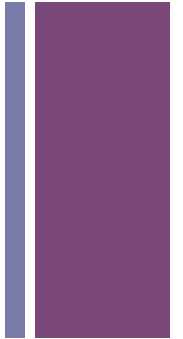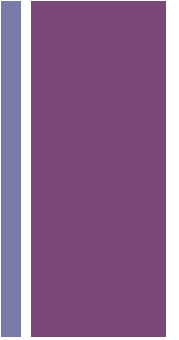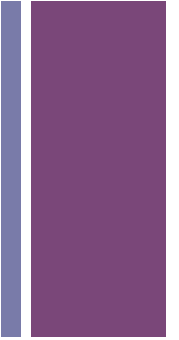# Web Architecture

Jacob Portnoff

+ Agenda

- Background

- Howdyai Botkit
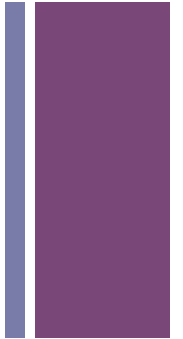
- Bookmarklets

- Web Scraping

+ Background

- Pittsburgh, PA native

- Carnegie Mellon University

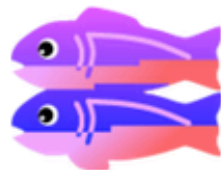- US Army

- UC Berkeley – I School

- Voise

Howdyai

- howdy.ai is a 2015 startup

- They make bots and tools to make bots

- One of the most popular open-source toolkits for making bots

- Integrated with slack

+ Botkit

- botkit.ai is howdyai's open-source toolkit

- It works with a lot of different services

- Runs on Node.js

# + Chatbots online

- Popular means of engaging customers on websites

- Mostly handled by simple bots and human customer service representatives

- Google, Apple, Facebook, and Amazon have built 'personal assistants'

Node.js

- Open-source, cross-platform JavaScript run-time environment

- Created in 2009 by Ryan Dahl

- JavaScript normally only works client-side but Node.js operates server-side
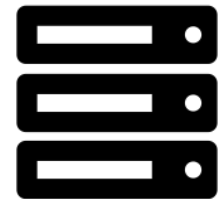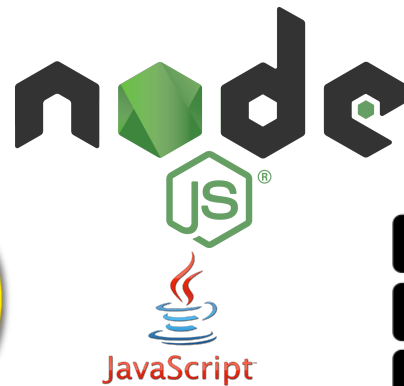
Node.js
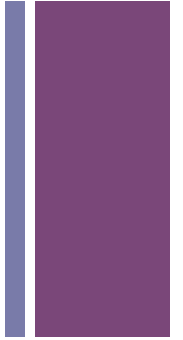
- Download latest stable version
  - https://nodejs.org/en/

- Command: npm –version
  - Ensures node package manager is installed correctly

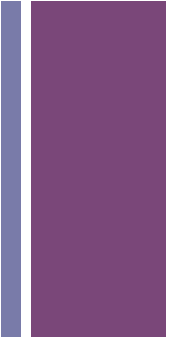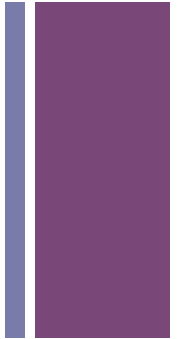# + Slack bots

- Slack allows bots for a variety of purposes

- Handle mundane tasks, personal assistants, etc

+ Setting up botkit

1. Install node.js (get one recommended for most users)
   1. https://nodejs.org/en/

2. Install botkit
   1. https://github.com/howdyai/botkit
   2. Git clone or download and unzip

3. Use command line to cd to botkit directory, use node package manager to install basics
   1. cd botkit-master
   2. npm install
   3. npm test

4. On slack, create a new bot (I haven't been able to test this on the ischool slack, but it should work fine)
   1. https://my.slack.com/services/new/bot
   2. Add a name to your slack bot
   3. Get token
   4. Run from command line, replace MY_TOKEN: token=<MY_TOKEN> node examples/slack_bot.js

5. On slack, under Apps, search for your bot name and load the bot
   1. Your bot should be online and available, write 'Hi' and get a response

+ Creating slack bot

- Create a botkit controller

- Setup the node.js webserver

- Create controller.hears elements

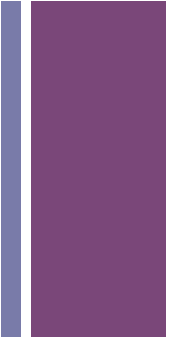- Run from command line
  - ./node web_arch_bot.js

+ Creating slackbot con't

```
var Botkit = require('botkit');

var controller = Botkit.slackbot({
  clientId: process.env.clientId,
  clientSecret: process.env.clientSecret,
  studio_token: process.env.studio_token,
});
```
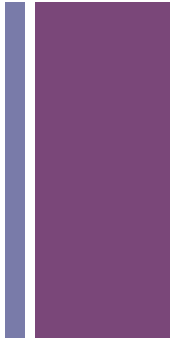
+ Creating slackbot con't

```
controller.setupWebserver(process.env.port,function(err,webserver) {
    controller.createWebhookEndpoints(controller.webserver);
    controller.createOauthEndpoints(controller.webserver);
});
```

+ Creating slackbot con't

```javascript
controller.hears('hello','direct_mention,direct_message', function(bot, message) {
  bot.reply(message,'Howdy!');
});

controller.hears('tacos','direct_mention,direct_message', function(bot, message) {
  bot.startConversation(message, function(err, convo) {
    convo.say('Oh boy, taco time!');
    convo.ask('What type of taco do you want?', function(answer, convo) {
      var taco_type = answer.text;
      // do something with this answer!
      // storeTacoType(convo.context.user, taco_type);
      convo.say('YUMMMM!!!'); // add another reply
      convo.next(); // continue with conversation
    });
  });
});
```
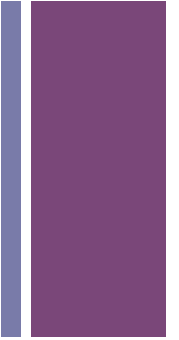
In class botkit assignment

- Sometimes school is hard and you need a good excuse.

- Create the basis for a slack bot that when you ask it for an excuse, it randomly generates one for you

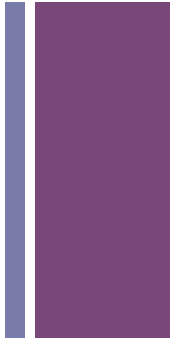- If you ask it for 'help' it generates an excuse.

+ Bookmarklets

- A small software application stored as a bookmark in a web browser, which typically allows a user to interact with the currently loaded web page in some way.
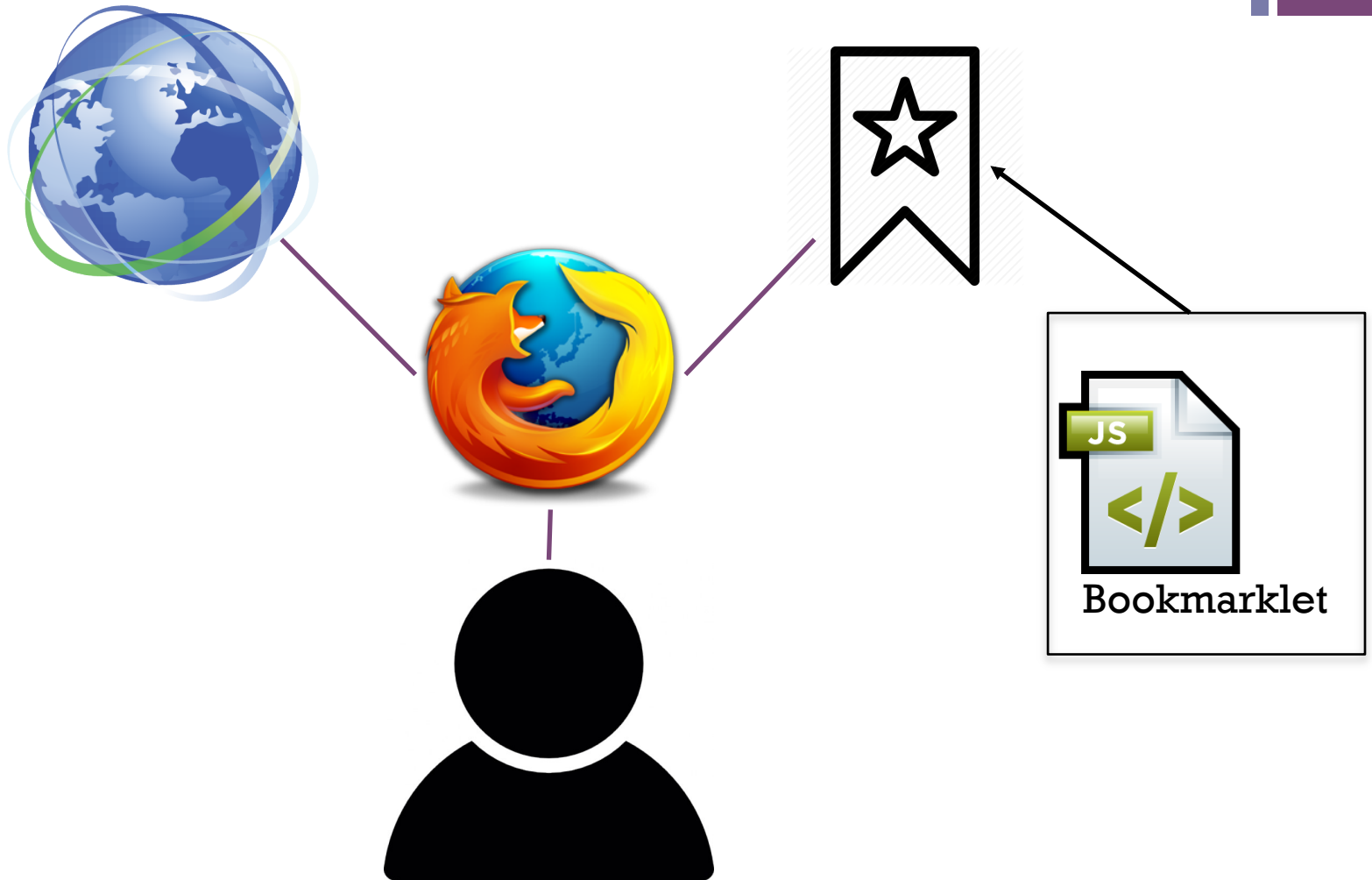
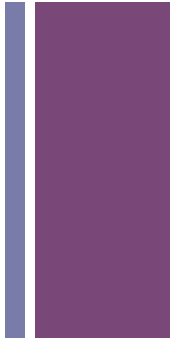- Largely written in JavaScript

+ Pinterest

- Founded in 2009, it makes use of "Pin it" button

- Ease of use, good marketing, and simple technology made it a success

Bookmarklet Essentials

+ Bookmarklet Examples

- Bookmarklets can be standalone
  - Layout Grid
  - Better Readability
  - https://www.hongkiat.com/blog/100-useful-bookmarklets-for-better-productivity-ultimate-list/

- They can also be associated with an outside web service or site
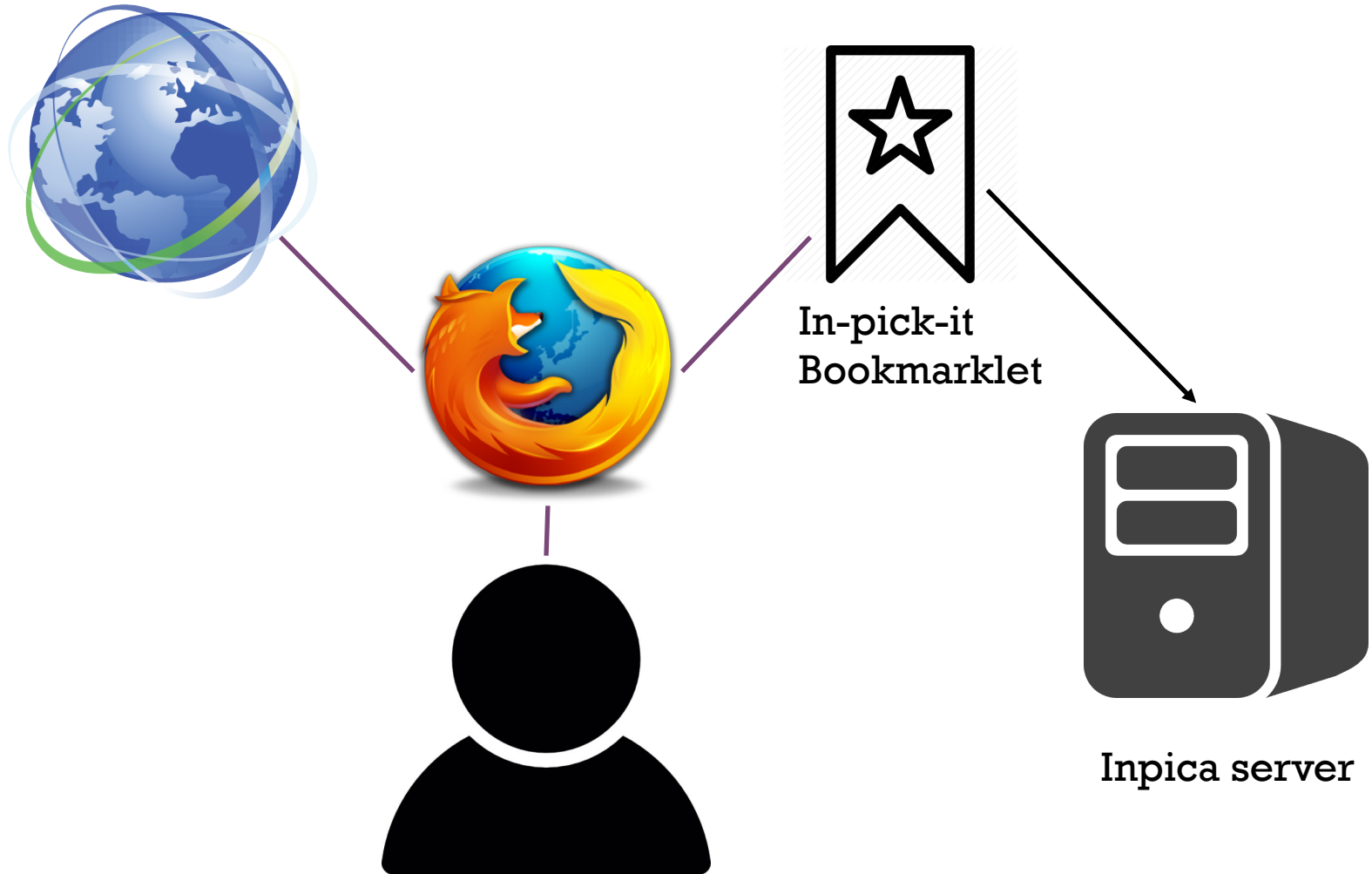 - Pintrest
  - Facebook
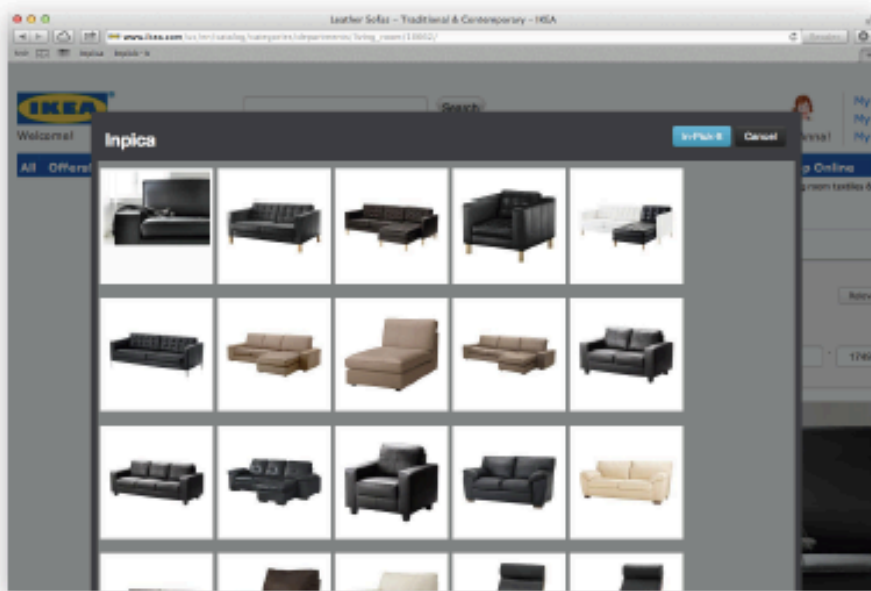
In-Pick-It Example

- Designed by my I School Final Project team: Arian Shams, Gaurav Shetti, Naila Alkhalawi, and myself

- Patent accepted: May 31, 2016

- Our bookmarklet allowed gathering of product data by many people for one project

+ Inpica

In-pick-it
Bookmarklet

Inpica server

+ Inpica, con't
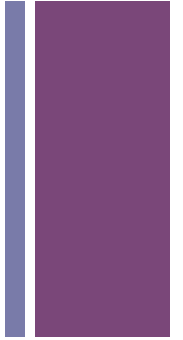
+ Bookmarklet Building
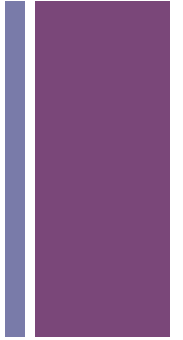
- javascript:(function(){// your code here })();

- Try to build something that will work on 100% of websites
  - Avoid looking for tag ids/names unless necessary

- If you need libraries, you'll have to append them in your bookmarklet

- Remember DOM basics on ordering and arrangement if overlaying

+ Bookmarklet In Class Assignment

- javascript:(function(){// your code here })();

- Your goal is to append or edit the website

- In honor of your teacher, take 15 minutes to work on building a bookmarklet that places his picture front and center of a website and grays out the rest

+ When to use Bookmarklets

Individual	Company
■ When you don't have lots of bookmarks!	■ When you want to provide a service off the websites you control
■ To take actions on websites you can't control	■ When the service is desired on websites that you cannot coerce/cajole into accepting your code
■ To provide convenience while browsing the web	■ To provide customers with functionality on websites you can't control

+ Bookmarklet Tips

- Different browsers behave differently!

- Be careful with outside bookmarklets; it could be malicious code

- Be careful with including libraries; conflicts are possible depending on the website

- Recognize that your 'unique' code is visible