

# Web Applications

The background of the slide features a large, golden-colored United Nations logo. The logo consists of a central map of the world, surrounded by a grid of latitude and longitude lines, all enclosed within a laurel wreath. The entire logo is set against a dark blue, textured background.

Chris Piech

CS 106B  
Lecture 23  
Mar 7, 2016

# Final Info

CS106B

Lectures ▾

Handouts ▾

Assignments ▾

Sections ▾

Tools ▾



Overview

## Final Info

MARCH 5RD, 2016

**Heads up:** This handout will be updated over the next week as we release more material.


## Logistics


The CS106B Final is Monday March 14th from 8:30am to 11:30am. If you require OAE accommodations, you should email Megan by Thursday at 12pm with your availability and the accommodations you require. If you haven't already sent her your OAE documentation, please attach that to the email.

The exam is open book, open notes, closed computer.

### Final

 Mon, Mar 14th

 8:30-11:30am

 By last name

## Topics

The final covers the material presented in class from the start of class through the lecture on Friday, March 4th. Specifically you will be responsible for:

1. Functions and Pass by Reference
2. Use of Collections
3. Recursion
4. Recursive Exploration and Backtracking



# Final Practice Sitting

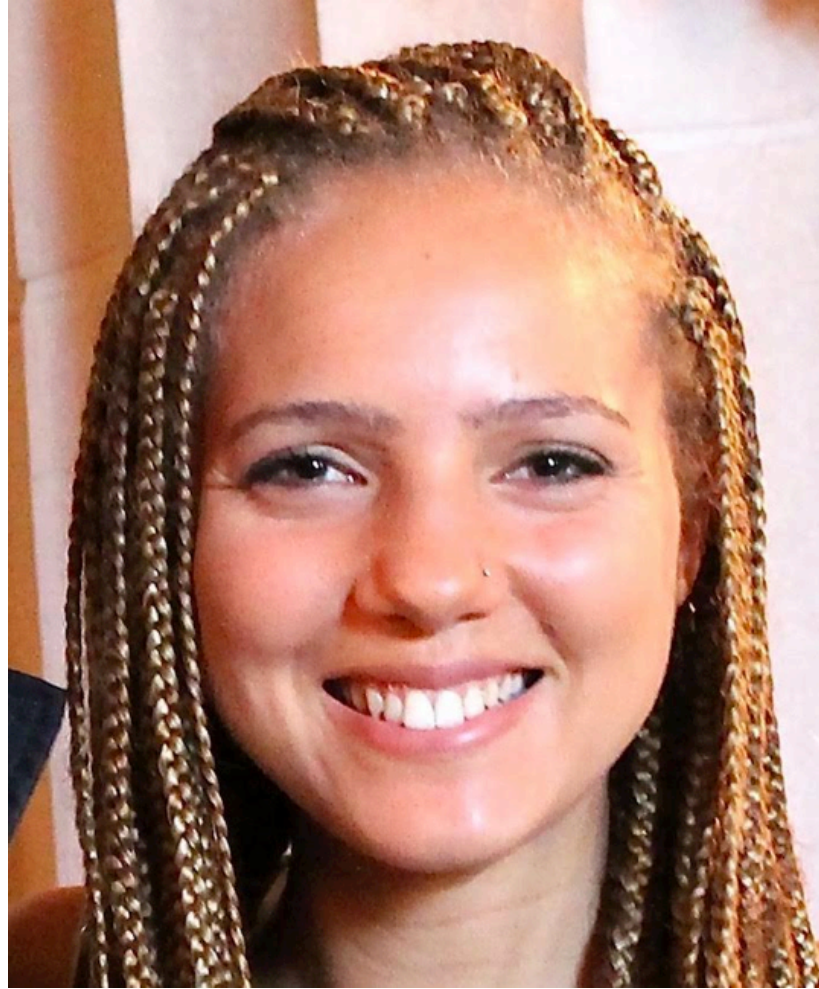
**Test Prep Fun!**



**Yeah...You  
Read That  
Right.**



# Thanks Megan





# What are We Gonna Do?

1. Multilingualism

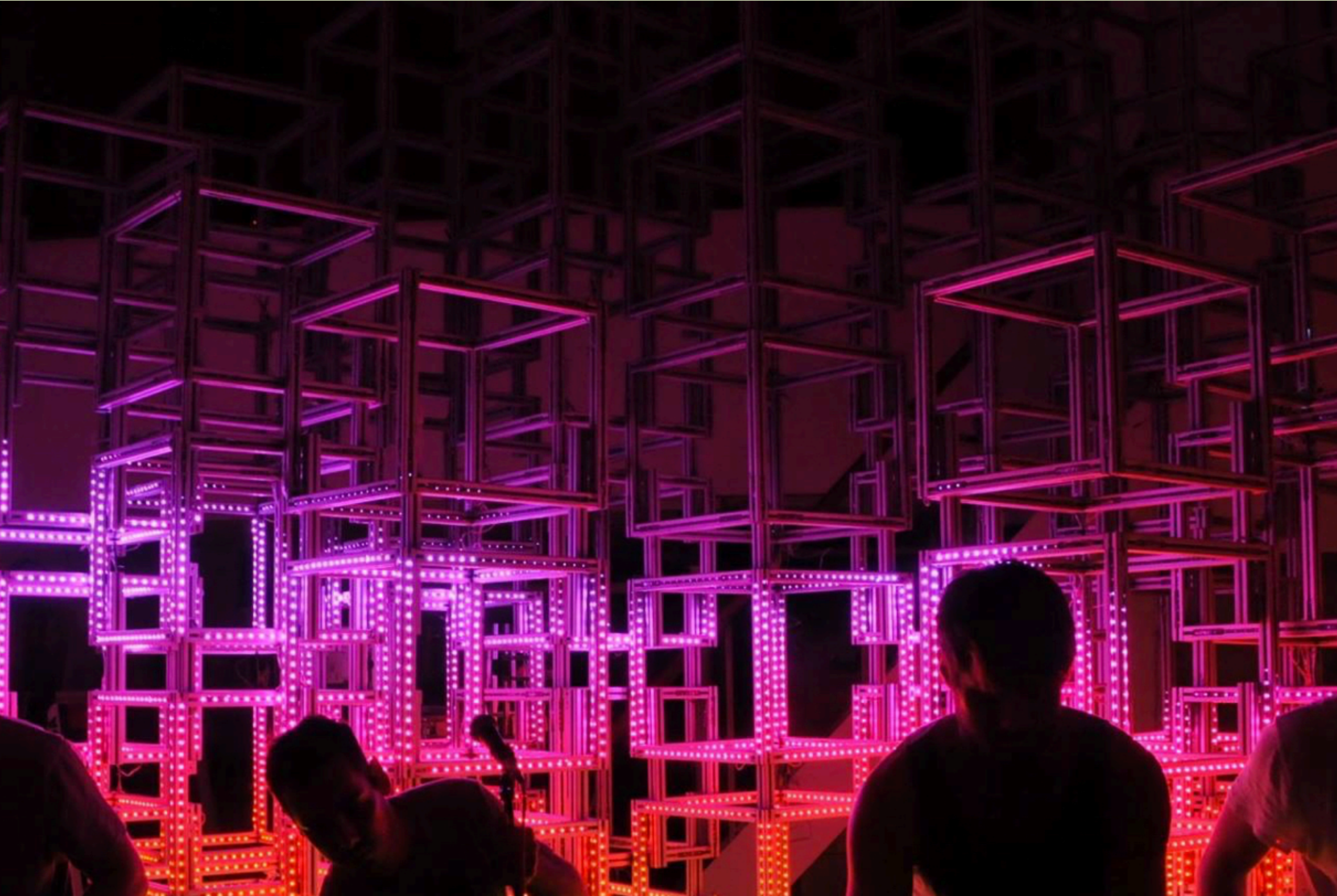
2. Real C++

3. What was CS106B and what is next?

Not inheritance



# Special Guest Tomorrow



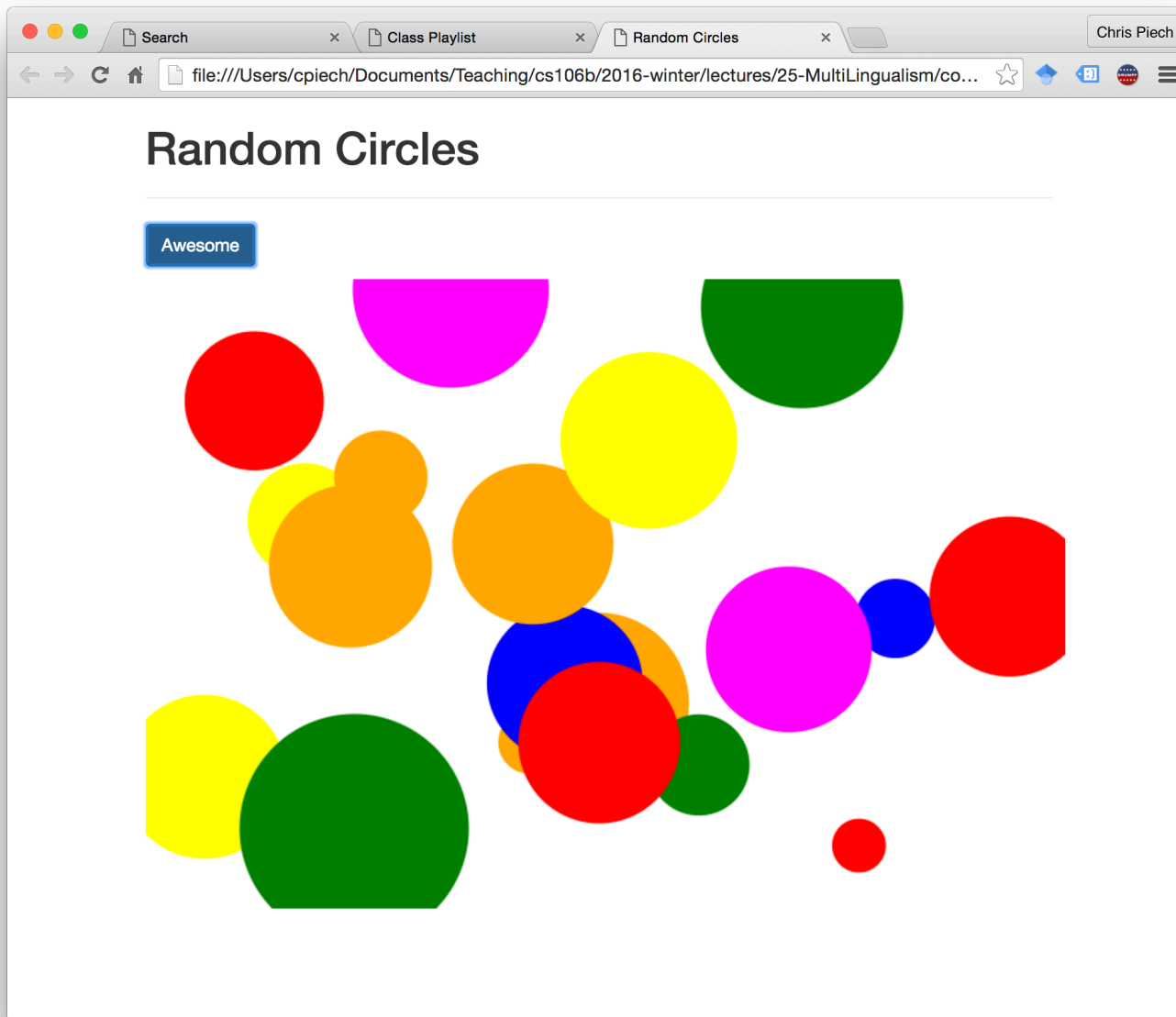
# Today's Goal

1. Multilingualism
2. How the web works
3. Javascript Ideas





# Program #1 Random Circles



# Program #2 Breadth First Search

Search

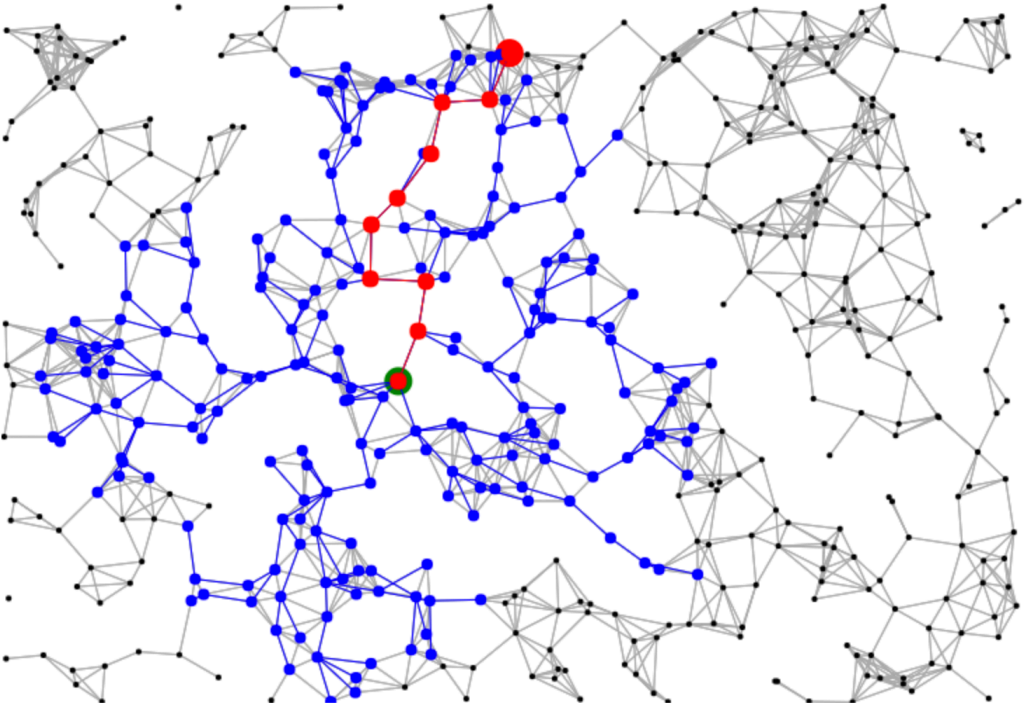
Class Playlist Random Circles

file:///Users/cpiech/Documents/Teaching/cs106b/2016-winter/lectures/25-MultiLingualism/co...

Chris Piech

## Search

Breadth First



Path hops: 10



# Program #3 Class Playlist

Search x Class Playlist x Random Circles x Chris Piech





file:///Users/cpiech/Documents/Teaching/cs106b/2016-winter/lectures/25-MultiLingualism/co...

## Class Playlist

Artist  Song Name

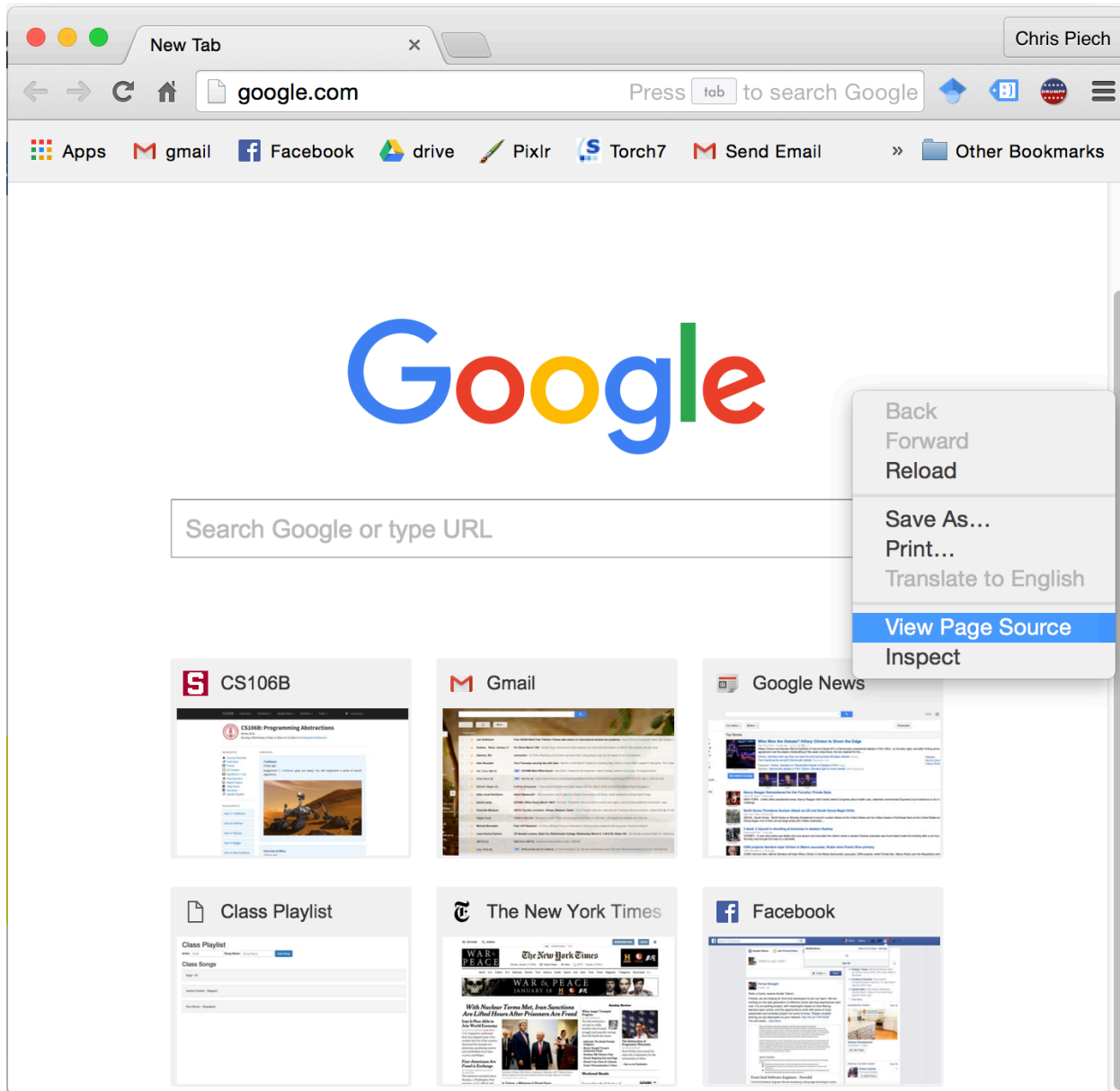
---

## Class Songs

-  Free - All Right Now
-  Aretha Franklin - Respect
-  Kygo - Id
-  Paul Simon - Graceland

Website Programs?

# JavaScript, Language of the Web



# JavaScript is Not Java



JavaScript





# Differences with C++

Works with HTML

No variable types

Not compiled

int division is changed

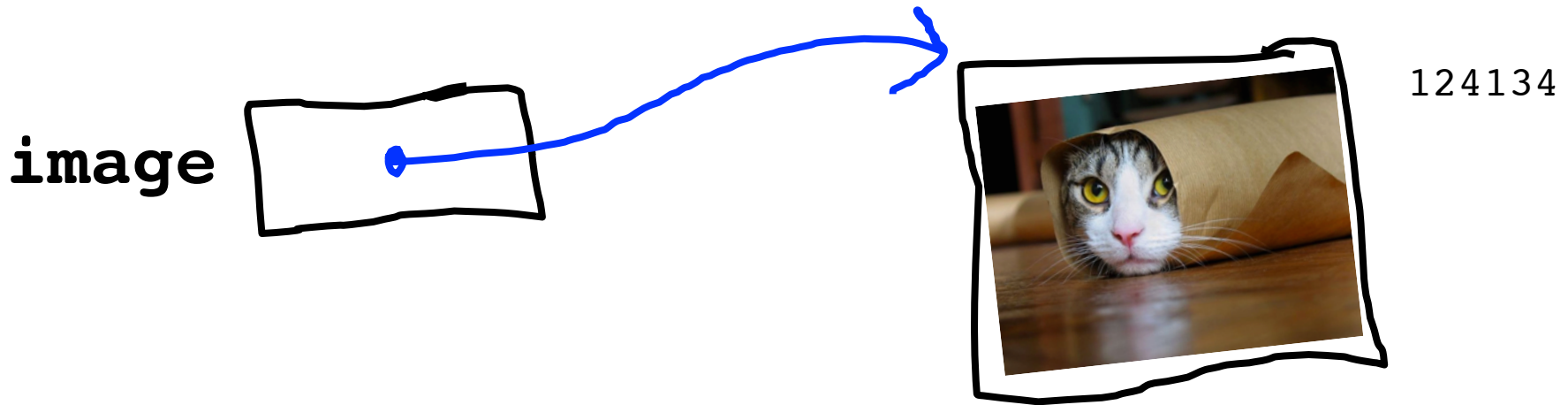
Maps, Vectors and  
Functions are first  
class types

No pause

Beyond CS106B:

Anonymous functions

# Pointers and Pass by Reference?



Numbers passed by value.  
Everything else passed by reference

Written in 10 days



Brendan Eich

# Cover Syntax

let me  that for you

how to create a set in javascript

Google Search

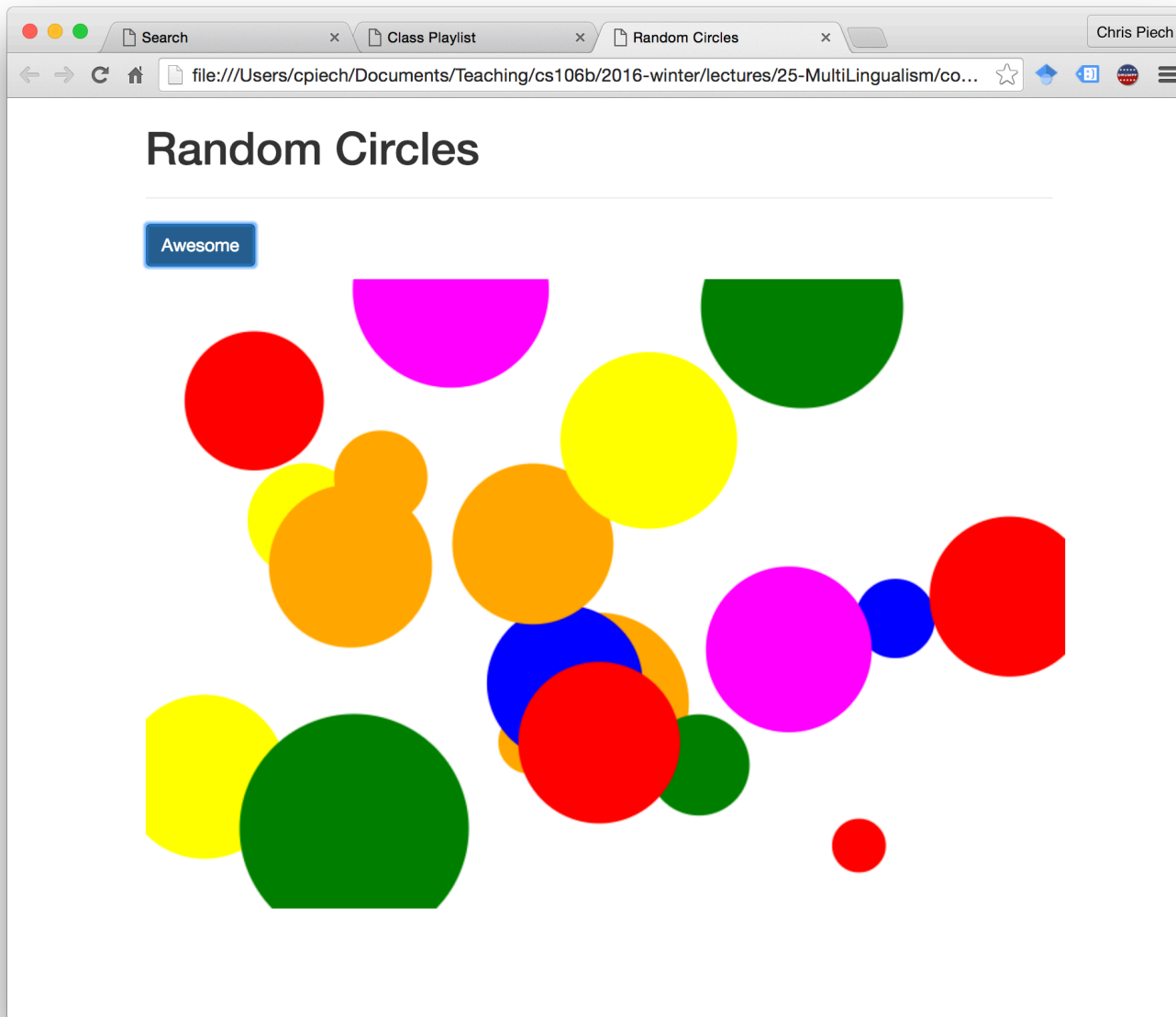
I'm Feeling Lucky

But its not the point of today



Lets give it a try!

# Program #1 Random Circles



Elementary my dear Chris

# Program #2 Breadth First Search

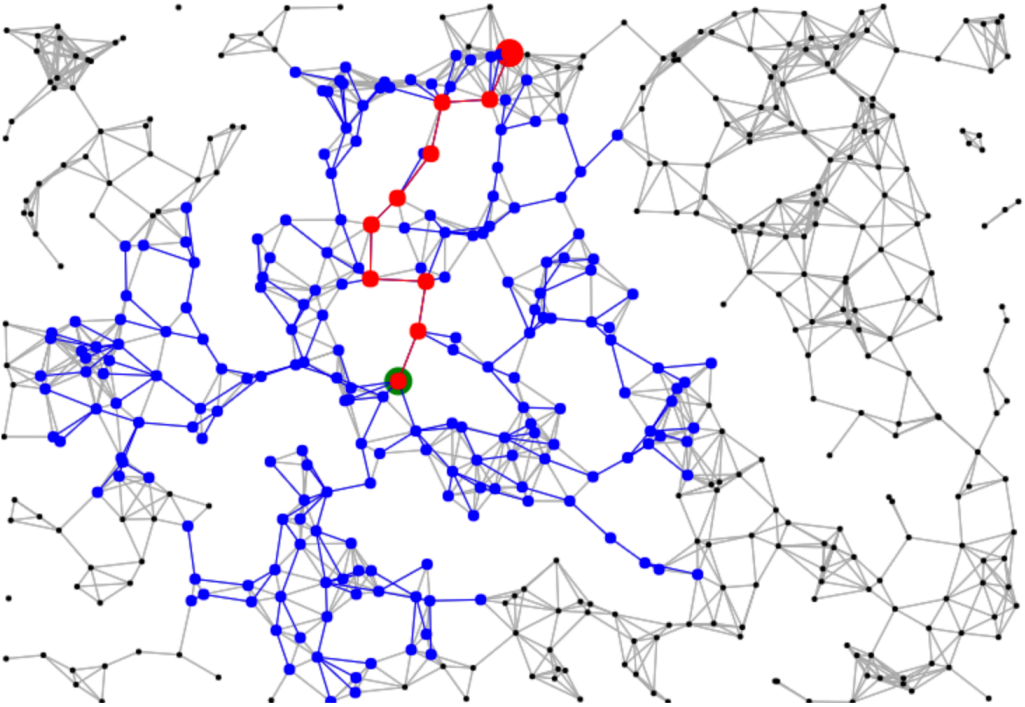
Search

Class Playlist Random Circles Chris Piech

file:///Users/cpiech/Documents/Teaching/cs106b/2016-winter/lectures/25-MultiLingualism/co...

**Search**

Breadth First



Path hops: 10



Is anything *really* different?

# Program #3 Class Playlist

Search Class Playlist Random Circles Chris Piech


file:///Users/cpiech/Documents/Teaching/cs106b/2016-winter/lectures/25-MultiLingualism/co...


## Class Playlist


Artist  Song Name


---

## Class Songs

 Free - All Right Now

 Aretha Franklin - Respect

 Kygo - Id

 Paul Simon - Graceland

# When You Navigate to a Website



Facebook.com

<http://facebook.com>

# Web Applications



Facebook.com

# Web Applications



Probably in Greenland  
or something

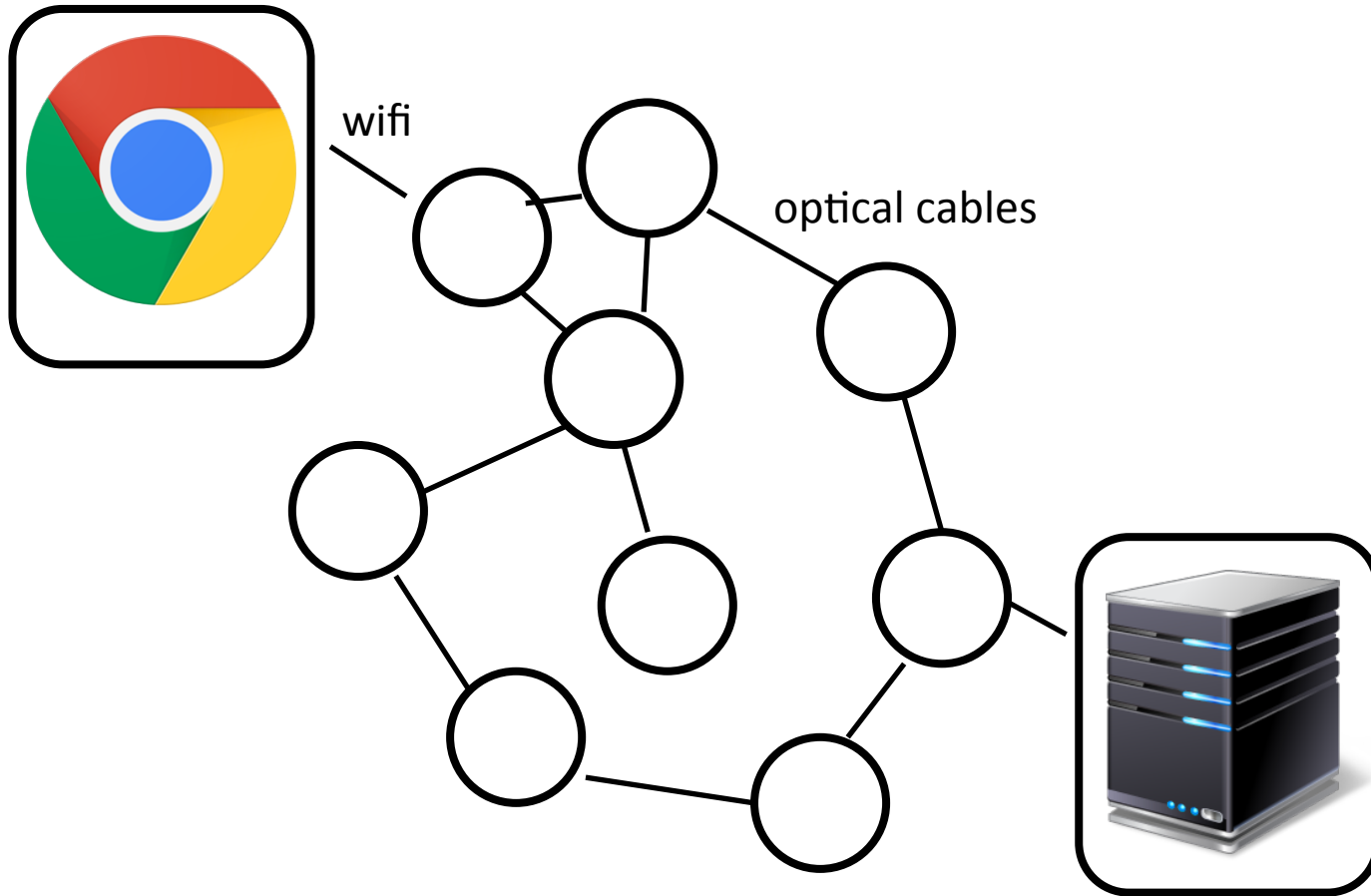


Facebook.com

128.234.233.442



# Web Applications



Facebook.com

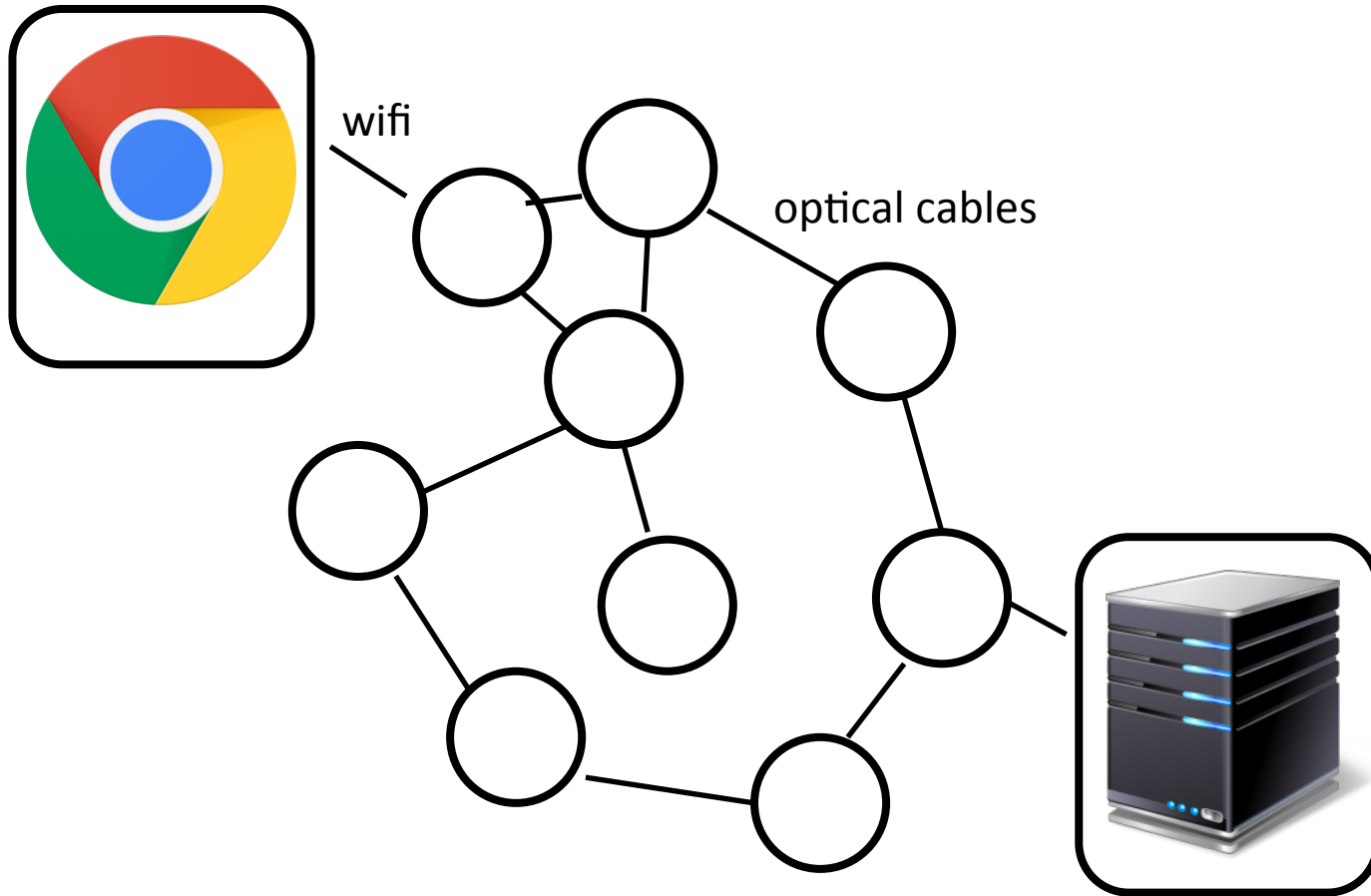
128.234.233.442

Each router has run a search algorithm

Dijkstra? BFS? A-Star?

Dijkstra

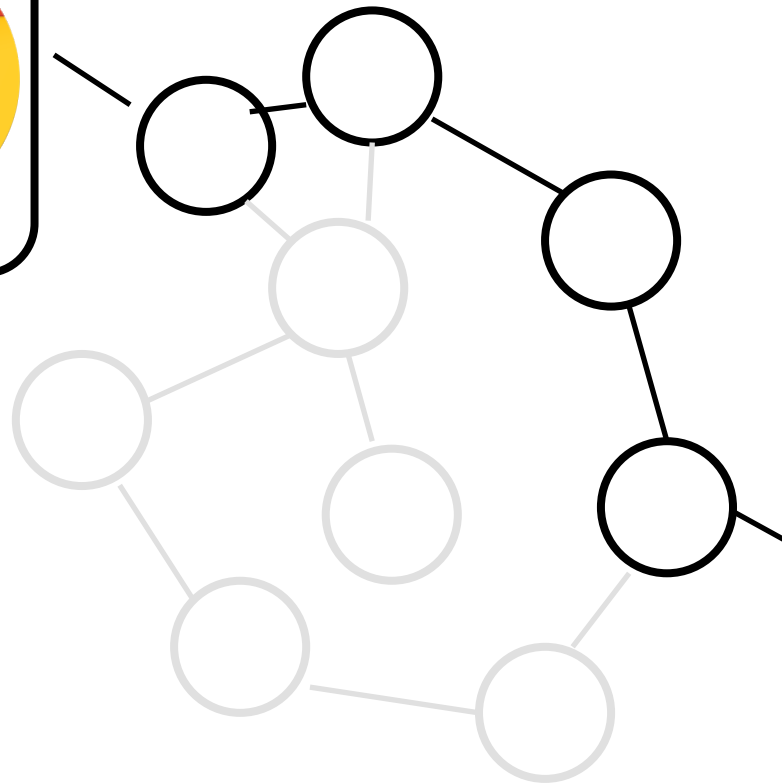
# Web Applications



Facebook.com

128.234.233.442

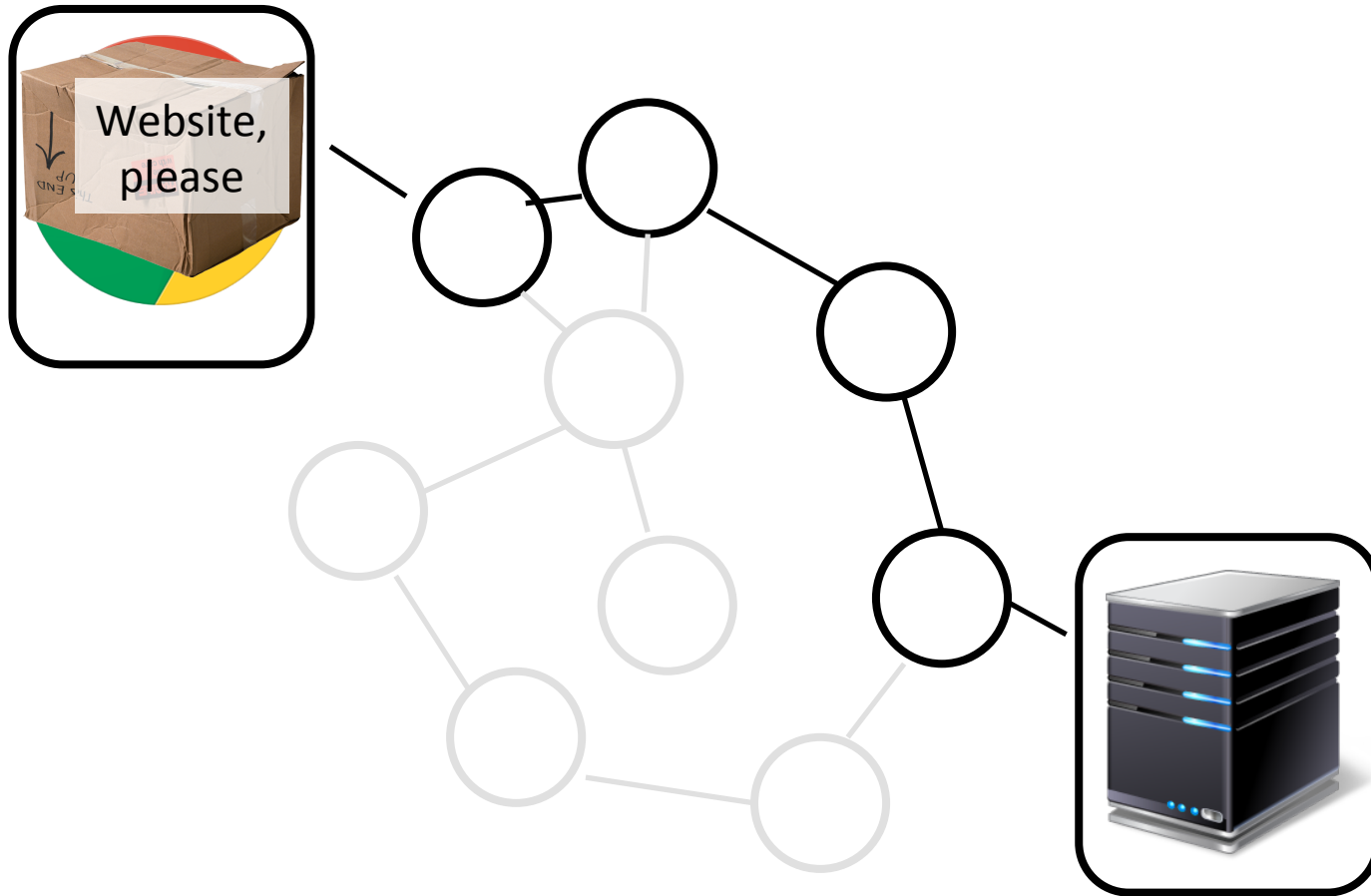
# Web Applications



Facebook.com

128.234.233.442

# Web Applications

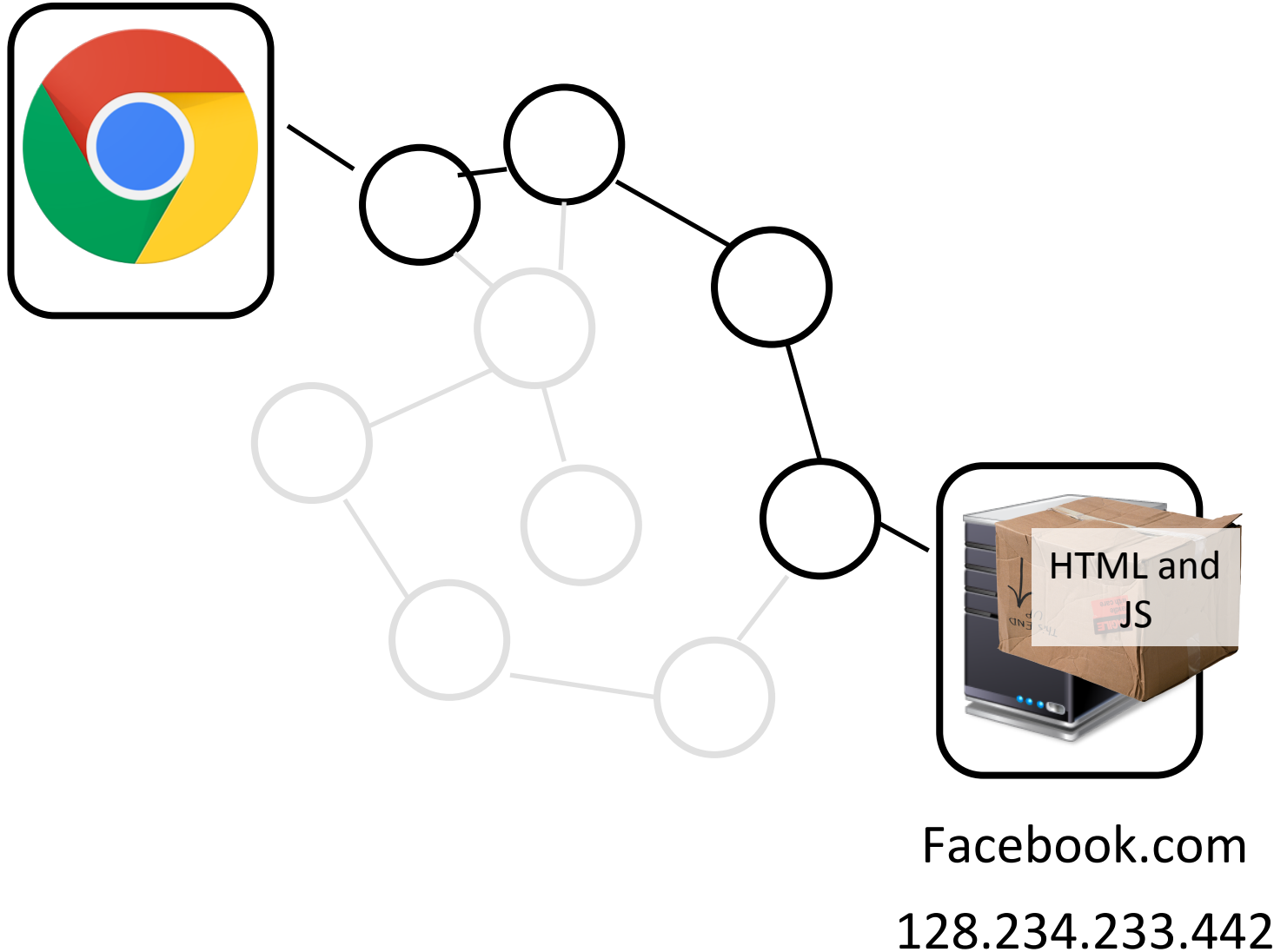


Facebook.com

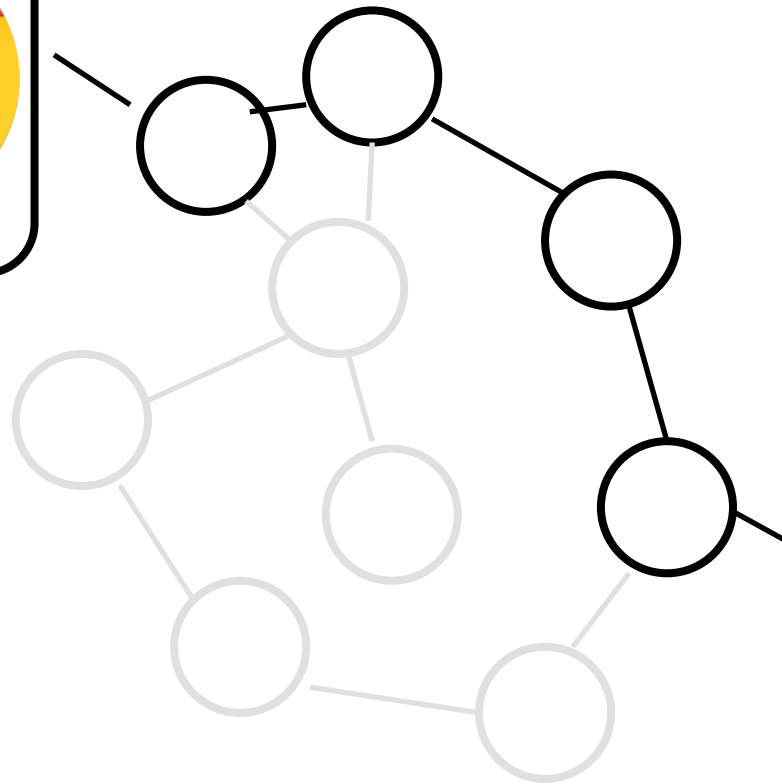
128.234.233.442



# Web Applications



# Web Applications



Facebook.com

128.234.233.442

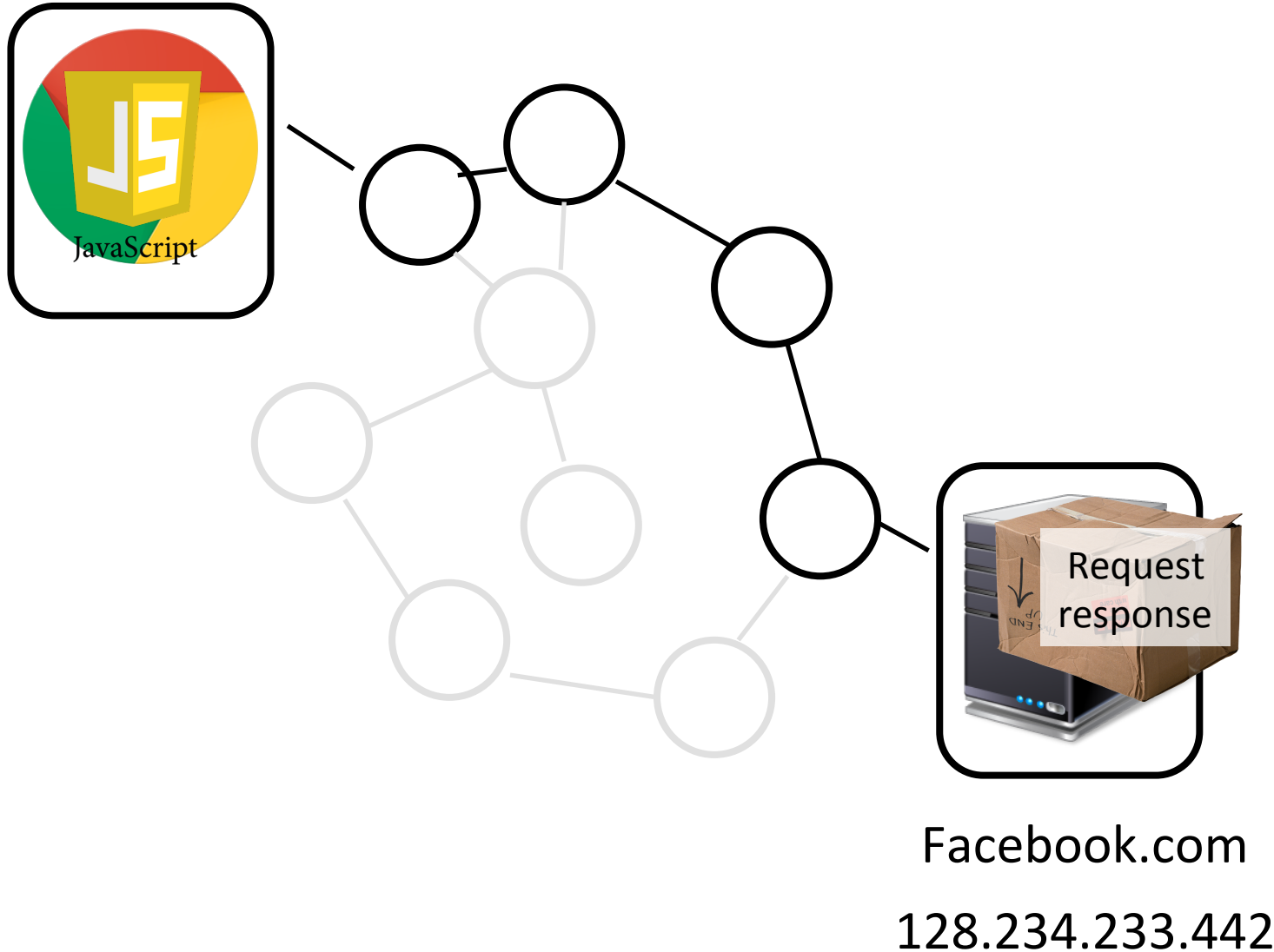
# Web Applications



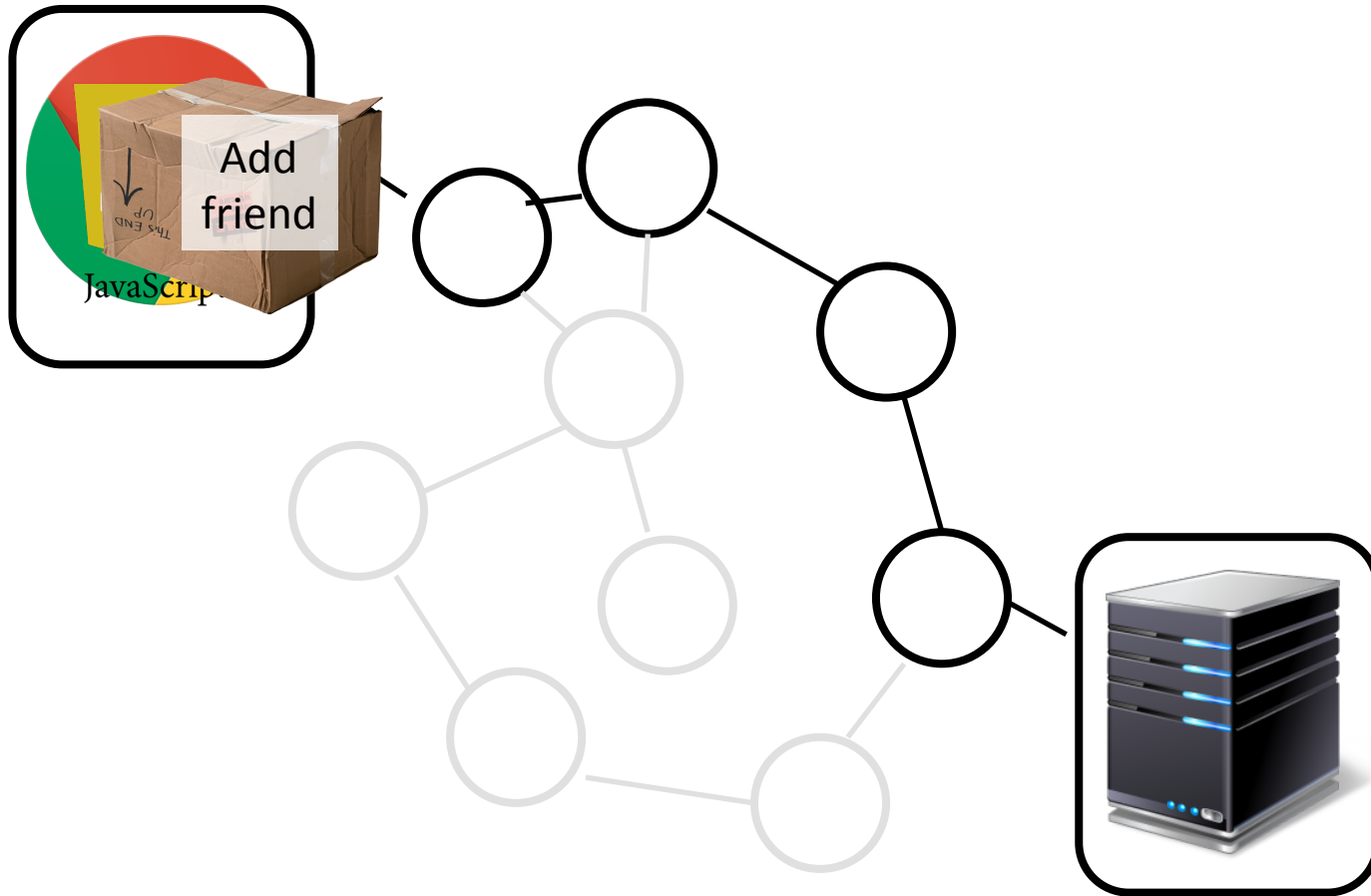
Facebook.com

128.234.233.442

# Server Data Requests



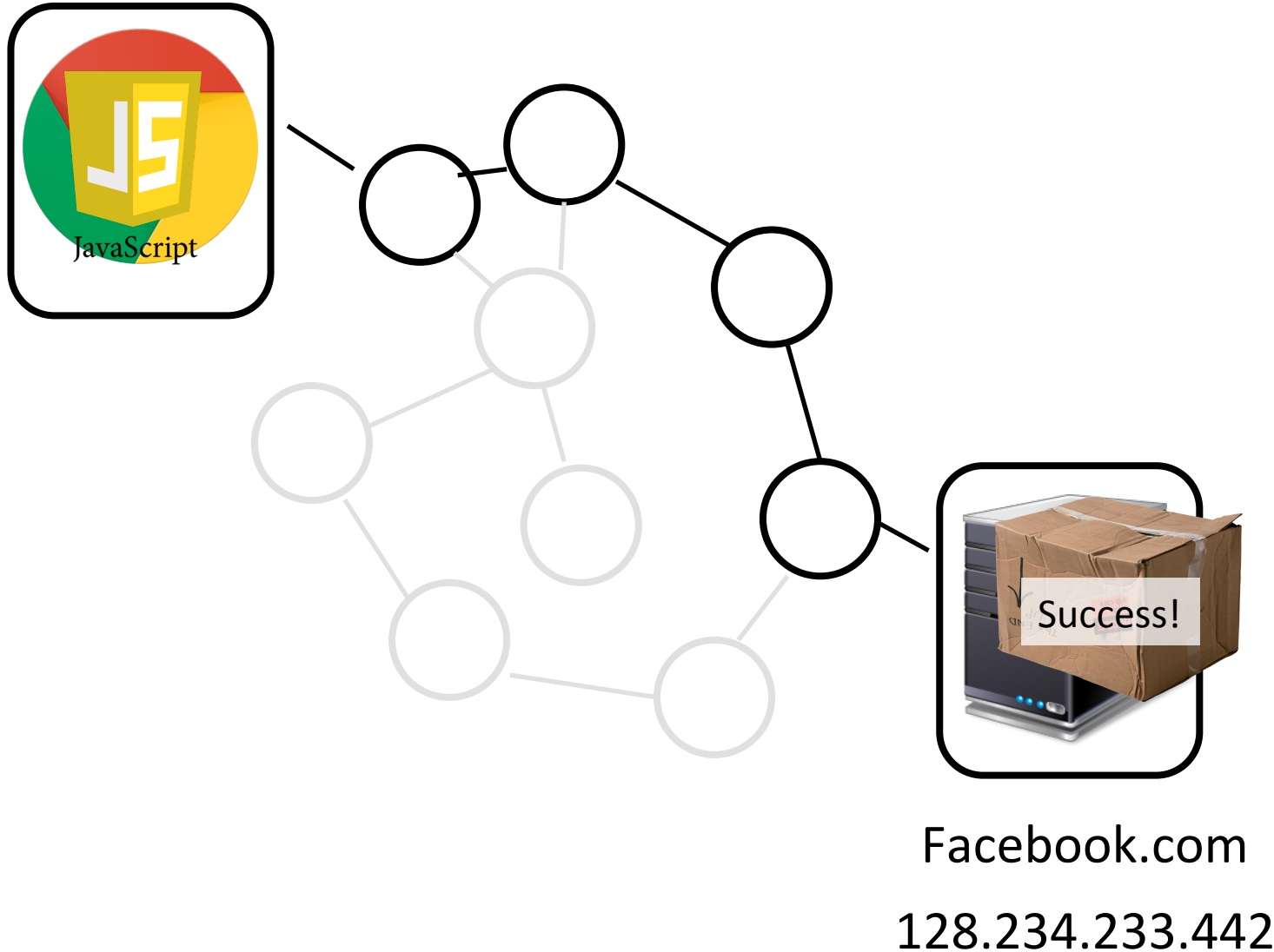
# Web Applications



Facebook.com

128.234.233.442

# Web Applications



# You Write Two Programs

Client code



JavaScript

Server code





# Program #3 Class Playlist

Search Class Playlist Random Circles Chris Piech


file:///Users/cpiech/Documents/Teaching/cs106b/2016-winter/lectures/25-MultiLingualism/co...


## Class Playlist


Artist  Song Name


---

## Class Songs

 Free - All Right Now

 Aretha Franklin - Respect

 Kygo - Id

 Paul Simon - Graceland

<http://localhost:8888/getSongs>

This is a public request



<http://localhost:8888/getSongs>

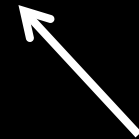


[http://localhost:8888/addSong?  
artist=kygo&songName=id](http://localhost:8888/addSong?artist=kygo&songName=id)

http://localhost:8888/addSong?  
artist=kygo&songName=id

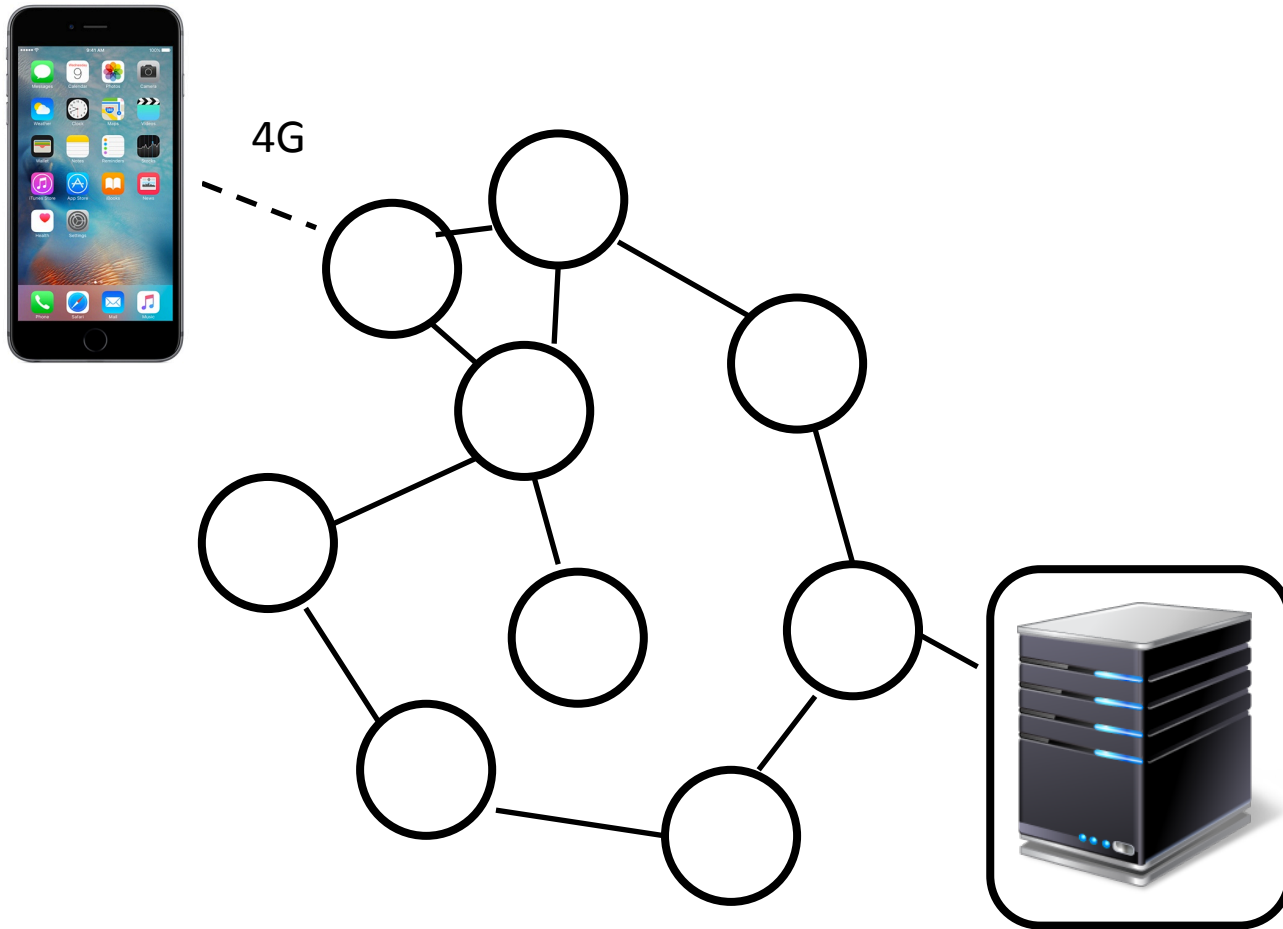


put desired artist here



put desired  
songName here

# Paradigm Applies to Mobile Too



Facebook.com

128.234.233.442

# Program #3 Class Playlist

Search Class Playlist Random Circles Chris Piech


file:///Users/cpiech/Documents/Teaching/cs106b/2016-winter/lectures/25-MultiLingualism/co...


## Class Playlist


Artist  Song Name


---

## Class Songs

 Free - All Right Now

 Aretha Franklin - Respect

 Kygo - Id

 Paul Simon - Graceland



You can learn any language you want

# Today's Goal

1. Multilingualism
2. How the web works
3. Javascript Ideas



# Learn JavaScript

CS42

Learn on  
your own

You have free website space at Stanford