar with links for Promotions, Making Money, Admin Accounts, Programmable Search Element API, Programmable Search Element Ads-Free Paid API, More Callback Examples, Look and Feel, Control Panel, Context File, Structured Data, Provide Structured Data, Filter Search Results, Customize Result Snippets, JSON API, Overview, and Introduction (which is highlighted with a blue bar). The main content area shows the breadcrumb navigation: Home > Products > Programmable Search Engine > Guides. It features a "Rate and review" button with thumbs up and down icons, and a "Send feedback" button. The title "Custom Search JSON API: Introduction" is prominently displayed. Below it, a text block states: "This document will help you to get familiar with Custom Search JSON API and its usage." The section "Before you start" is followed by "Create Programmable Search Engine", which contains text about creating an instance in the Control Panel and finding the engine's ID. The section "Identify your application to Google with API key" is also present.

It will be better/safer if you know this...

```
$ curl -I www.google.com
HTTP/1.1 200 OK
Content-Type: text/html; charset=ISO-8859-1
P3P: CP="This is not a P3P policy! See g.co/p3phelp for more info."
Date: Thu, 21 Jan 2021 13:03:14 GMT
Server: gws
X-XSS-Protection: 0
X-Frame-Options: SAMEORIGIN
Transfer-Encoding: chunked
Expires: Thu, 21 Jan 2021 13:03:14 GMT
Cache-Control: private
Set-Cookie: 1P_JAR=2021-01-21-13; expires=Sat, 20-Feb-2021 13:03:14 GMT; path=/;
domain=.google.com; Secure
Set-Cookie:
NID=207=WW5gpWe-ul_ezs1UP4mOMtrLN0yf2hiOIC5jVOvxqQ_sgycSOFUk4wz3FfWbyHtI3qfSvpZOFnLCmB
xsOxF10zvbKS9-SDG_UlthljeZ4Yhz_18Zw4ZZOsXmzejDUimKpUQKfE7ZDUDQc_1E721jxOBbJ7B5rNCGeWpO
zNO19k8; expires=Fri, 23-Jul-2021 13:03:14 GMT; path=/; domain=.google.com; HttpOnly
```

Goals

- Learn a security mindset
 - Attacker mindset
 - Defender mindset
- Learn to architect secure web systems

Course Content

- Review of HTTP, JavaScript, DOM
- Browser security model, Same origin policy
- Client security: attacks, defense
- Server security: attacks, defense, authentication, TLS (HTTPS)
- Writing secure code
- Security issues with web rehosting: web archiving, web packaging

Other Courses

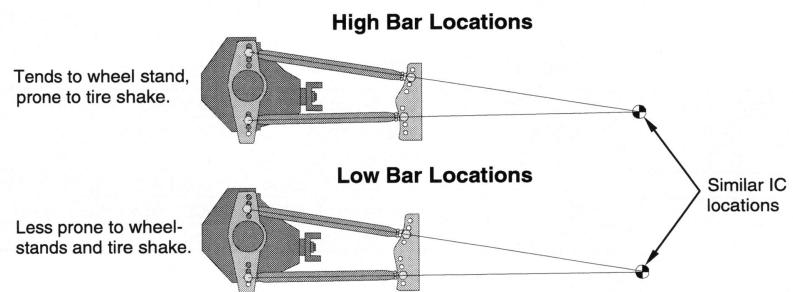


CS 418/518 – Web Programming

<https://www.hotrod.com/articles/fairlane-finish-finish-2016-road-tour-ford/>

CS 432/532 – Web Science

<https://www.onallcylinders.com/2015/04/23/figure-four-a-guide-to-tuning-your-four-link-suspension-system/>



Michael Nelson at Old Dominion

www.ratemyprofessors.com/Show

RATE MY PROFESSORS

SEARCH FOR A PROFESSOR OR SCHOOL

FOLLOW US

LOG IN

66
PROFS

SCHOOL

RATE

BLOG

02/24/2017

CS432

TOUGH GRADER

EXTRA CREDIT

LECTURE HEAVY



AWFUL

1.0

OVERALL QUALITY

5.0

LEVEL OF DIFFICULTY

For Credit: Yes

Attendance: Mandatory

Textbook Used: No

Would Take Again: No

Grade Received: WD

Had PHD students give presentations on two different languages and expects us to know them just like that. Avoid at all cost unless you have prior knowledge of Python. Much of the software which is required for the class is not on the CS machines and you have to download. Masters students and the undergrads in the class have the same work.

with apologies to TLC:

“No, I don't want no scrub

A scrub is a programmer that can't get no love from me

Hangin' out the passenger side

Of their best friend's github

Trying to holla at me

I don't want no scrub”

2 people found this useful

0 people did not find this useful

02/24/2017

CS432

LOTS OF HOMEWORK

EXTRA CREDIT

LECTURE HEAVY



AWFUL

1.0

OVERALL QUALITY

4.0

LEVEL OF DIFFICULTY

For Credit: Yes

Attendance: Not Mandatory

Textbook Used: No

Would Take Again: No

Grade Received: Not sure yet

Ridiculously difficult. I spend more time in this one than my other 4 classes combined. There are 10 assignments, no test. 3 hour lecture with 80-95 page ppts. Getting help from him is difficult and often very vague despite him wanting specific questions. The material is very useful and interesting but the class does not allow for mastery.

1 person found this useful

0 people did not find this useful

<http://www.ratemyprofessors.com>ShowRatings.jsp?tid=550895>

report this rating

9

Administrivia

- This is a programming class!
 - I assume you know or can quickly learn how to:
 - HTML/HTTP/JavaScript
 - work in Unix/Linux
 - real programmers use *nix
 - real programmers use the command line
 - no exams, quizzes, etc.
- Important URLs
 - <https://github.com/phonedude/cs595-s22>
 - <https://groups.google.com/group/cs595-s22>

Email threads are archived

The screenshot shows a Google Groups inbox for the group "cs595-s21". The left sidebar includes links for "New conversation", "My groups", "Recent groups", "Favorite groups", and "Starred conversations". The main area displays two messages from a user named "mln".

From	Subject	Date	Action
mln	reminder: Zoom URL for CS 495/595 Web Security – All, The Zoom URL we'...	10:12 AM	☆
mln	information for CS 495/595 Web Security – All, Welcome to the class email ...	Jan 19	☆

Below the inbox, a sidebar menu for "cs595-s21" is visible, with "Conversations" selected. Other options include "Approved" (2), "Pending", "People", "Members", "Pending members", "Banned users", "About", "My membership settings", and "Group settings".

Grading

- 7 Assignments, 15 points each
- 1 point per week for Tweeting security-related current news stories
- 120 total points possible -- *20 points built-in extra credit*
- Assignments lose 3 points for every 24 hours they are late

Accounts required for class

- These can be part of your existing, personal accounts OR created just for this class (i.e., create new accounts if you want to partition your existing identity from the class identity)
 - twitter.com
 - github.com
 - youtube.com

Each week, Quote Tweet security related recent news stories

A screenshot of a Twitter compose tweet interface. The main tweet is from Eva (@evacute) on Oct 16, 2020, reading: "It brings me great joy to see bad things happen to people who lie about their Twitter accounts being compromised: apnews.com /article/virus-...". A quote tweet overlay is shown, with a profile picture of Steve Scully and the text: "#cs595s21 Steve Scully suspended after lying about his Twitter acct being hacked". The background shows a news article snippet from C-SPAN suspending Scully after he admitted to lying about his Twitter account being hacked.

use
#cs595s22

C-SPAN suspends Scully after he admits to lie about hack
NEW YORK (AP) — C-SPAN suspended its political editor Steve Scul...
apnews.com

1:42 AM · Oct 16, 2020 · Twitter Web App

16 Retweets 153 Likes

No points for repeat URLs!
It must be a quote tweet!
Check class email list for recommended accounts to follow.

Assignments submitted via GitHub

- Everything in the class is done via GitHub
 - The world uses git/GitHub, so we'll use git/GitHub
- If you do not learn command line git, you will fail the class
 - GUI GitHub is pretty & nice, but life will be hard until you learn CLI

Images and videos to demo your code

The screenshot shows a YouTube channel page for 'phonedudemln'. The channel has 5 subscribers. The navigation bar includes links for HOME, VIDEOS, PLAYLISTS, CHANNELS, DISCUSSION, ABOUT, and a search bar. A red box highlights the 'MANAGE VIDEOS' button. Below the navigation bar, there are five video thumbnails:

- Two Tweets, both live, both modified**: 3 views • 1 week ago
- Two Tweets, only one live, both modified**: 10 views • 1 week ago
- Two Tweets, both live, both modified**: 12 views • 1 week ago
- Two Tweets, both live, neither modified**: 10 views • 1 week ago
- Frank McCown's JCDL 2013 minute madness**: 27 views • 7 years ago

Subscriptions

Upload a video

The screenshot shows the YouTube Studio interface. On the left is a sidebar with navigation links: Your channel (selected), Dashboard, Content (highlighted in red), Playlists, Analytics, Comments, Subtitles, and Copyright. The main area is titled "Channel content" and shows a list of uploaded videos under the "Uploads" tab. A red box highlights the "CREATE" button in the top right corner of the video list area.

Visibility	Restrictions	Date	Views	Comments	Likes
Public	None	Jan 10, 2021 Published	3	1	
Public	None	Jan 9, 2021 Published	10	0	
Public	None	Jan 9, 2021 Published	12	2	
Public	None	Jan 9, 2021 Published	10	1	

Set Visibility to “Unlisted”

git demo 1 for CS 495/595 Spring 2021

Saved as draft



Details



Video elements



Visibility



Visibility

Choose when to publish and who can see your video

Save or publish

Make your video **public**, **unlisted**, or **private**

Private

Only you and people you choose can watch your video

Unlisted

Anyone with the video link can watch your video

Public

Everyone can watch your video

Set as instant Premiere

Schedule

Select a date to make your video **public**



git demo 1 for CS 495/595 Spring 2021

Video link

<https://youtu.be/l9R6hmGblol>



Finished processing

BACK

SAVE

<https://www.youtube.com/watch?v=I9R6hmGbIol>



01 - vim - 120x32

DOM/Javascript, CLI, Node.js, Twitter, Youtube.

Course Inspiration

This course is based on [CS 253 Web Security, Stanford, Fall 2019] (<https://web.stanford.edu/class/cs253/>). Special thanks to [Feross Aboukhadijeh] (<https://feross.org/>) for generously sharing his course materials (although any errors are mine).

Class Schedule (subject to change)

- * Week 01 – January 21 – Introduction and Administrivia, Document Object Model, Javascript, HTTP, Security Fundamentals
 - * Git/Github [1] (<https://guides.github.com/introduction/git-handbook/>), [2] (<https://www.youtube.com/watch?v=0fkq7e37bQH#t=4m20s>), [3] (<https://cs.su.edu/~tkennedy/cs411/420/Philia/gitIntro/index.html>)
 - * Markdown [1] (<https://guides.github.com/features/mastering-markdown/>), [2] (<https://guides.github.com/pdfs/markdown-cheatsheet-online.pdf>)
 - [Node.js] (<https://nodejs.org/>)
 - * Document Object Model: [Introduction to the DOM] (https://developer.mozilla.org/en-US/docs/Web/API/Document_Object_Model/Introduction), [Easy Way to Understand How the DOM Works] (https://developer.mozilla.org/en-US/docs/Web/API/Document_Object_Model/Introduction/Easy_Way_to_Understand_How_the_DOM_Works)
 - * [JavaScript Crash Course, JavaScript DOM Crash Course Parts 1--8] (<https://www.youtube.com/playlist?list=PL1110F-8fqBbnE0y390LWk7JMcUdyqCk>)
 - * [The Missing Semester of Your CS Education] (<https://missing.csail.mit.edu/>)
- * Week 02 – January 28 – Cookies, Sessions
- * Week 03 – February 4 – Cross-Site Request Forgery, Same Origin Policy
- * Week 04 – February 11 – Cross-Site Scripting (XSS)

Why do we care about the Web?

A Youtube video of a TV show where celebrities read “mean” Tweets about themselves



Our social discourse is dominated by the web. Q.E.D.

<https://www.youtube.com/watch?v=LABGimhsEys>

If most (?) parts of our life have a web component, it follows that we should care about *web security*.

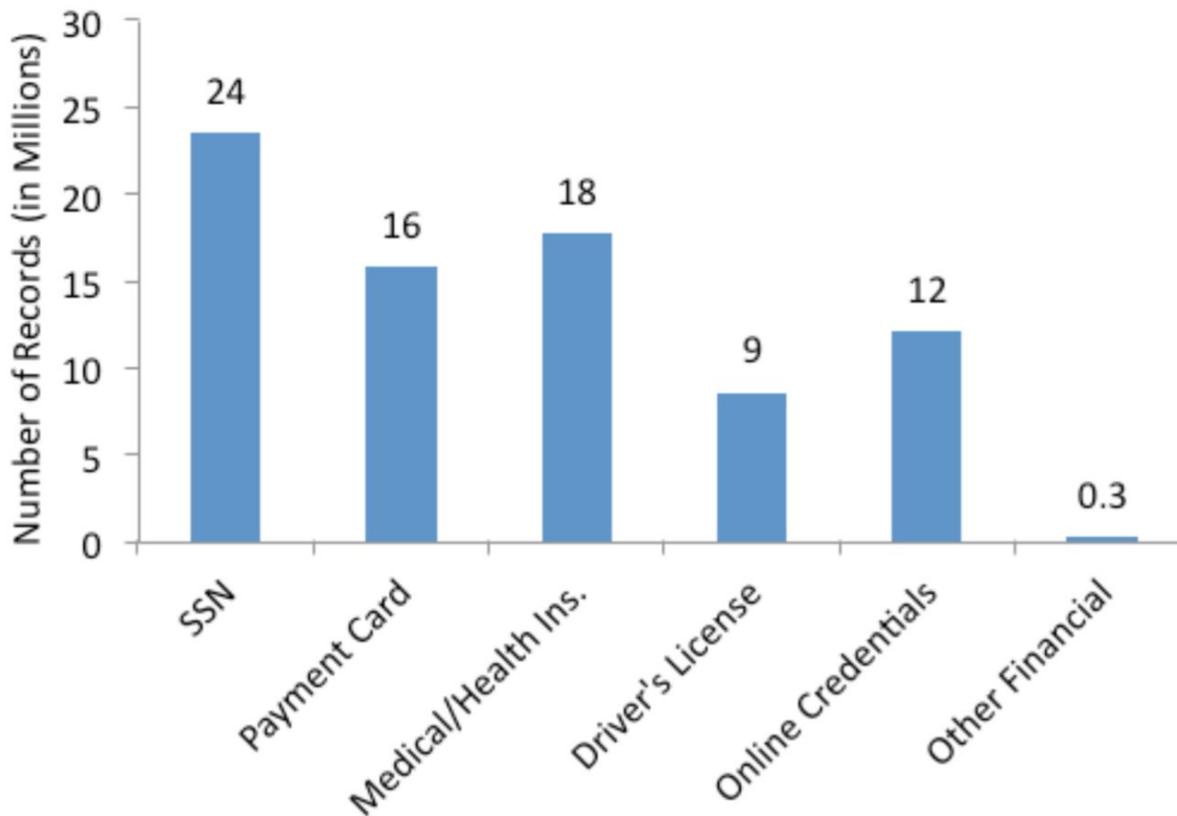
Why is computer security hard?

- Lack of *security mindset*
- Lots of buggy code
- Social engineering is very effective
- There's money to be made by finding and exploiting vulnerable systems
 - Marketplace for vulnerabilities
 - Marketplace for owned machines / stolen data
 - Many methods to profit from owned machines / stolen data

Why attack a computer system?

- Spam
 - Sent from legitimate IP address, less likely to be blocked
- Denial of service
 - Attack competitors, or seek ransom
- Infect visiting users with malware
 - Infect one server, use it to infect hundreds of thousands of clients
- Data theft
 - Steal credentials, credit card numbers, intellectual property

California Data Breach Report



<https://oag.ca.gov/breachreport2016>

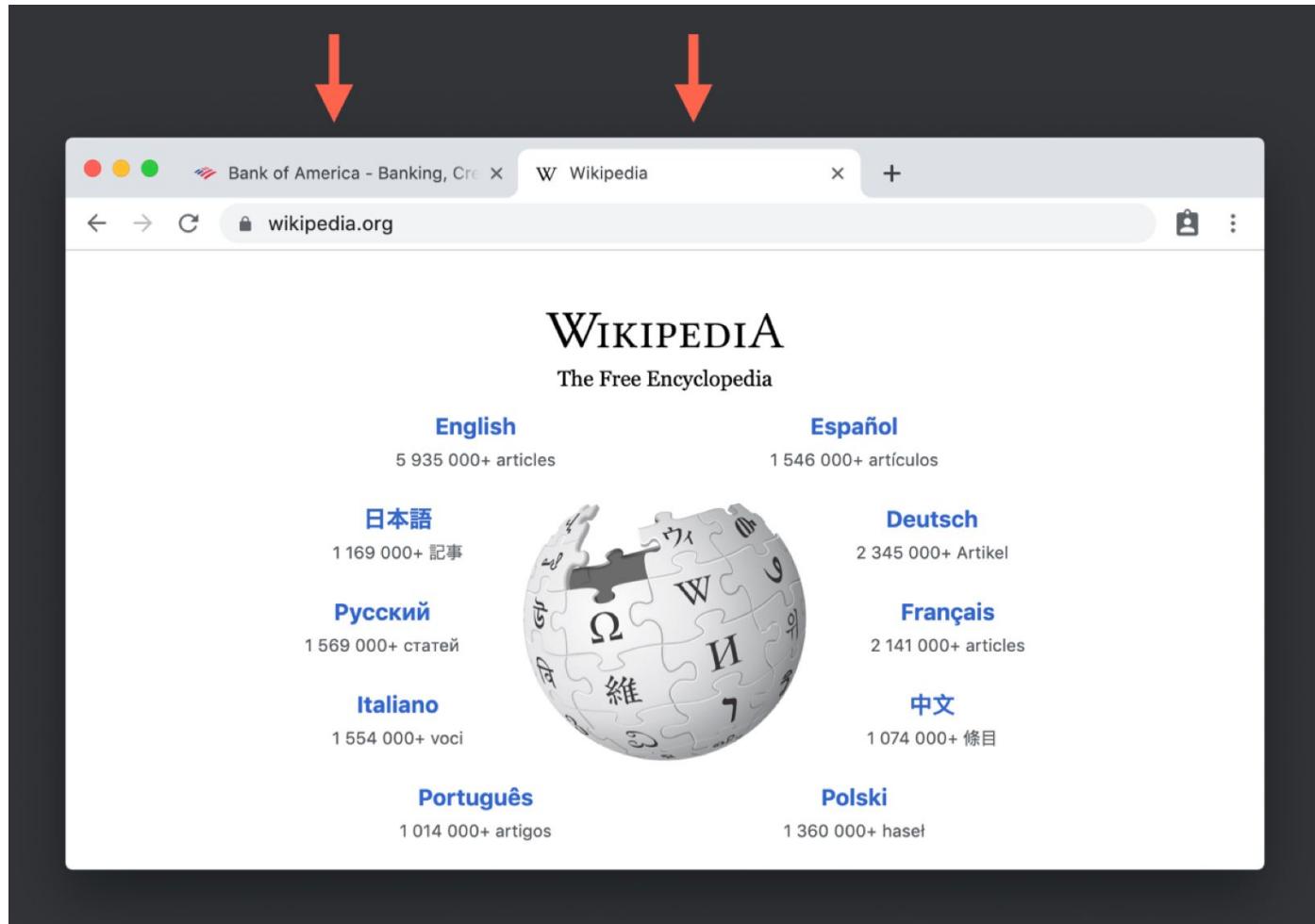
25

Why attack a computer in 2022?

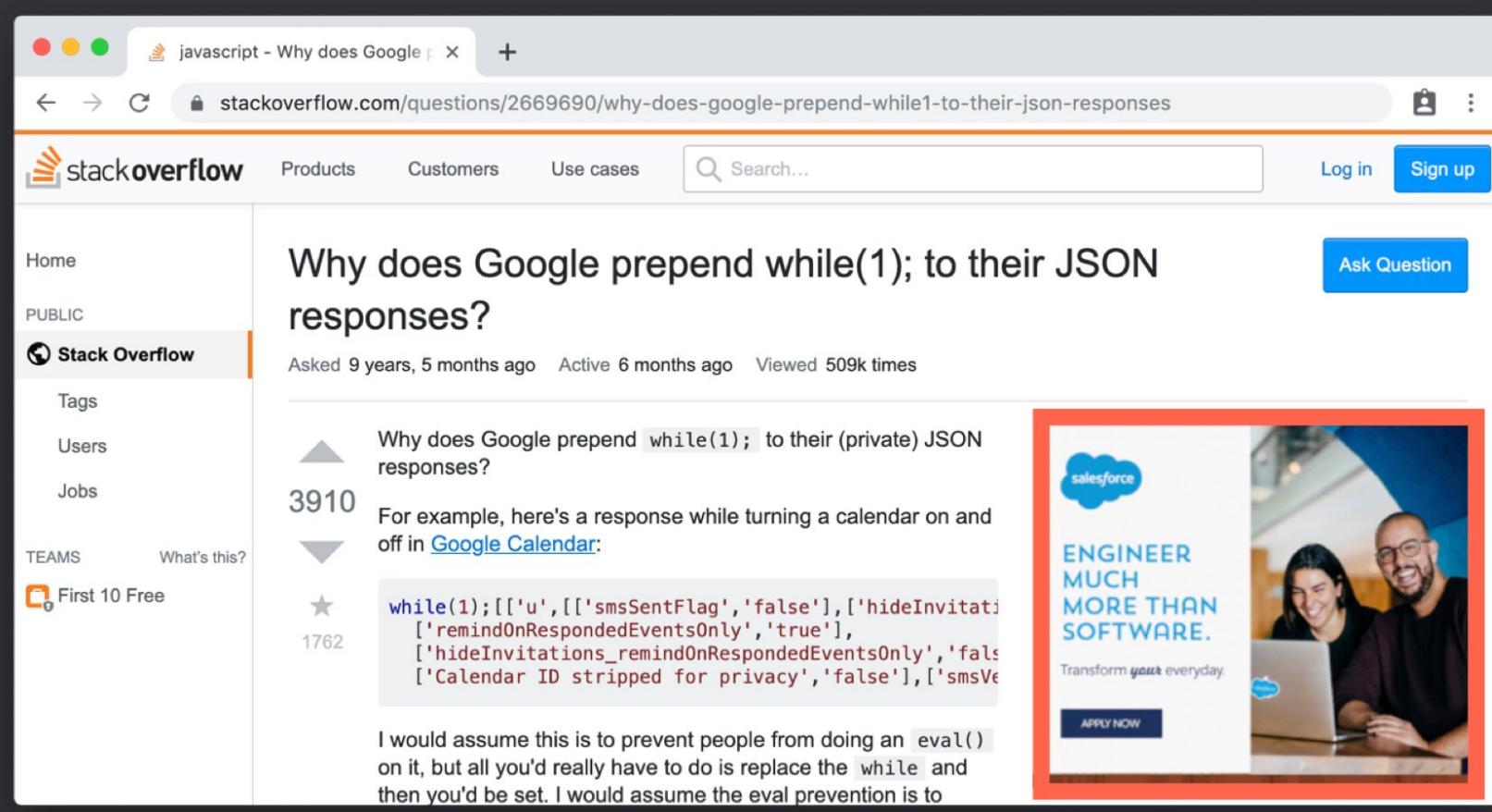
- Mine cryptocurrency
- Ransomware
- Political motivation
- others?

find & QT stories about these!

Browser Security: Same Origin Policy -- keep the tabs from talking to each other



Browser Security: Same Origin Policy -- keep the windows & iframes from talking to each other



A screenshot of a web browser showing a Stack Overflow question titled "Why does Google prepend while(1); to their JSON responses?". The question was asked 9 years, 5 months ago and has received 3910 upvotes. A user comment provides a code snippet illustrating the practice:

```
while(1);[['u',[['smsSentFlag','false'],['hideInvitations_remindOnRespondedEventsOnly','true'],['hideInvitations_remindOnRespondedEventsOnly','false'],['Calendar ID stripped for privacy','false']],['smsVe
```

The browser window also displays a Salesforce advertisement for engineers.

Protect the server

Attackers can run arbitrary HTTP clients;
can send anything to server:

```
curl -d '{"user":"Alice", "permission":"admin"}' \
-H "Content-Type: application/json" \
-X POST http://example.com/data
```

Will you recognize a vulnerability when you see it?



Zeljka Zorz, Managing Editor, Help Net Security
September 20, 2017

Share [f](#) [t](#) [in](#) [e](#)

Optionsbleed bug makes Apache HTTP Server leak data from memory

On Monday, security researcher Hanno Böck detailed a memory-leaking vulnerability in Apache HTTP Server that's similar to the infamous OpenSSL Heartbleed bug [uncovered](#) in April 2014.

Unlike Heartbleed, Optionsbleed (as Böck dubbed it) affects a relatively limited number of servers.



[Tweet](#)



hanno @hanno · Sep 19, 2017

yikes... Optionsbleed was discovered and described in a paper in 2014 [arxiv.org/pdf/1405.2330....](https://arxiv.org/pdf/1405.2330.pdf) yet nobody seemed to have taken notice

9

87

137



Replies



Nick Sullivan @grittygrease · Sep 19, 2017

Replying to @hanno

Have you asked [@phonedude_mln](#) and [@ibnesayeed](#) about it?

3

1



<https://www.helpnetsecurity.com/2017/09/20/apache-http-server-optionsbleed/>

Protect the browser (user-agent)



Reflected XSS through AngularJS sandbox bypass causes password exposure of McDonald users.

By abusing an insecure cryptographic storage vulnerability ([link](#)) and a reflected server cross-site-scripting vulnerability ([link](#)) it is possible to steal and decrypt the password from a McDonald's user. Besides that, other personal details like the user's name, address & contact details can be stolen too.

Proof of Concept

Reflected XSS through AngularJS sandbox escape

McDonalds.com contains a search page which reflects the value of the search parameter (q) in the source of the page. So when we search on for example *****-test-reflected-test-***** the response will look like this:

<https://tij.me/blog/stealing-passwords-from-mcdonalds-users/>

Protect the (human) user

- Social engineering
 - tracking / privacy leaks

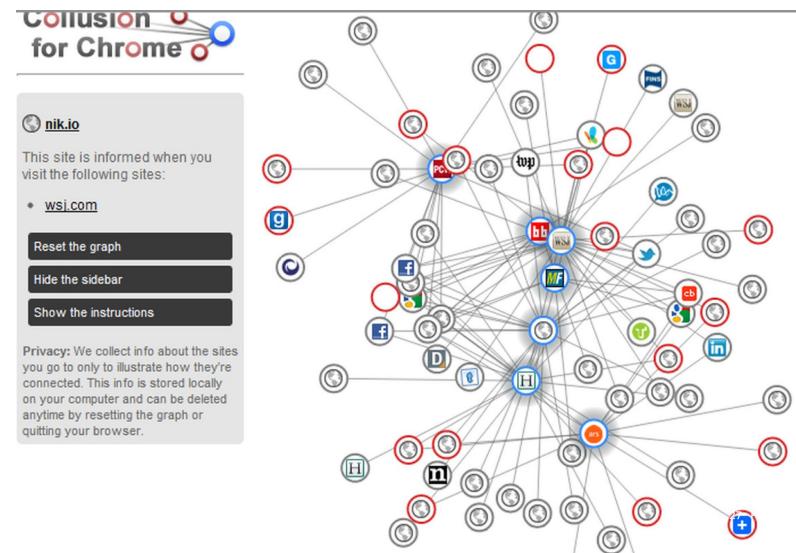
BIZ & IT —

How a college student tricked 17k coders into running his sketchy script

Infecting military and government software engineers is easier than you may think.

DAN GOODIN - 6/14/2016, 7:10 AM

<https://arstechnica.com/information-technology/2016/06/college-student-schools-go-vs-and-mils-on-perils-of-arbitrary-code-execution/>



<https://lifehacker.com/collusion-for-chrome-shows-you-whos-tracking-you-on-the-5901674>

Why is web security hard?

- Extremely ambitious goal – Run untrusted code securely
- Different sites interacting in the same tab ("mashups")
- Low-level features; hardware access
- Desire for high performance
- APIs were not designed from first principles; evolved
- Strict backwards compatibility requirements
 - "Don't break the web"

The web is organic and ad-hoc

"Modern web applications are built on a tangle of technologies that have been developed over time and then haphazardly pieced together. Every piece of the web application stack, from HTTP requests to browser-side scripts, comes with important yet subtle security consequences. To keep users safe, it is essential for developers to confidently navigate this landscape."

- Tangled Web

The browser has a seemingly impossible task

- Sites – even malicious ones – can:
 - Download content from anywhere
 - Spawn worker processes
 - Open sockets to a server, or even to another user's browser
 - Display media in a huge number of formats
 - Run custom code on the GPU
 - Save/read data from the filesystem

Differing visions for the web

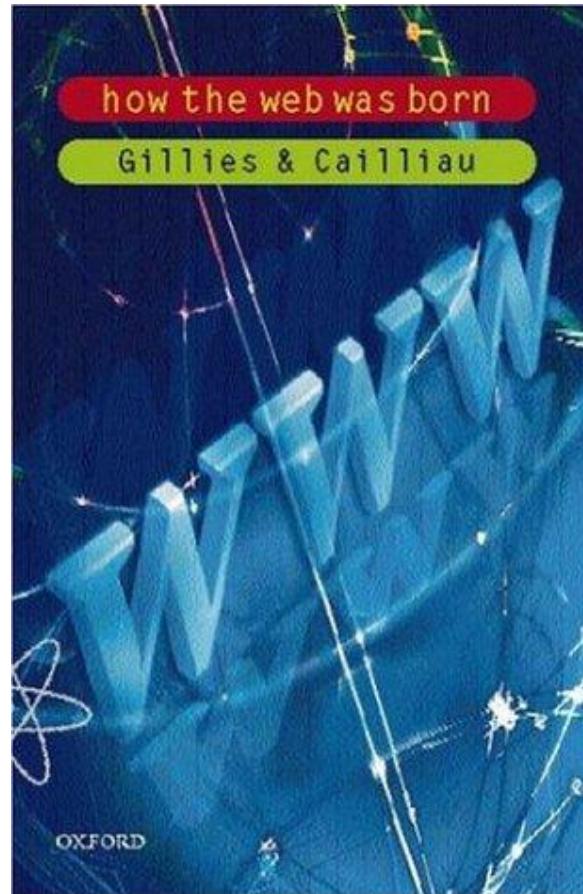
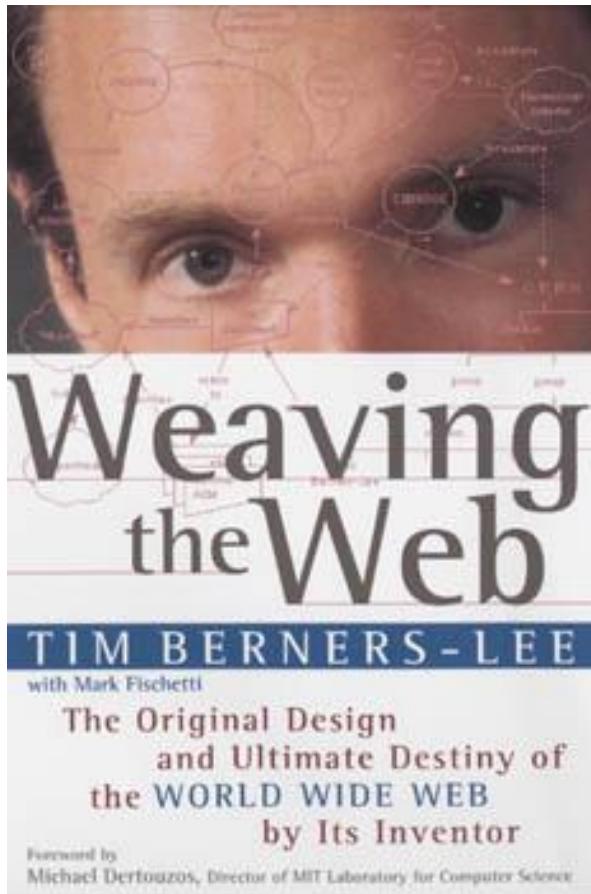
- A simple document viewer?
 - <https://www.w3.org/History/1989/proposal.html>
- A powerful application platform?
 - <https://docs.google.com/>

The web is robust

"It's is all too easy to criticize, lament, and create paranoid scenarios about the 'unsound security foundations' of the web. Truth is, all of that criticism is true, and yet the web has proven to be an incredibly robust platform."

– Ilya Grigorik, Google web performance engineer

Books for WWW History



Defining the Web / HTTP

- HTTP was originally defined by Request for Comments (RFCs) 1945, 2068, 2616
 - and several others for defining URLs, URIs, etc.
- Venerable RFC 2616 was replaced in 2014 with:
 - RFC7230 - [HTTP/1.1: Message Syntax and Routing](#) - low-level message parsing and connection management
 - RFC7231 - [HTTP/1.1: Semantics and Content](#) - methods, status codes and headers
 - RFC7232 - [HTTP/1.1: Conditional Requests](#) - e.g., If-Modified-Since
 - RFC7233 - [HTTP/1.1: Range Requests](#) - getting partial content
 - RFC7234 - [HTTP/1.1: Caching](#) - browser and intermediary caches
 - RFC7235 - [HTTP/1.1: Authentication](#) - a framework for HTTP authentication
 - see: https://www.mnot.net/blog/2014/06/07/rfc2616_is_dead
- We also have a slightly revisionist but ultimately useful unifying document, ca. 2004:
 - The Architecture of the World Wide Web, Volume One.
 - <http://www.w3.org/TR/webarch/>
- HTTP/2 is increasingly common, but outside of the scope of this class

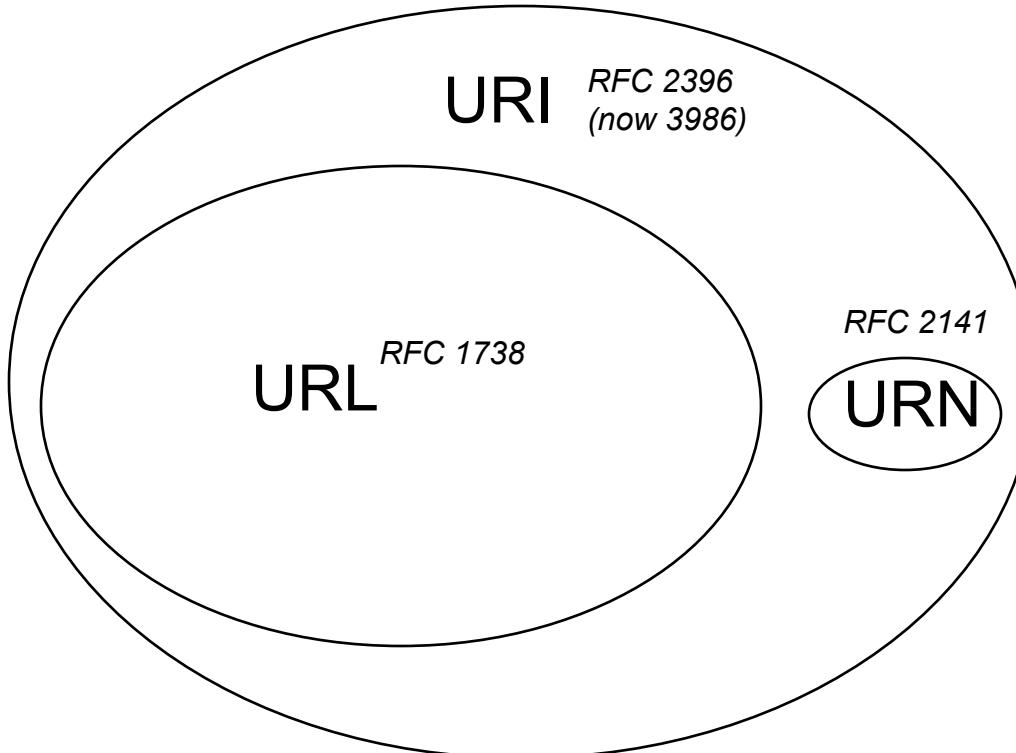
The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in RFC 2119.

1. **MUST** This word, or the terms "REQUIRED" or "SHALL", mean that the definition is an absolute requirement of the specification.
2. **MUST NOT** This phrase, or the phrase "SHALL NOT", mean that the definition is an absolute prohibition of the specification.
3. **SHOULD** This word, or the adjective "RECOMMENDED", mean that there may exist valid reasons in particular circumstances to ignore a particular item, but the full implications must be understood and carefully weighed before choosing a different course.
4. **SHOULD NOT** This phrase, or the phrase "NOT RECOMMENDED" mean that there may exist valid reasons in particular circumstances when the particular behavior is acceptable or even useful, but the full implications should be understood and the case carefully weighed before implementing any behavior described with this label.
5. **MAY** This word, or the adjective "OPTIONAL", mean that an item is truly optional. One vendor may choose to include the item because a particular marketplace requires it or because the vendor feels that it enhances the product while another vendor may omit the same item. An implementation which does not include a particular option MUST be prepared to interoperate with another implementation which does include the option, though perhaps with reduced functionality. In the same vein an implementation which does include a particular option MUST be prepared to interoperate with another implementation which does not include the option (except, of course, for the feature the option provides.)

How To Read RFCs

(quoting from RFC 2119)

Uniform Resource Identifiers



URI & URL: <http://www.cs.odu.edu/>

URL: <ftp://ftp.isi.edu/pub/>

URI: info:pmid/12376099

URN: urn:uuid:6e8bc430-9c3a-11d9-9669-0800200c9a66

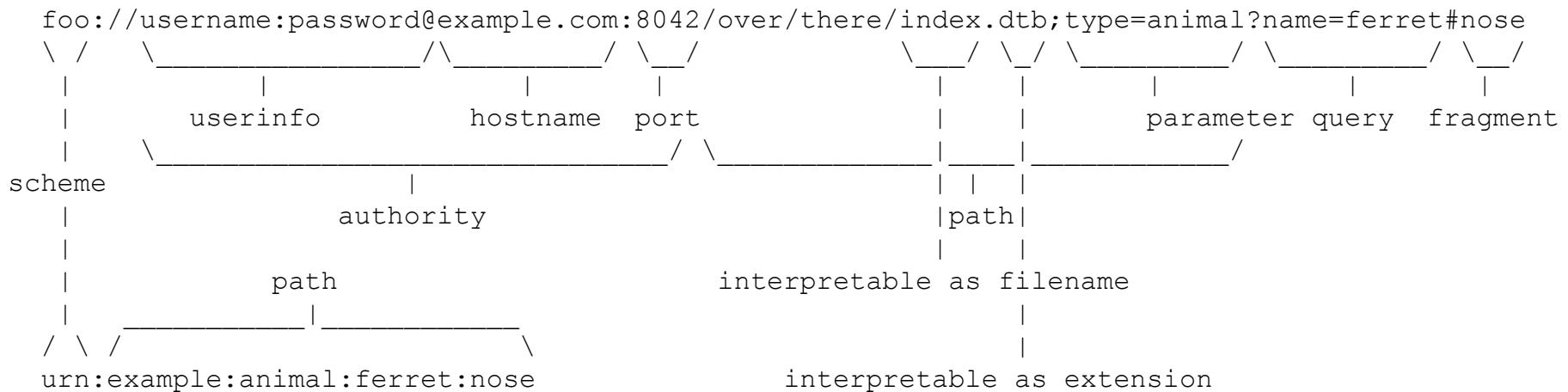
From RFC 3986

“A URI can be further classified as a locator, a name, or both. The term "Uniform Resource Locator" (URL) refers to the subset of URIs that, in addition to identifying a resource, provide a means of locating the resource by describing its primary access mechanism (e.g., its network "location"). The term "Uniform Resource Name" (URN) has been used historically to refer to both URIs under the "urn" scheme [RFC2141], which are required to remain globally unique and persistent even when the resource ceases to exist or becomes unavailable, and to any other URI with the properties of a name”.

URLs & URNs

- registered URI schemes
 - <http://www.iana.org/assignments/uri-schemes>
- registered URN namespaces
 - <http://www.iana.org/assignments/urn-namespaces>

URI Schemes

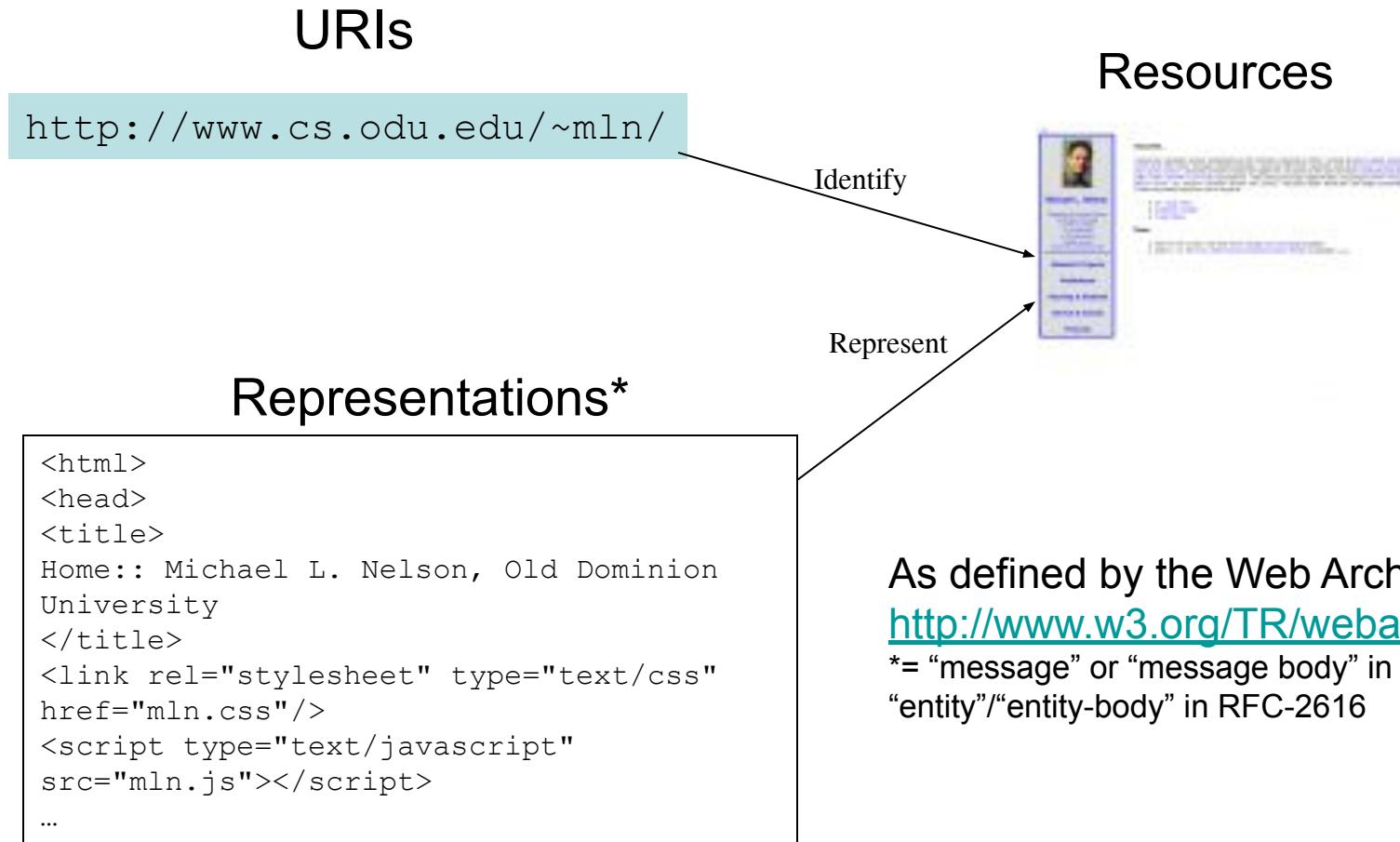


taken from: http://en.wikipedia.org/wiki/URI_scheme
note: “scheme”, *not* “protocol”

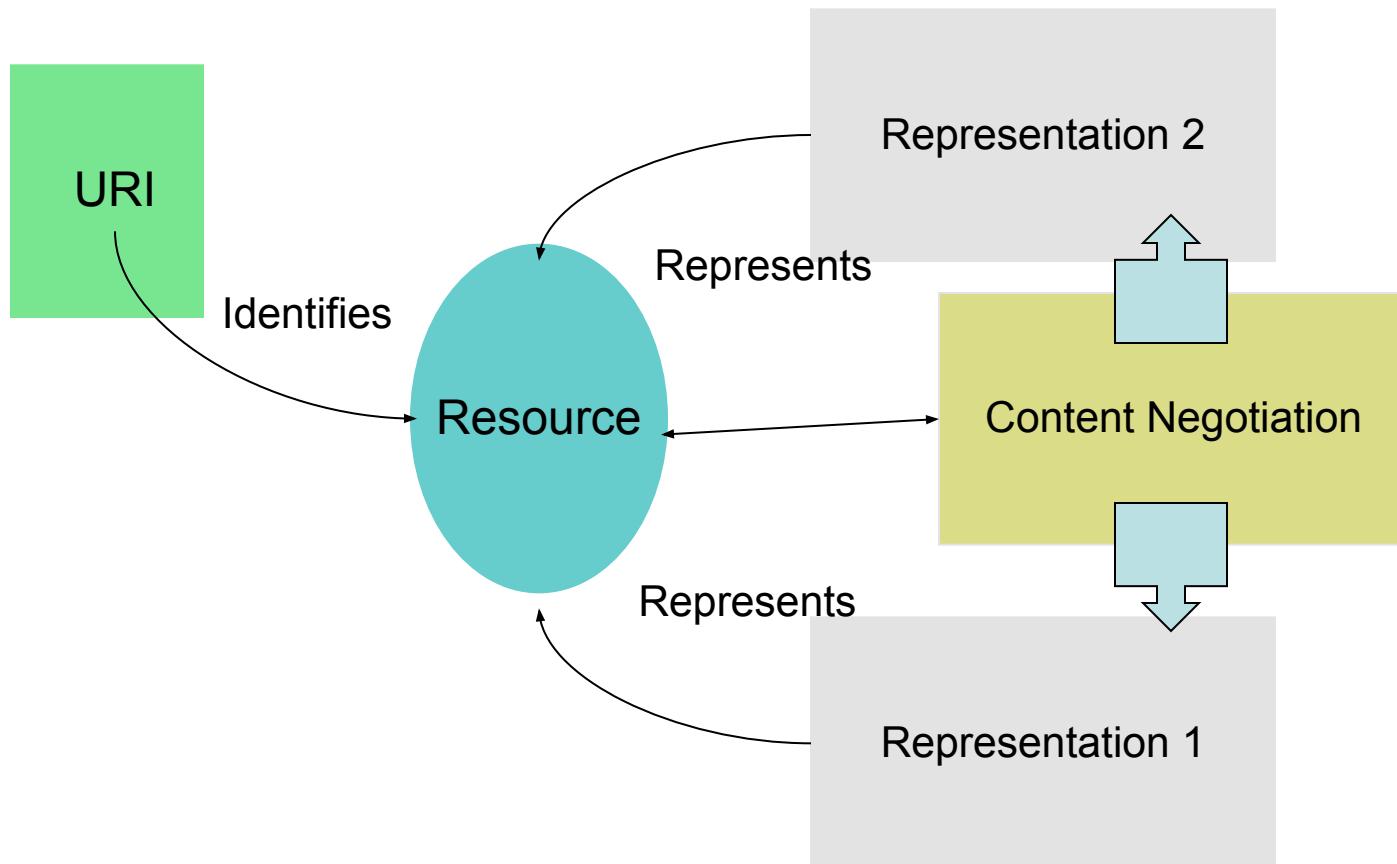
Types of URLs

- Full URL: <a href="<https://github.com/phonedude/cs595-s22>">Web Security
- Relative URL: assignments
 - same as:
<https://github.com/phonedude/cs595-s22/assignments>
- Absolute URL: Michael L. Nelson
 - same as: <https://github.com/phonedude/>
- Fragment URL: Course Objectives
 - same as:
<https://github.com/phonedude/cs595-s22#course-objectives>

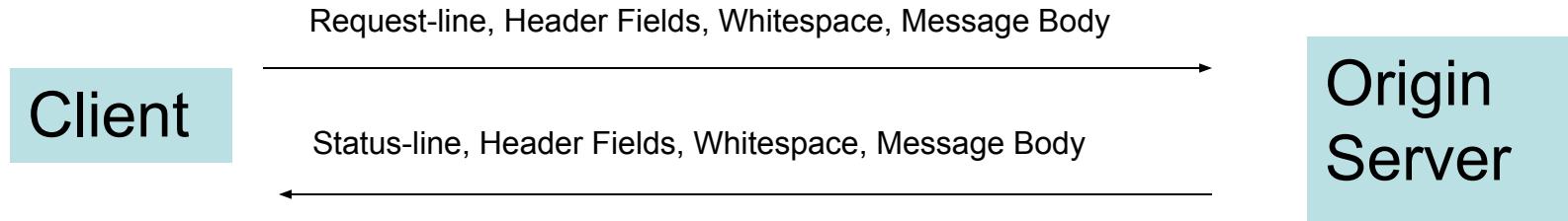
Important Web Architecture Concepts



Resources can have multiple, simultaneous *representations*



HTTP Operation



General Template, CR/LF, and Magic Blank Lines

Client: Method URI HTTP/1.1
Some-Request-Header-1: value1
Some-Request-Header-2: value2
...
(1st magic blank line)

Server: HTTP 1.1 Code String
Some-Response-Header-1: value1
Some-Response-Header-2: value2
...
(2nd magic blank line)
message-body

Client's "request-line" and Server's "status-line" are the format exceptions;
otherwise headers are in a flat, key-value syntax, followed by a blank line,
followed by an optional message-body

Modern Browsers (aka “user-agents”) are nice...



But they hide important details from us.
As programmers, we care about those details.

Talking to HTTP servers with “curl”

```
% curl --head http://www.cs.odu.edu/~mln/
HTTP/1.1 200 OK
Date: Mon, 12 Jan 2009 15:44:19 GMT
Server: Apache/2.2.0
Last-Modified: Fri, 09 Jan 2009 17:18:37
GMT
ETag: "88849-1c71-f28dd540"
Accept-Ranges: bytes
Content-Length: 7281
Content-Type: text/html

% curl -I http://www.google.com/
HTTP/1.1 200 OK
Cache-Control: private, max-age=0
Date: Mon, 12 Jan 2009 15:45:57 GMT
Expires: -1
Content-Type: text/html; charset=ISO-8859-1
Set-Cookie:
PREF=ID=9a80d3f602b685f3:TM=1231775157:LM=1231775157:S=imGxRyNsTD0Zczm5;
expires=Wed, 12-Jan-2011 15:45:57 GMT; path=/; domain=.google.com
Server: gws
Content-Length: 0
```

curl is your friend; the sooner you learn curl, the easier your life will be.

default curl returns message body, no headers...

```
$ curl https://www.cs.odu.edu/~mln/
<html>
<head>
<title>
Home:: Michael L. Nelson, Old Dominion University
</title>
<!-- CSS stuff largely stolen from Carl Lagoze's Page -->
<link rel="stylesheet" type="text/css" href="mln.css"/>

<meta property="fb:admins"
content="michael.lloyd.nelson"/>
<meta property="og:title" content="Michael L. Nelson"/>
[lots of html removed]
```

curl -i shows response headers + message body:

```
$ curl -i https://www.cs.odu.edu/~mln/
HTTP/1.1 200 OK
Server: nginx
Date: Wed, 29 Aug 2018 02:34:15 GMT
Content-Type: text/html
Transfer-Encoding: chunked
Connection: keep-alive
Vary: Accept-Encoding
Front-End-Https: on

<html>
<head>
<title>
Home:: Michael L. Nelson, Old Dominion
University
</title>
[deletia]
```

```
$ curl -v http://ws-dl.blogspot.com/2018/08/2018-08-25-four-ws-dl-classes-offered.html
* Adding handle: conn: 0x7fa59b004000
* Adding handle: send: 0
* Adding handle: recv: 0
* Curl_addHandleToPipeline: length: 1
* - Conn 0 (0x7fa59b004000) send_pipe: 1, recv_pipe: 0
* About to connect() to ws-dl.blogspot.com port 80 (#0)
* Trying 172.217.5.65...
* Connected to ws-dl.blogspot.com (172.217.5.65) port 80 (#0)
> GET /2018/08/2018-08-25-four-ws-dl-classes-offered.html HTTP/1.1
> User-Agent: curl/7.30.0
> Host: ws-dl.blogspot.com
> Accept: */*
>

< HTTP/1.1 200 OK
< Content-Type: text/html; charset=UTF-8
< Expires: Wed, 29 Aug 2018 01:28:50 GMT
< Date: Wed, 29 Aug 2018 01:28:50 GMT
< Cache-Control: private, max-age=0
< Last-Modified: Tue, 28 Aug 2018 23:33:07 GMT
< X-Content-Type-Options: nosniff
< X-XSS-Protection: 1; mode=block
* Server GSE is not blacklisted
< Server: GSE
< Accept-Ranges: none
< Vary: Accept-Encoding
< Transfer-Encoding: chunked
<

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd"
<html dir='ltr' xmlns='http://www.w3.org/1999/xhtml' xmlns:b='http://www.google.com/2005/gml'
<head>
[much deletia]
```

curl -v shows more

* = TCP activity

> = what the user-agent (i.e., curl) sent

< = what the server sent

```
% curl -IL https://t.co/LSUT8iaB4o
HTTP/1.1 301 Moved Permanently
cache-control: private,max-age=300
content-length: 0
date: Wed, 29 Aug 2018 16:42:22 GMT
expires: Wed, 29 Aug 2018 16:47:22 GMT
location: http://bit.ly/2wrdv27
server: tsa_b
set-cookie: muc=a5182687-df3f-415d-b0f7-c9bfc80ecf80; Expires=Fri, 28 Aug 2020 16:42:22 GMT;
Domain=t.co
strict-transport-security: max-age=0
vary: Origin
x-connection-hash: 281d50e3381e8db894369efba3ef525d
x-response-time: 9
```

```
HTTP/1.1 301 Moved Permanently
Server: nginx
Date: Wed, 29 Aug 2018 16:42:22 GMT
Content-Type: text/html; charset=utf-8
Content-Length: 170
Connection: keep-alive
Cache-Control: private, max-age=90
Location: http://www.dailypress.com/sports/dp-spt-acc-football-injury-reports-0829-story.html
```

```
HTTP/1.1 200 OK
Content-Length: 427
Content-Type: text/html; charset=UTF-8
Httpd-Identifier: web-0a454bb1c0b26e0bc62060302d005aa2
Server: Apache-Coyote/1.1
x-Instance-Name: i15prod-c1fdbad-15-98.1
X-UA-Compatible: IE=Edge
Cache-Control: public, max-age=177
Date: Wed, 29 Aug 2018 16:42:23 GMT
Connection: keep-alive
```

curl has many, many flags...

-I = head
-L = follow redirects

```
sirius:/home/mln/hold/cs531-f18 % wget https://t.co/LSUT8iaB4o
--2018-08-29 15:04:04-- https://t.co/LSUT8iaB4o
Resolving t.co (t.co)... 199.16.156.75, 199.16.156.11
Connecting to t.co (t.co)|199.16.156.75|:443... connected.
HTTP request sent, awaiting response... 301 Moved Permanently
Location: http://bit.ly/2wrdv27 [following]
--2018-08-29 15:04:04-- http://bit.ly/2wrdv27
Resolving bit.ly (bit.ly)... 67.199.248.11, 67.199.248.10
Connecting to bit.ly (bit.ly)|67.199.248.11|:80... connected.
HTTP request sent, awaiting response... 301 Moved Permanently
Location: http://www.dailypress.com/sports/dp-spt-acc-football-injury-reports-0829-story.html [following]
--2018-08-29 15:04:04--
http://www.dailypress.com/sports/dp-spt-acc-football-injury-reports-0829-story.html
Resolving www.dailypress.com (www.dailypress.com)... 184.84.171.209
Connecting to www.dailypress.com (www.dailypress.com)|184.84.171.209|:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: unspecified [text/html]
Saving to: 'LSUT8iaB4o'

[=>] 149,323   --.-K/s   in 0.04s

2018-08-29 15:04:04 (3.77 MB/s) - 'LSUT8iaB4o' saved [149323]
```

wget is another useful tool

```
sirius:/home/mln/hold/cs531-f18 % head LSUT8iaB4o
<!DOCTYPE html>
<html lang="en-US">
<head itemid="" itemscope itemtype="http://schema.org/SpeakableSpecification">
<title>ACC football injury reports no more; national standard likely - Daily Press</title>
<meta charset="utf-8" />

<link rel="dns-prefetch" href="//www.trbimg.com"
      /><link rel="preconnect" href="//www.trbimg.com"
      /><link rel="dns-prefetch" href="//static.chartbeat.com"
      /><link rel="dns-prefetch" href="//m.trb.com"
```

sirius:/home/mln/hold/cs531-f18 % lynx https://t.co/LSUT8iaB4o

mln — ssh — 118x43

ACC football injury reports no more; national standard likely - Daily Press (p1 of 4)

Sports

ACC football injury reports no more; national standard likely

Justin Fuente on injury reports

Hokies coach Juatin Fuente advocates a uniform injury reporting policy for all of college football. (AP photo via Roanoke Times.)

Hokies coach Juatin Fuente advocates a uniform injury reporting policy for all of college football. (AP photo via Roanoke Times.)

David Teel [Contact](#) [Reporter](#) Daily Press

Josh Jackson, Ricky Walker and Yoshua Nijman are presumably healthy for [Virginia Tech](#)'s football season opener at [Florida State](#) on Monday night. They've practiced throughout training camp and answered questions from reporters Sunday.

But what if they, or any player from either team, sustained an injury this week and was doubtful or out for Monday? We might not know until near kickoff.

And that's too bad. It's not outrageous or shameful, mind you, but it is another strike against transparency.

Not that coaches should reveal game plans or players should forfeit the legal privacy protections. But from 2010 through last season, ACC football programs released injury reports two days before conference games.

Civilization survived. Rights weren't compromised. Championships weren't altered. Indeed, ACC football is stronger than ever.

The reports informed fans and media, not to mention – wink, wink – oddsmakers and legions of gamblers. But ACC coaches voted this offseason to discontinue their gentlemen's agreement – the injury reports were not mandated by conference policy – and I don't blame them.

First, the ACC was the only league issuing injury reports. Second, there was no uniform format, giving schools discretion on whether to reveal an injury's nature (knee, hip, ankle, etc.). Third, some coaches fudged.

Moreover, of the 12 ACC coaches who adopted the injury reports in 2010, only [Georgia Tech](#)'s Paul Johnson, Duke's David Cutcliffe and [Clemson](#)'s Dabo Swinney are still working in the conference.

Somewhat in jest, I asked Virginia Tech coach Justin Fuente if he and his colleagues just don't trust one another.

-more- <http://www.dailypress.com/sports/#nt=breadcrumb>

curl/wget/lynx are awesome

but they are still user-agents,
*and the nature of user-agents
is to hide details.*

we can use
“telnet” or “openssl”
to expose even more details

GET

```
AIHT:~/Desktop/cs595-s06 mln$ telnet www.cs.odu.edu 80
Trying 128.82.4.2...
Connected to xenon.cs.odu.edu.
Escape character is '^]'.
```

```
GET /~mln/index.html HTTP/1.1
Connection: close
Host: www.cs.odu.edu
```

Request
(ends w/ CRLF)

```
HTTP/1.1 200 OK
Date: Mon, 09 Jan 2006 17:07:04 GMT
Server: Apache/1.3.26 (Unix) ApacheJServ/1.1.2
PHP/4.3.4
Last-Modified: Sun, 29 May 2005 02:46:53 GMT
ETag: "1c52-14ed-42992d1d"
Accept-Ranges: bytes
Content-Length: 5357
Connection: close
Content-Type: text/html
```

```
<html>
<head>
<title>Home Page for Michael L. Nelson</title>
<style type="text/css">
<!--
```

[lots of html deleted]

ODU CS 495/595 Web Security Spring 2022 mln@cs.odu.edu
Connection closed by feross@stanford.edu on port 253 by Feross Aboukhadijeh

Response

HEAD

```
AIHT:~/Desktop/cs595-s06 mln$ telnet www.cs.odu.edu 80
Trying 128.82.4.2...
Connected to xenon.cs.odu.edu.
Escape character is '^]'.
HEAD /~mln/index.html HTTP/1.1
Connection: close
Host: www.cs.odu.edu

HTTP/1.1 200 OK
Date: Mon, 09 Jan 2006 17:14:39 GMT
Server: Apache/1.3.26 (Unix) ApacheJServ/1.1.2
PHP/4.3.4
Last-Modified: Sun, 29 May 2005 02:46:53 GMT
ETag: "1c52-14ed-42992d1d"
Accept-Ranges: bytes
Content-Length: 5357
Connection: close
Content-Type: text/html

Connection closed by foreign host.
```

OPTIONS

(many methods)

```
AIHT:~/Desktop/cs595-s06 mln$ telnet www.cs.odu.edu 80
Trying 128.82.4.2...
Connected to xenon.cs.odu.edu.
Escape character is '^]'.
OPTIONS /~mln/index.html HTTP/1.1
Connection: close
Host: www.cs.odu.edu

HTTP/1.1 200 OK
Date: Mon, 09 Jan 2006 17:16:46 GMT
Server: Apache/1.3.26 (Unix) ApacheJServ/1.1.2 PHP/4.3.4
Content-Length: 0
Allow: GET, HEAD, POST, PUT, DELETE, CONNECT, OPTIONS, PATCH, PROPFIND,
PROPPATCH,
MKCOL, COPY, MOVE, LOCK, UNLOCK, TRACE
Connection: close

Connection closed by foreign host.
```

OPTIONS

(fewer methods)

```
% telnet www.cs.odu.edu 80
Trying 128.82.4.2...
Connected to xenon.cs.odu.edu.
Escape character is '^]'.
OPTIONS /~mln/index.html HTTP/1.1
Connection: close
Host: www.cs.odu.edu

HTTP/1.1 200 OK
Date: Tue, 10 Jan 2012 17:26:44 GMT
Server: Apache/2.2.17 (Unix) PHP/5.3.5 mod_ssl/2.2.17
OpenSSL/0.9.8q
Allow: GET,HEAD,POST,OPTIONS
Content-Length: 0
Connection: close
Content-Type: text/html

Connection closed by foreign host.
```

Many sites don't like OPTIONS any more...

```
% curl -X OPTIONS -i -L https://www.cs.odu.edu
HTTP/1.1 301 Moved Permanently
Server: nginx
Date: Thu, 21 Jan 2021 18:21:36 GMT
Content-Type: text/html
Content-Length: 178
Connection: keep-alive
Location: https://odu.edu/compsci

HTTP/1.1 401 Unauthorized
Date: Thu, 21 Jan 2021 18:21:36 GMT
Server: Apache/2.4.6 (Red Hat Enterprise Linux)
WWW-Authenticate: Basic realm="Jackrabbit Webdav Server"
Vary: Host, Accept-Encoding
X-Content-Type-Options: nosniff
X-Frame-Options: SAMEORIGIN
Content-Length: 13
Connection: close
Content-Type: text/html; charset=UTF-8
Set-Cookie:
BIGipServerWEB_HTTPS_PROD.app~WEB_HTTPS_PROD_pool_campus=rd627o00000000000000000000ffff8052619eo80;
path=/; Httponly; Secure
```

Unauthorized

we'll see later in the course how
OPTIONS is now used for a slightly
different purpose

<https://www.helpnetsecurity.com/2017/09/20/apache-http-server-optionsbleed/>

`https` is supplanting `http`

this is mostly a good thing*

but it does mean we can't use telnet for “`https`” sites

* <https://www.theverge.com/2018/2/8/16991254/chrome-not-secure-marked-http-encryption-ssl>

bye bye “telnet to port 80”

```
$ telnet www.cs.odu.edu 80
Trying 128.82.4.2...
Connected to xenon.cs.odu.edu.
Escape character is '^]'.
HEAD /~mln/ HTTP/1.1
Host: www.cs.odu.edu
Connection: close
```

```
HTTP/1.1 301 Moved Permanently
Server: nginx
Date: Wed, 29 Aug 2018 03:45:36 GMT
Content-Type: text/html
Connection: close
Location:
https://www.cs.odu.edu/~mln/
Connection closed by foreign host.
```

```
$ telnet www.cs.odu.edu 443
Trying 128.82.4.2...
Connected to xenon.cs.odu.edu.
Escape character is '^]'.
HEAD /~mln/ HTTP/1.1
Host: www.cs.odu.edu
Connection: close
```

```
HTTP/1.1 400 Bad Request
Server: nginx
Date: Wed, 29 Aug 2018 03:45:57
GMT
Content-Type: text/html
Connection: close
Connection closed by foreign host.
```

hello “openssl to port 443”

```
$ openssl s_client -connect www.cs.odu.edu:443
CONNECTED(00000003)
[much, much SSL detail]
SSL handshake has read 6270 bytes and written 328 bytes
---
New, TLSv1/SSLv3, Cipher is DHE-RSA-AES128-SHA
Server public key is 2048 bit
Secure Renegotiation IS supported
Compression: NONE
Expansion: NONE
SSL-Session:
    Protocol : TLSv1
    Cipher   : DHE-RSA-AES128-SHA
    Session-ID: E19FD48AA69A296996B958877C48C28391ED217761F1E2023C7471ACB89B2694
    Session-ID-ctx:
    Master-Key: 0A9A3DC0C66F99FF85A480ADEC42A7EB74EEC1D391D9AF4A026CF27C16A19480C42A75B6CD283BFE68ADAB32D07D7242
    Key-Aggr  : None
    Start Time: 1535514923
    Timeout   : 300  (sec)
    Verify return code: 0  (ok)
---
HEAD /~mln/ HTTP/1.1
Host: www.cs.odu.edu
Connection: close

HTTP/1.1 200 OK
Server: nginx
Date: Wed, 29 Aug 2018 03:55:35 GMT
Content-Type: text/html
Connection: close
Vary: Accept-Encoding
Front-End-Https: on

closed
```

HTTP semantics don't change

```
$ openssl s_client -connect  
www.cs.odu.edu:443  
[all SSL portions deleted]  
OPTIONS /~mln/ HTTP/1.1  
Host: www.cs.odu.edu  
Connection: close  
  
HTTP/1.1 200 OK  
Server: nginx  
Date: Wed, 29 Aug 2018 04:02:05 GMT  
Content-Type: text/html  
Content-Length: 0  
Connection: close  
Allow: POST,OPTIONS,GET,HEAD  
Front-End-Https: on  
  
closed
```

Response Codes

from section 6 of RFC 7231

- 1xx: Informational - The request was received, continuing process
- 2xx: Success - The action was successfully received, understood, and accepted
- 3xx: Redirection - Further action must be taken in order to complete the request
- 4xx: Client Error - The request contains bad syntax or cannot be fulfilled
- 5xx: Server Error - The server failed to fulfill an apparently valid request

not “error” codes!!!

501 - Method Not Implemented

```
AIHT:~/Desktop/cs595-s06 mln$ telnet www.cs.odu.edu 80
Trying 128.82.4.2...
Connected to xenon.cs.odu.edu.
Escape character is '^]'.
NOTAREALMETHOD /index.html HTTP/1.1
Connection: close
Host: www.cs.odu.edu
```

HTTP/1.1 501 Method Not Implemented

```
Date: Mon, 09 Jan 2006 17:22:40 GMT
Server: Apache/1.3.26 (Unix) ApacheJServ/1.1.2 PHP/4.3.4
Allow: GET, HEAD, POST, PUT, DELETE, CONNECT, OPTIONS, PATCH, PROPFIND, PROPPATCH, MKCOL, COPY,
MOVE, LOCK, UNLOCK, TRACE
Connection: close
Transfer-Encoding: chunked
Content-Type: text/html; charset=iso-8859-1
```

15f

```
<!DOCTYPE HTML PUBLIC "-//IETF//DTD HTML 2.0//EN">
<HTML><HEAD>
<TITLE>501 Method Not Implemented</TITLE>
</HEAD><BODY>
<H1>Method Not Implemented</H1>
NOTAREALMETHOD to /index.html not supported.<P>
Invalid method in request NOTAREALMETHOD /index.html HTTP/1.1<P>
<HR>
<ADDRESS>Apache/1.3.26 Server at www.cs.odu.edu Port 80</ADDRESS>
</BODY></HTML>
```

0

69

301 - Moved Permanently

```
AIHT:~/Desktop/cs595-s06 mln$ telnet www.cs.odu.edu 80
Trying 128.82.4.2...
Connected to xenon.cs.odu.edu.
Escape character is '^]'.
GET /~mln HTTP/1.1
Connection: close
Host: www.cs.odu.edu
```

Connection closed by foreign host.

HTTP/1.1 301 Moved Permanently

```
Date: Mon, 09 Jan 2006 19:32:24 GMT
Server: Apache/1.3.26 (Unix) ApacheJServ/1.1.2 PHP/4.3.4
Location: http://www.cs.odu.edu/~mln/
Connection: close
Transfer-Encoding: chunked
Content-Type: text/html; charset=iso-8859-1
```

```
12e
<!DOCTYPE HTML PUBLIC "-//IETF//DTD HTML 2.0//EN">
<HTML><HEAD>
<TITLE>301 Moved Permanently</TITLE>
</HEAD><BODY>
<H1>Moved Permanently</H1>
The document has moved <A
HREF="http://www.cs.odu.edu/~mln/">here</A>.<P>
<HR>
<ADDRESS>Apache/1.3.26 Server at www.cs.odu.edu Port 80</ADDRESS>
</BODY></HTML>
```

301- Moved Permanently

```
% telnet bit.ly 80
Trying 69.58.188.39...
Connected to bit.ly.
Escape character is '^].
HEAD http://bit.ly/s2FPFa HTTP/1.1
Host: bit.ly
Connection: close
```

HTTP/1.1 301 Moved

```
Server: nginx
Date: Tue, 10 Jan 2012 17:34:29 GMT
Content-Type: text/html; charset=utf-8
Connection: close
Set-Cookie:
_bit=4f0c76a5-002b9-048b1-331cf10a;domain=.bit.ly;
expires=Sun Jul 8 17:34:29 2012;path=/; HttpOnly
Cache-control: private; max-age=90
Location: http://bit.ly/bundles/phonedude/e
MIME-Version: 1.0
Content-Length: 125
```

the response code is REQUIRED;
phrase is RECOMMENDED

302 - Found

```
% telnet doi.acm.org 80
Trying 64.238.147.57...
Connected to doi.acm.org.
Escape character is '^]'.
HEAD http://doi.acm.org/10.1145/1998076.1998100 HTTP/1.1
Host: doi.acm.org
Connection: close
```

HTTP/1.1 302 Found

```
Date: Tue, 10 Jan 2012 17:53:36 GMT
Server: Apache/2.2.3 (Red Hat)
Location:
http://dl.acm.org/citation.cfm?doid=1998076.1998100
Connection: close
Content-Type: text/html; charset=iso-8859-1
```

303 - See Other

```
% telnet dx.doi.org 80
Trying 38.100.138.149...
Connected to dx.doi.org.
Escape character is '^]'.
HEAD http://dx.doi.org/10.1007/978-3-642-24469-8_16 HTTP/1.1
Host: dx.doi.org
Connection: close
```

HTTP/1.1 303 See Other

```
Server: Apache-Coyote/1.1
Location:
http://www.springerlink.com/index/10.1007/978-3-642-24469-8_16
Expires: Wed, 11 Jan 2012 12:04:29 GMT
Content-Type: text/html; charset=utf-8
Content-Length: 210
Date: Tue, 10 Jan 2012 17:56:41 GMT
Connection: close
```

404 - Not Found

```
% telnet www.cs.odu.edu 80
Trying 128.82.4.2...
Connected to xenon.cs.odu.edu.
Escape character is '^]'.
HEAD /lasdkfjalsdkfjldaskfj HTTP/1.1
Host: www.cs.odu.edu
Connection: close
```

HTTP/1.1 404 Not Found

```
Date: Tue, 10 Jan 2012 17:39:15 GMT
Server: Apache/2.2.17 (Unix) PHP/5.3.5 mod_ssl/2.2.17
OpenSSL/0.9.8q
Connection: close
Content-Type: text/html; charset=iso-8859-1
```

Connection closed by foreign host.

401 - Unauthorized

```
% telnet www4.cs.odu.edu 80
Trying 128.82.5.93...
Connected to www4.cs.odu.edu.
Escape character is '^]'.
HEAD http://www4.cs.odu.edu/Conference/index.aspx
HTTP/1.1
Host: www4.cs.odu.edu
Connection: close

HTTP/1.1 401 Unauthorized
Content-Length: 1656
Content-Type: text/html
Server: Microsoft-IIS/6.0
WWW-Authenticate: Basic realm="www4.cs.odu.edu"
MicrosoftOfficeWebServer: 5.0_Pub
X-Powered-By: ASP.NET
Date: Tue, 10 Jan 2012 17:43:57 GMT
Connection: close
```

400 - Bad Request

```
% telnet www.cs.odu.edu 80
Trying 128.82.4.2...
Connected to xenon.cs.odu.edu.
Escape character is '^]'.
HEAD http://www.cs.odu.edu/~mln/ HTTP/1.1
Connection: close

HTTP/1.1 400 Bad Request
Date: Tue, 10 Jan 2012 18:24:17 GMT
Server: Apache/2.2.17 (Unix) PHP/5.3.5 mod_ssl/2.2.17
 OpenSSL/0.9.8q
Connection: close
Content-Type: text/html; charset=iso-8859-1
```

505 - HTTP Version Not Supported

```
% telnet www.cs.odu.edu 80
Trying 128.82.4.2...
Connected to xenon.cs.odu.edu.
Escape character is '^]'.
HEAD / HTTP/9.9
Host: www.cs.odu.edu
Connection: close
HTTP/1.1 200 OK
Date: Tue, 10 Jan 2012 17:40:05 GMT
Server: Apache/2.2.17 (Unix) PHP/5.3.5 mod_ssl/2.2.17
OpenSSL/0.9.8q
Accept-Ranges: bytes
Connection: close
Content-Type: text/html

Connection closed by foreign host.
```

servers often lie...

505 - HTTP Version Not Supported

```
% telnet www.w3c.org 80
Trying 128.30.52.45...
Connected to dolph.w3.org.
Escape character is '^]'.
HEAD / HTTP/9.9
Host: www.w3c.org
Connection: close
```

servers often lie...

```
HTTP/1.0 403 Forbidden
Cache-Control: no-cache
Connection: close
Content-Type: text/html
```

```
<html><body><h1>403 Forbidden</h1>
Request forbidden by administrative
rules.
</body></html>
```

Code	Reason-Phrase	Defined in...
100	Continue	Section 6.2.1
101	Switching Protocols	Section 6.2.2
200	OK	Section 6.3.1
201	Created	Section 6.3.2
202	Accepted	Section 6.3.3
203	Non-Authoritative Information	Section 6.3.4
204	No Content	Section 6.3.5
205	Reset Content	Section 6.3.6
206	Partial Content	Section 4.1 of [RFC7233]
300	Multiple Choices	Section 6.4.1
301	Moved Permanently	Section 6.4.2
302	Found	Section 6.4.3
303	See Other	Section 6.4.4
304	Not Modified	Section 4.1 of [RFC7232]
305	Use Proxy	Section 6.4.5
307	Temporary Redirect	Section 6.4.7
400	Bad Request	Section 6.5.1
401	Unauthorized	Section 3.1 of [RFC7235]
402	Payment Required	Section 6.5.2
403	Forbidden	Section 6.5.3
404	Not Found	Section 6.5.4
405	Method Not Allowed	Section 6.5.5
406	Not Acceptable	Section 6.5.6
407	Proxy Authentication Required	Section 3.2 of [RFC7235]
408	Request Timeout	Section 6.5.7
409	Conflict	Section 6.5.8
410	Gone	Section 6.5.9
411	Length Required	Section 6.5.10
412	Precondition Failed	Section 4.2 of [RFC7232]
413	Payload Too Large	Section 6.5.11
414	URI Too Long	Section 6.5.12
415	Unsupported Media Type	Section 6.5.13
416	Range Not Satisfiable	Section 4.4 of [RFC7233]
417	Expectation Failed	Section 6.5.14
426	Upgrade Required	Section 6.5.15
500	Internal Server Error	Section 6.6.1
501	Not Implemented	Section 6.6.2
502	Bad Gateway	Section 6.6.3
503	Service Unavailable	Section 6.6.4
504	Gateway Timeout	Section 6.6.5
505	HTTP Version Not Supported	Section 4.1 of [RFC7235]

Many, Many Response Codes...

We won't need all of the response codes for this class, but it will be nearly impossible to pass this class without learning [curl](#).

Rendered HTML

Introduction

This article is a review of the book *Dietary Preferences of Penguins*, by Alice Jones and Bill Smith. Jones and Smith's controversial work makes two hard-to-swallow claims about penguins:

- First, that penguins actually prefer tropical foods such as bananas and pineapple to their traditional diet of fish
- Second, that tropical foods give penguins an odor that makes them unattractive to their traditional predators

...

Simple HTML

```
<h1>Introduction</h1>

<p>
  This article is a review of the book Dietary Preferences of Penguins, by Alice
  Jones and Bill Smith. Jones and Smith's controversial work makes three
  hard-to-swallow claims about penguins:
</p>

<ul>
  <li>
    First, that penguins actually prefer tropical foods such as bananas and
    pineapple to their traditional diet of fish
  </li>

  <li>
    Second, that tropical foods give penguins an odor that makes them
    unattractive to their traditional predators
  </li>
</ul>
```

More valid HTML

```
<!doctype html>
<html lang='en'>
  <head>
    <meta charset='utf-8' />
    <title>Dietary Preferences of Penguins</title>
  </head>
  <body>
    <h1>Introduction</h1>

    <p>
      This article is a review of the book Dietary Preferences...
    </p>
  </body>
</html>
```

Change display with CSS

```
<!-- External CSS file -->
<link rel='stylesheet' href='/path/to/styles.css' />

<!-- Inline CSS -->
<style>
  body {
    color: hot-pink;
  }
</style>
```

Include JavaScript in HTML

```
<!-- External JS file -->
<script src='/path/to/script.js'></script>

<!-- Inline JS -->
<script>
  window.alert('hi there!')
</script>
```

JavaScript

- “fun” (according to Feross; I personally think it’s an abomination)
- flexible
- immediate feedback
- Run-time & development environment pre-installed on every device in the world

Node.js

- JavaScript on the command line
 - <https://nodejs.org/>
- Adds built-in functions for filesystem, HTTP, DNS, and sockets
 - Stuff that belongs in a scripting language, but not a browser
- Also adds module system, binary data support
 - Less necessary because JavaScript has improved rapidly

“JavaScript” APIs

- “JavaScript APIs” can come from:
 - JavaScript language specification
 - Document Object Model specification (browser)
 - Node.js built-ins
- Examples:
 - Array
 - document.createElement
 - fs.readFile

“Crusty” Browser APIs

- `window.open()`
- `window.moveTo()`
- `window.resizeTo()`

JavaScript can modify the Document Object Model (DOM)



https://www.youtube.com/watch?v=2TId4yyN_tw

Developer Tools

The screenshot shows a web browser window with the title "Twitter embedding test: pineapple". The URL is <https://www.cs.odu.edu/~mln/embed-test/embed-test-001.html>. The developer tools console tab is open, displaying the following content:

```
⚠ The character encoding of the HTML document was not declared. The document will render with garbled text in some browser configurations if the document contains characters from outside the US-ASCII range. The character encoding of the page must be declared in the document or in the transfer protocol.  
⚠ Request to access cookie or storage on "<URL>" was blocked because it came from a tracker and content blocking is enabled.  
▶ document  
↳ HTMLDocument https://www.cs.odu.edu/~mln/embed-test/embed-test-001.html  
  URL: "https://www.cs.odu.edu/~mln/embed-test/embed-test-001.html"  
  activeElement: <body>  
  aLinkColor: ""  
  all: HTMLAllCollection { 0: html, 1: head, 2: title, ... }  
  anchors: HTMLCollection { length: 0 }  
  applets: HTMLCollection { length: 0 }  
  baseURI: "https://www.cs.odu.edu/~mln/embed-test/embed-test-001.html"  
  bgColor: ""  
  body: <body>  
    characterSet: "windows-1252"  
    charset: "windows-1252"  
    childElementCount: 1  
  childNodes: NodeList [ html ]  
  children: HTMLCollection { 0: html, length: 1 }  
  compatMode: "BackCompat"  
  contentType: "text/html"  
  cookie: "__utma=256360345.1754728845.1554604369.1610672430.1611067468.289; __utzm=256360345.1610410955.286.7.utmcst=google|utmccn=(organic)|utmcmd=organic|utmctr=(not%20provided); __ga=GA1.2.873277675.154612985;  
AMCV_4D6368F454EC41940AC98A6%40AdobeOrg=1075005958%7CMCIDTS%7C18636%7CMCIDR%7C55422607396241397191669439345815493722%7CMCAAMLH-  
1610742798%7C7%7CMCAAMB-1610742798%7CKhRpZkrg2tL06pguXWp5lkAcUngQYPhaMwgjd3xjzPWoQmdj0y%7CMCOPTOUT-  
1610145198%7CNONE%7CMCAID%7CNONE%7CVersion%7C4.4.1%7CMCSNCOP%7C411-18640; s_pers=%20%19%30bpdg%253Air_etd%253Aarticle%7C1610139815209  
%3B%20%68%3D1610138013668%3B%20%83D1610138070227%7C1704746070227%3B%20%8_s%3DLess%2520than%2520days%7C1610139870227%3B  
LPVID=E00WY1Y2IY1kZjM2Zjg0; s_fid=55985A8313BD98EE-083E4BC0E3502C59;  
amplitude_id_1d899e0ea7a0ccc43c2b064384587500du.edu=eyJkZXNjY2VjZC16ijg2MWYzNDMyLTi50DAtNGZlYS1hN2YwLdTlMmZiNGNkODD01YV1jLCj1c2VvSWQi0m51bGwsIr  
d919dC162mfSc2UsInNlc3Npb25jZC16MTU2NjkyMDAyNjI1NSwibGfzdEV2w50VGltZSi6MTU2NjkyMDAyNjI1NSwizXZLbnRJZC16MCwiaWrlbnRpZnLJZC16MCwic2VxdWVuY2V0dW:  
Xi10j89; em_cdn_uid=t%3D1607625867462%26u%3D878445a75ca4e1483f5de9c46e6d871; em_p_uid=l:1607625874244;t:1607625874243;u:b5046162d1894cb0b59501458849ee8c; _gcl_au=1.1.1453834476.1610067021;  
sc_is_visitor_unique=rx11791136.1610723696.3018ACF8FB4186969138B508572C8.18.18.18.18.17.15; __utmc=256360345;  
AMCVS_4D6368F454EC41940AC98A6%40AdobeOrg=1; s_sess=%20e4183D1%3B%20s_cpc%3D%3B%20s_cc%3Dtrue  
%3B%20s_ppv%3Dbpdg%25253Air_etd%25253Aarticle%252C30%252C30%252C731%252C1303%252C731%252C1440%252C900%252C2%252CP%3B%20s_sq%3D%3B  
%20s_ppv%3Dbpdg%25253Air_etd%25253Aarticle%252C100%252C30%252C2461%252C1303%252C731%252C1440%252C900%252C2%252CP%3B"  
currentScript: null  
▶ defaultView: Window https://www.cs.odu.edu/~mln/embed-test/embed-test-001.html  
designMode: "off"  
dir: ""  
doctype: null
```

At the bottom of the developer tools, the status bar shows "embed-test-001.html" 22L, 1074C written.

The URL at the bottom of the page is <https://www.cs.odu.edu/~mln/embed-test/embed-test-001.html>.

Git / GitHub

My machine, your machine, and GitHub

github.com/phonedude/cs595-s22



← fork
pull request →

github.com/YoutAcctName/cs595-s22



```
git add  
git commit  
git push origin main  
git pull origin main  
...  
↓
```



my laptop

← fork
pull request →

```
git add  
git commit  
git push origin main  
git pull origin main  
...  
↓
```



your laptop

Fork a copy of my repo at
github.com to your github.com acct

mjn-test-user x Michael

Secure | https://github.com/mjn-test-user

Search or jump to... / Pull requests Issues Marketplace Explore

Overview Repositories 2 Projects Packages Stars

Popular repositories

Customize your pins

cs-431-f18 Public
this is a test repo for the ODU CS 431/531 F18 class

cs531-f18 Public
Forked from phonedude/cs531-f18
Perl

0 contributions in the last year Contribution settings ▾

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan

Mon

Wed

Fri

Learn how we count contributions Less More

Contribution activity

2022

January 2022

2021

mjn-test-user has no activity yet for this period.

2020

Show more activity

2019

2018

Seeing something unexpected? Take a look at the [GitHub profile guide](#).

mjn-test-user

Edit profile

Contribution settings ▾

Less More

Contribution activity

2022

January 2022

2021

mjn-test-user has no activity yet for this period.

2020

Show more activity

2019

2018

Seeing something unexpected? Take a look at the [GitHub profile guide](#).

Secure | https://github.com/phonedude/cs595-s22

Search or jump to... Pull requests Issues Marketplace Explore

Watch 1 Fork 1 Star 0

Code Issues Pull requests Actions Projects Wiki Security Insights

main 1 branch 0 tags Go to file Add file Code

phonedude week 1 materials 120321f 3 days ago 2 commits

assignments week 1 materials 3 days ago

LICENSE Initial commit 4 days ago

README.md week 1 materials 3 days ago

syllabus.txt week 1 materials 3 days ago

README.md

ODU CS 495/595 Web Security, Spring 2022.

Instructor: Michael L. Nelson mln@cs.odu.edu

Office Hours: Mondays 6–7 and by appointment

Time: Mondays 7:10pm – 9:50pm

Place: online to start the semester -- contact mln@cs.odu.edu for the Zoom URL. We'll consider moving to a hybrid format (in room ECSB 2120) as the pandemic allows.

Syllabus

About

CS 495/595 Web Security

Readme

MIT License

0 stars

1 watching

1 fork

Releases

No releases published

Packages

No packages published

Languages

HTML 94.2% JavaScript 5.8%

mjn-test-user/cs595-s22 x

Secure | https://github.com/mjn-test-user/cs595-s22

Michael

Search or jump to... Pull requests Issues Marketplace Explore

mjn-test-user / cs595-s22 Public

forked from phonendude/cs595-s22

Watch 0 Fork 2 Star 0

Code Pull requests Actions Projects Wiki Security Insights Settings



Forking phonendude/cs595-s22

It should only take a few seconds.

Refresh

mln-test-user/cs595-s22: CS

Secure | https://github.com/mln-test-user/cs595-s22

Search or jump to... Pull requests Issues Marketplace Explore

mln-test-user / cs595-s22 (Public)
forked from phonedude/cs595-s22

Watch 0 Fork 2 Star 0

Code Pull requests Actions Projects Wiki Security Insights Settings

main 1 branch 0 tags Go to file Add file Code

This branch is up to date with phonedude:main.

Contribute Fetch upstream

phonedude week 1 materials 120321f 3 days ago 2 commits

assignments week 1 materials 3 days ago

LICENSE Initial commit 4 days ago

README.md week 1 materials 3 days ago

syllabus.txt week 1 materials 3 days ago

README.md

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About

CS 495/595 Web Security

- Readme
- MIT License
- 0 stars
- 0 watching
- 2 forks

Releases

No releases published

Create a new release

Packages

No packages published

Publish your first package

Languages

mjn-test-user/cs595-s22: CS

Secure | https://github.com/mjn-test-user/cs595-s22

Michael

Search or jump to... / Pull requests Issues Marketplace Explore

mjn-test-user / cs595-s22 (Public)

forked from phonedude/cs595-s22

Code Pull requests Actions Projects Wiki Security Insights Settings

main ▾ 1 branch 0 tags

This branch is up to date with phonedude:main.

phonedude week 1 materials

- assignments week 1 materials
- LICENSE Initial commit
- README.md week 1 materials
- syllabus.txt week 1 materials

README.md

ODU CS 495/595 Web Security, Spring 2022.

Instructor: Michael L. Nelson mln@cs.odu.edu

Office Hours: Mondays 6–7 and by appointment

Time: Mondays 7:10pm – 9:50pm

Code ▾ Go to file Add file ▾ Clone HTTPS SSH GitHub CLI (New) <https://github.com/mjn-test-user/cs595> Use Git or checkout with SVN using the web URL. Open with GitHub Desktop Download ZIP 3 days ago

About

CS 495/595 Web Security

- Readme
- MIT License
- 0 stars
- 0 watching
- 2 forks

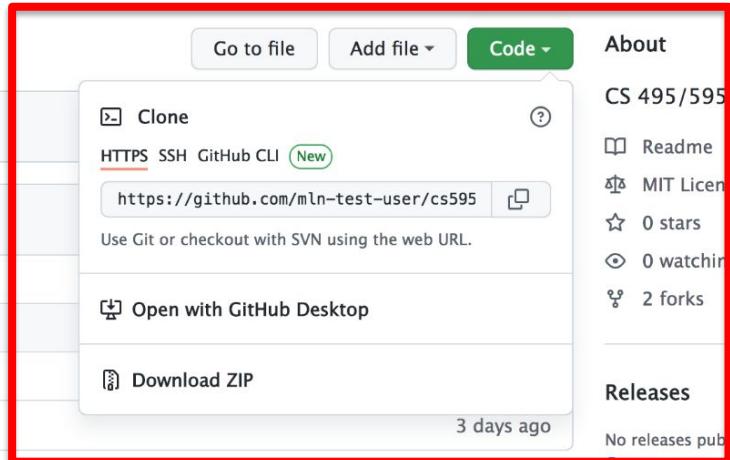
Releases

No releases published Create a new release

Packages

No packages published Publish your first package

Languages



S22 ODU CS 495/595 Web Sec X git demo 1 for CS 495/595 Spr X Member List X cs595-s22/assignments at main X +

https://github.com/phonedude/cs595-s22/tree/main/assignments

Search or jump to... Pull requests Issues Marketplace Explore

phonedude / cs595-s22 Public

Code Issues Pull requests Actions Projects Wiki Security Insights Settings

main cs595-s22 / assignments / Go to file Add file ...

phonedude Delete README.md 3fdc614 37 minutes ago History

..

Nelson/1 fixed Nelson/1 38 minutes ago

assignment-1.md week 1 materials 3 days ago

assignment-2.md week 1 materials 3 days ago

Download from your fork to your
laptop

```
mln@sol:~/hold$ pwd
/home/mln/hold
mln@sol:~/hold$ git clone https://github.com/mln-test-user/cs595-s22.git
Cloning into 'cs595-s22'...
remote: Enumerating objects: 24, done.
remote: Counting objects: 100% (24/24), done.
remote: Compressing objects: 100% (20/20), done.
remote: Total 24 (delta 0), reused 20 (delta 0), pack-reused 0
Unpacking objects: 100% (24/24), 473.15 KiB | 1.54 MiB/s, done.
mln@sol:~/hold$ cd cs595-s22
mln@sol:~/hold/cs595-s22$ ls
assignments LICENSE README.md syllabus.txt
mln@sol:~/hold/cs595-s22$ git config user.name "mln-test-user" ←
mln@sol:~/hold/cs595-s22$ git config --list
core.repositoryformatversion=0
core.filemode=true
core.bare=false
core.logallrefupdates=true
remote.origin.url=https://github.com/mln-test-user/cs595-s22.git
remote.origin.fetch=+refs/heads/*:refs/remotes/origin/*
branch.main.remote=origin
branch.main.merge=refs/heads/main
user.name=mln-test-user
mln@sol:~/hold/cs595-s22$ git config user.name
mln-test-user
mln@sol:~/hold/cs595-s22$ git config user.email "rhodewarriors@gmail.com"
mln@sol:~/hold/cs595-s22$ git config user.email
rhodewarriors@gmail.com
```

**use config -global
to set for all repos**

Create new files on your laptop

```
mln@sol:~/hold/cs595-s22$ cd assignments/
mln@sol:~/hold/cs595-s22/assignments$ mkdir mln-test-user
mln@sol:~/hold/cs595-s22/assignments$ cd mln-test-user/
mln@sol:~/hold/cs595-s22/assignments/mln-test-user$ mkdir 1
mln@sol:~/hold/cs595-s22/assignments/mln-test-user$ mkdir 2
mln@sol:~/hold/cs595-s22/assignments/mln-test-user$ cd 1
mln@sol:~/hold/cs595-s22/assignments/mln-test-user/1$ cd ..
mln@sol:~/hold/cs595-s22/assignments/mln-test-user$ echo "hello world" > 1/README.md
mln@sol:~/hold/cs595-s22/assignments/mln-test-user$ ls 1
README.md
mln@sol:~/hold/cs595-s22/assignments/mln-test-user$ more 1/README.md
hello world
mln@sol:~/hold/cs595-s22/assignments/mln-test-user$ ls
1 2
mln@sol:~/hold/cs595-s22/assignments/mln-test-user$ cd ../..
mln@sol:~/hold/cs595-s22$ cd assignments/
mln@sol:~/hold/cs595-s22/assignments$ cd mln-test-user/
mln@sol:~/hold/cs595-s22/assignments/mln-test-user$ ls
1 2
```

note: use your last name, not your
github acct name like I did here.

note: "2" will not move to github.com
because we did not "add" it.

Push from your laptop to your repo

```
mln@sol:~/hold/cs595-s22/assignments/mln-test-user$ git add 1
mln@sol:~/hold/cs595-s22/assignments/mln-test-user$ git commit -m "adding
1/README.md for mln-test-user"
On branch main
Your branch is ahead of 'origin/main' by 1 commit.
  (use "git push" to publish your local commits)

nothing to commit, working tree clean
mln@sol:~/hold/cs595-s22/assignments/mln-test-user$ git push origin main
Username for 'https://github.com': mln-test-user
Password for 'https://mln-test-user@github.com':
remote: Support for password authentication was removed on August 13,
2021. Please use a personal access token instead.
remote: Please see
https://github.blog/2020-12-15-token-authentication-requirements-for-git-operations/
for more information.
fatal: Authentication failed for
'https://github.com/mln-test-user/cs595-s22.git/'
mln@sol:~/hold/cs595-s22/assignments/mln-test-user$ git push origin main
Username for 'https://github.com': mln-test-user
Password for 'https://mln-test-user@github.com': note: create the "personal access token" and use it like a password
Enumerating objects: 8, done.
Counting objects: 100% (8/8), done.
Delta compression using up to 16 threads
Compressing objects: 100% (3/3), done. note: in some older docs, "master" is used instead of the now default "main"
Writing objects: 100% (6/6), 455 bytes | 113.00 KiB/s, done.
Total 6 (delta 2), reused 0 (delta 0)
remote: Resolving deltas: 100% (2/2), completed with 2 local objects.
To https://github.com/mln-test-user/cs595-s22.git
  120321f..4171250 main -> main
mln@sol:~/hold/cs595-s22/assignments/mln-test-user$
```

cs595-s22/assignments/mln- x Michael

Secure | https://github.com/mln-test-user/cs595-s22/tree/main/assignments/mln-test-user/1

Search or jump to... Pull requests Issues Marketplace Explore

mln-test-user / cs595-s22 (Public) Watch 0 Fork 2 Star 0

forked from phonedude/cs595-s22

Code Pull requests Actions Projects Wiki Security Insights Settings

main cs595-s22 / assignments / mln-test-user / 1 / Go to file Add file ...

This branch is 1 commit ahead, 2 commits behind phonedude:main. Contribute Fetch upstream

Michael Nelson adding 1/README.md for mln-test-user 4171250 11 minutes ago History

README.md adding 1/README.md for mln-test-user 11 minutes ago

README.md

hello world

Pull Request your repo to my repo



Search or jump to...

Pull requests Issues Marketplace Explore

Bell + ⚙



mln-test-user / cs595-s22 Public

forked from phonedude/cs595-s22

Watch 0

Fork 2

Star 0

Code

Pull requests

Actions

Projects

Wiki

Security

Insights

Settings

Q is:pr is:open

Labels 9

Milestones 0

New pull request



Welcome to pull requests!

Pull requests help you collaborate on code with other people. As pull requests are created, they'll appear here in a searchable and filterable list. To get started, you should [create a pull request](#).

💡 ProTip! Updated in the last three days: [updated:>2022-01-06](#).



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Compare · mln-test-user/cs51 x

Secure | https://github.com/mln-test-user/cs595-s22/compare

Michael

Search or jump to... Pull requests Issues Marketplace Explore

mln-test-user / cs595-s22 Public

forked from phonedude/cs595-s22

Code Pull requests Actions Projects Wiki Security Insights

Compare changes

Compare changes across branches, commits, tags, and more below. If you need to, you can also compare across forks.

base: main ▾ ← compare: main ▾

Choose different branches or forks above to discuss and review changes. [Learn about pull requests](#)

Create pull request

Compare and review just about anything

Branches, tags, commit ranges, and time ranges. In the same repository and across forks.

Example comparisons	
 main@{1day}...main	24 hours ago

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Comparing phonedude:main.. x

Secure | https://github.com/phonedude/cs595-s22/compare/main...mln-test-user:main

Michael

Search or jump to... Pull requests Issues Marketplace Explore

phonedude / cs595-s22 Public

Watch 1 Fork 2 Star 0

Code Issues Pull requests Actions Projects Wiki Security Insights

Comparing changes

Choose two branches to see what's changed or to start a new pull request. If you need to, you can also compare across forks.

base repository: phonedude/cs595-s22 base: main ← head repository: mln-test-user/cs595-s22 compare: main

✓ Able to merge. These branches can be automatically merged.

Discuss and review the changes in this comparison with others. [Learn about pull requests](#)

Create pull request

-o 1 commit 1 file changed 1 contributor

-o Commits on Jan 9, 2022

adding 1/README.md for mln-test-user
Michael Nelson committed 16 minutes ago

4171250

Showing 1 changed file with 1 addition and 0 deletions.

assignments/mln-test-user/1/README.md

@@ -0,0 +1 @@
+ hello world

Split Unified

110

Comparing phonedude:main... x

Secure | https://github.com/phonedude/cs595-s22/compare/main...mln-test-user:main

Michael

Search or jump to... / Pull requests Issues Marketplace Explore

phonedude / cs595-s22 Public

Code Issues Pull requests Actions Projects Wiki Security Insights

Open a pull request

Create a new pull request by comparing changes across two branches. If you need to, you can also [compare across forks](#).

base repository: phonedude/cs595-s22 ▾ base: main ▾ ← head repository: mln-test-user/cs595-s22 ▾ compare: main ▾

✓ Able to merge. These branches can be automatically merged.

adding 1/README.md for mln-test-user

Write Preview

this is my demo of a PR from mln-test-user back to phonedude

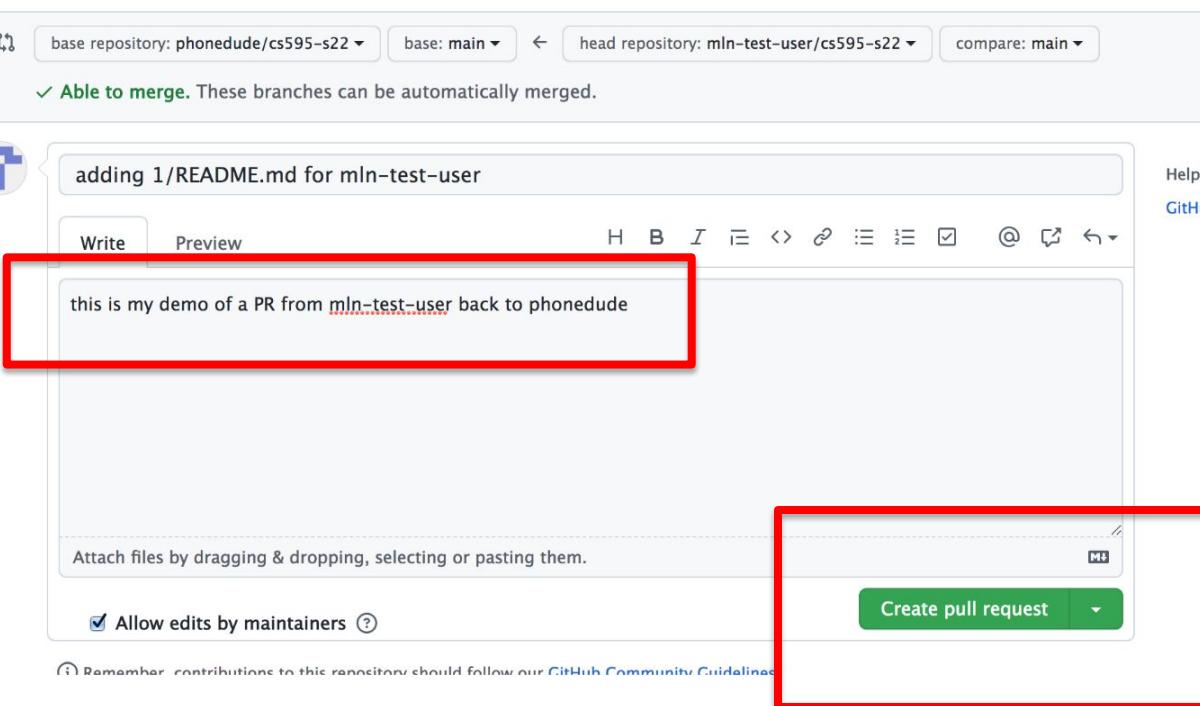
Helpful resources GitHub Community Guidelines

Attach files by dragging & dropping, selecting or pasting them.

Allow edits by maintainers ?

Create pull request ▾

Remember, contributions to this repository should follow our [GitHub Community Guidelines](#)



I receive notification of &
accept your PR

(copies from your repo to my repo; you won't see/do these
steps for class but I'm showing for completeness)

cs531-f18/users at master · ph

GitHub, Inc. (US) https://github.com/ph... Search

Search or jump to... Pull requests Issues Marketplace Explore

Unwatch 2 Star 0 Fork 1

Code Issues 0 Pull requests 1 Projects 0 Wiki Insights Settings

Branch: master cs531-f18 / users / Create new file Upload files Find file History

phonedude Delete fake-odu-user ... Latest commit 9e18c42 18 minutes ago

"

mln added mln to users 3 hours ago

phonedude / cs531-f18



adding 1/README.md for mln x

Secure | https://github.com/phonedude/cs595-s22/pull/1

Michael

phonedude / cs595-s22 Public

Watch 1 Fork 2 Star 0

Code Issues Pull requests 1 Actions Projects Wiki Security Insights

adding 1/README.md for mln-test-user #1

Edit <> Code

Open mln-test-user wants to merge 1 commit into `phonedude:main` from `mln-test-user:main`

Conversation 0 Commits 1 Checks 0 Files changed 1 +1 -0

mln-test-user commented now

this is my demo of a PR from mln-test-user back to phonedude

-o adding 1/README.md for mln-test-user 4171250

Add more commits by pushing to the `main` branch on `mln-test-user/cs595-s22`.

Checking for ability to merge automatically... Hang in there while we check the branch's status.

Write Preview

Leave a comment

Reviewers
No reviews
Still in progress? Convert to draft

Assignees
No one assigned

Labels
None yet

Projects
None yet

Milestone
No milestone

Linked issues
Successfully merging this pull request may close

S22 ODU CS 495/595 Web Sec X git demo 1 for CS 495/595 Spr X Member List X Pull requests · phonedude/cs595-s22/pulls

https://github.com/phonedude/cs595-s22/pulls

Search or jump to... / Pull requests Issues Marketplace Explore

phonedude / cs595-s22 Public

Code Issues Pull requests 1 Actions Projects Wiki Security Insights Settings

Label issues and pull requests for new contributors Dismiss

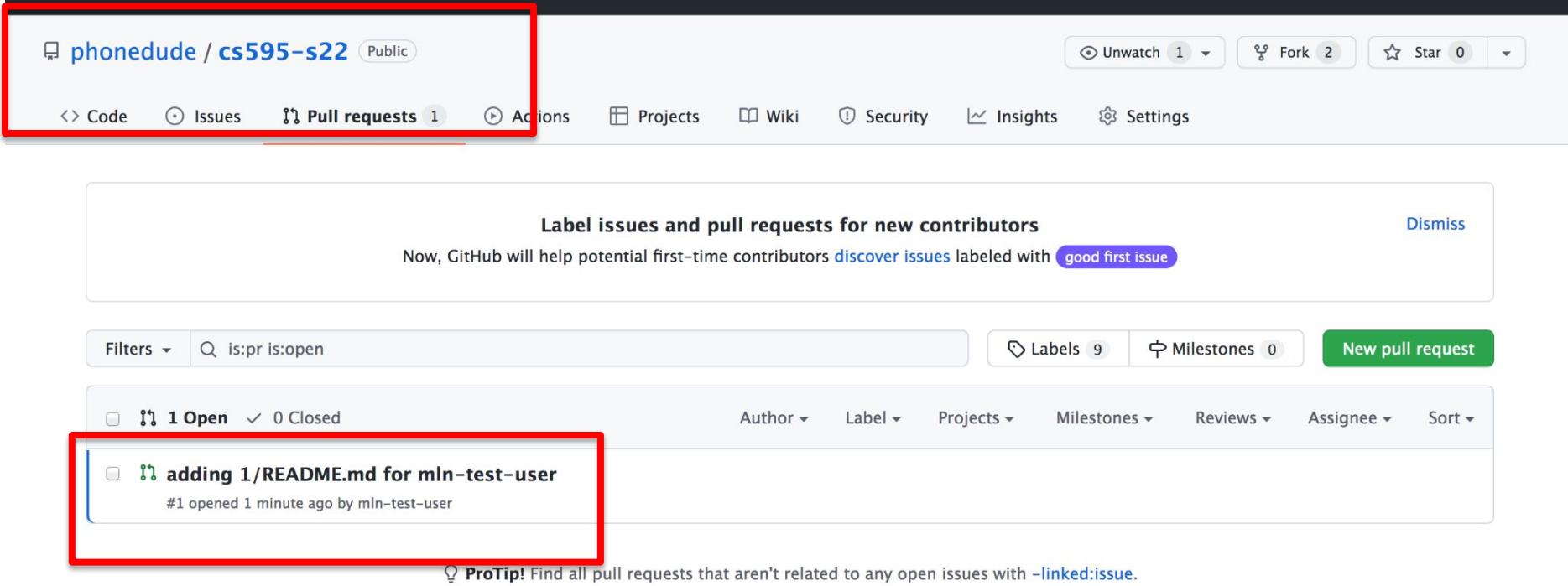
Now, GitHub will help potential first-time contributors [discover issues](#) labeled with [good first issue](#)

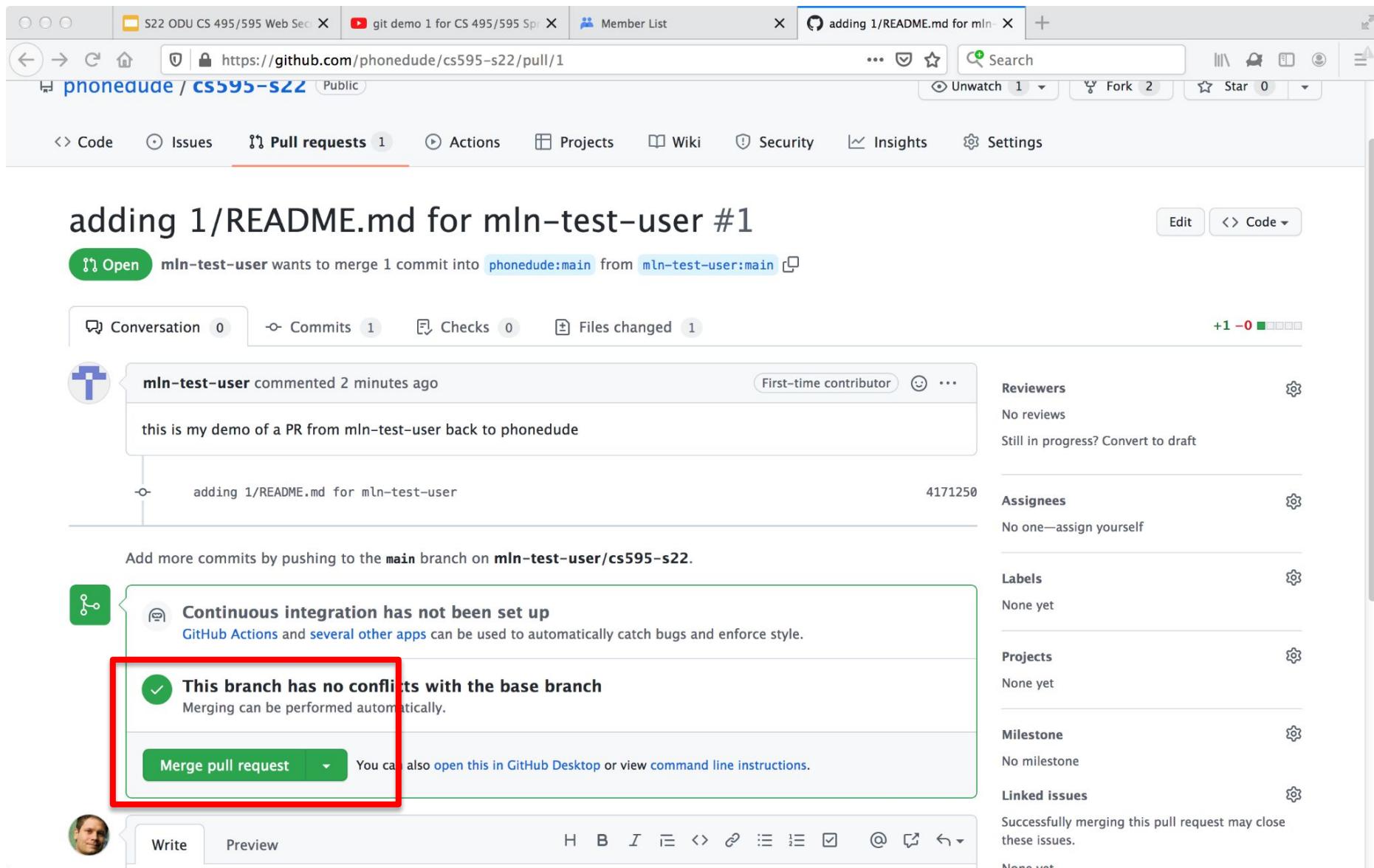
Filters is:pr is:open Labels 9 Milestones 0 New pull request

1 Open ✓ 0 Closed Author Label Projects Milestones Reviews Assignee Sort

adding 1/README.md for mln-test-user
#1 opened 1 minute ago by mln-test-user

ProTip! Find all pull requests that aren't related to any open issues with [-linked:issue](#).





S22 ODU CS 495/595 Web Sec X git demo 1 for CS 495/595 Sp X Member List X adding 1/README.md for mln- X +

← → ⌂ ⌂ https://github.com/phonedude/cs595-s22/pull/1 ... ⌂ Search ⌂ Unwatch 1 ⌂ Fork 2 ⌂ Star 0 ⌂

phonedude / cs595-s22 Public

Code Issues Pull requests 1 Actions Projects Wiki Security Insights Settings

adding 1/README.md for mln-test-user #1

Edit

Code ▾

Open mln-test-user wants to merge 1 commit into phonedude:main from mln-test-user:main

Conversation 0

Commits 1

Checks 0

Files changed 1

+1 -0



mln-test-user commented 2 minutes ago

First-time contributor



...

Reviewers



No reviews

Still in progress? Convert to draft

this is my demo of a PR from mln-test-user back to phonedude

-o adding 1/README.md for mln-test-user

4171250

Add more commits by pushing to the main branch on mln-test-user/cs595-s22.



Merge pull request #1 from mln-test-user/main

adding 1/README.md for mln-test-user

rhodewarriors@gmail.com

Choose which email address to associate with this commit

Confirm merge

Cancel

Assignees



No one—assign yourself

Labels



None yet

Projects



None yet

Milestone



No milestone

Linked issues



Successfully merging this pull request may close these issues.

None yet

S22 ODU CS 495/595 Web Sec X git demo 1 for CS 495/595 Spr X Member List adding 1/README.md for mln- X +

https://github.com/phonedude/cs595-s22/pull/1

Code Issues Pull requests Actions Projects Wiki Security Insights Settings

adding 1/README.md for mln-test-user #1

Merged phonedude merged 1 commit into phonedude:main from mln-test-user:main now

Conversation 0 Commits 1 Checks 0 Files changed 1 +1 -0

mln-test-user commented 2 minutes ago
this is my demo of a PR from mln-test-user back to phonedude

adding 1/README.md for mln-test-user 4171250

phonedude merged commit f90aab9 into phonedude:main now Revert

Write Preview

Leave a comment

Attach files by dragging & dropping, selecting or pasting them.

Comment

Reviewers No reviews

Assignees No one—assign yourself

Labels None yet

Projects None yet

Milestone No milestone

Linked issues Successfully merging this pull request may close these issues.

None yet

Notifications Customize

Unsubscribe

S22 ODU CS 495/595 Web Sec | git demo 1 for CS 495/595 Spr | Member List | cs595-s22/assignments at main

<https://github.com/phonedude/cs595-s22/tree/main/assignments>

Search or jump to... Pull requests Issues Marketplace Explore

phonedude / cs595-s22 (Public)

Code Issues Pull requests Actions Projects Wiki Security Insights Settings

main cs595-s22 / assignments / Go to file Add file ...

phonedude Merge pull request #1 from mln-test-user/main ... f90aab9 32 seconds ago History

..

Nelson/1 fixed Nelson/1 1 hour ago

mln-test-user/1 adding 1/README.md for mln-test-user 20 minutes ago

assignment-1.md week 1 materials 3 days ago

assignment-2.md week 1 materials 3 days ago

main

cs595-s22 / assignments /

Go to file Add file ...

phonedude Merge pull request #1 from mln-test-user/main ... f90aab9 32 seconds ago History

..

Nelson/1 fixed Nelson/1 1 hour ago

mln-test-user/1 adding 1/README.md for mln-test-user 20 minutes ago

assignment-1.md week 1 materials 3 days ago

assignment-2.md week 1 materials 3 days ago

S22 ODU CS 495/595 Web Sec X git demo 1 for CS 495/595 Sp X Member List X cs595-s22/assignments/mln-t X +

https://github.com/phonedude/cs595-s22/tree/main/assignments/mln-test-user/1 ... Search

Search or jump to... / Pull requests Issues Marketplace Explore

phonedude / cs595-s22 Public Unwatch 1 Fork 2 Star 0

Code Issues Pull requests Actions Projects Wiki Security Insights Settings

main cs595-s22 / assignments / mln-test-user / 1 / Go to file Add file ...

Michael Nelson adding 1/README.md for mln-test-user 4171250 20 minutes ago History

..

README.md adding 1/README.md for mln-test-user 20 minutes ago

README.md

hello world

Pulling from my repo to my laptop

(again, including for completeness)

```
$ git pull origin main
remote: Enumerating objects: 16, done.
remote: Counting objects: 100% (16/16), done.
remote: Compressing objects: 100% (7/7), done.
remote: Total 12 (delta 6), reused 6 (delta 2), pack-reused 0
Unpacking objects: 100% (12/12), done.
From https://github.com/phonedude/cs595-s22
 * branch            main      -> FETCH_HEAD
   a4b9293..f90aab9  main      -> origin/main
Updating a4b9293..f90aab9
Fast-forward
  assignments/README.md          | 14 -----
  assignments/mln-test-user/1/README.md | 1 +
2 files changed, 1 insertion(+), 14 deletions(-)
 delete mode 100644 assignments/README.md
 create mode 100644 assignments/mln-test-user/1/README.md
$ ls
Nelson      assignment-1.md      assignment-2.md      mln-test-user
$ ls -R mln-test-user/
1

mln-test-user//1:
README.md
```

For next time

- Create accounts:
 - github.com
 - youtube.com
 - twitter.com
 - I'll send to the class email list some recommended InfoSec / Web accounts to follow
 - start quote tweeting with #cs595s22
- Fork the class repository
 - open an issue ("hello world" & introduce yourself) on my repository to let me know that you've forked the class repo
- Begin working on Assignment 1