# Web Development
# Module Review

12 Topics – one topic per week

Each Topic builds on concepts, tools and techniques from previous weeks.

### 1: Introducing HTML

web · client/server · browser · html · documents · elements · attributes · links ·images · nesting · block · inline

### 2: Introducing CSS

markup · style · function· stylesheet · rules · selectors · declarations· properties · values · classes · ids · inheritance

### 3: The Box Model

top margin
top border
top padding
left padding | Content | right padding
left border | | right border
left margin | | right margin
bottom padding
bottom border
bottom margin

content · padding · border · margin · style · width · colour · dom · layout · float · left · right

### 4: Navigation

html versions · header · main · nav · primary · secondary · footer · semantic elements · html style guide

### 5: HTML Templates

servers · hosting · deployment · dns · local server · dry · template engine · ejs · partials · layouts

### 6: CSS Frameworks

review · bootstrap · semantic ui · container · segment · grid · stackable · tables · icons · images · row · col

### 7: Applications

sites · apps · frameworks · command line · ide · java · request · response · front-end · back-end

### 8: Model View Controller

model · view · controller · config · template · layout · database · table · entity · onetomany

### 9: Forms

routes · get · post · delete · template loops · submit · buttons · 404

### 10: Sessions

New Session ID (first request)

request → Session Valid ← request

Session Invalid (timeout)

stateless · stateful · tracking · cookies · signup · login · logout · session object · clearing

### 11: Sessions & Models

song · playlist · session · add · delete · login · signup

### 12: Deployment

heroku · cli · config · database · dashboard · logs · startup · management · shutdown

## 1: Introducing HTML

web · client/server · browser · html · documents · elements · attributes · links ·images · nesting · block · inline
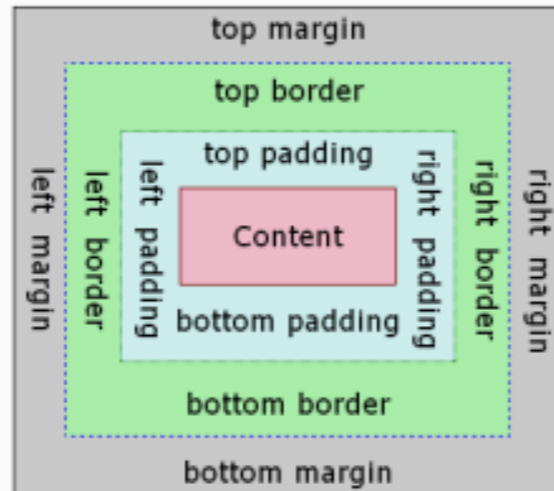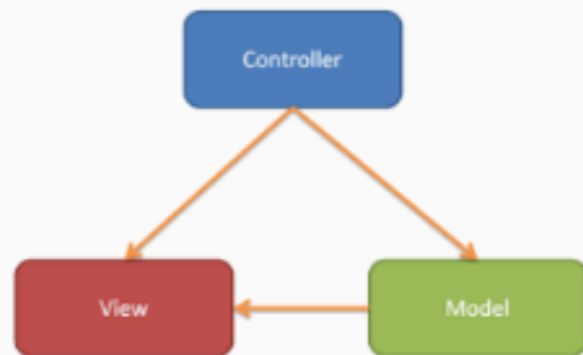
## 2: Introducing CSS

markup · style · function· stylesheet · rules · selectors · declarations· properties · values · classes · ids · inheritance

Core HTML + CSS

## 3: The Box Model



content · padding · border ·
margin · style · width · colour ·
dom · layout · float · left · right

## 4: Navigation



html versions · header · main ·
nav · primary · secondary ·
footer · semantic elements ·
html style guide

Laying out pages with CSS
Structuring a Navigation Metaphor

5: HTML Templates

servers · hosting · deployment · dns · local server · dry · template engine · ejs · partials · layouts

6: CSS Frameworks

review · bootstrap · semantic ui · container · segment · grid · stackable · tables · icons · images · row · col

Modularising
a web site

Professional
Styling with
CSS Libraries

From Web
Sites to Web
Applications



7: Applications

sites · apps · frameworks ·
command line · ide · java ·
request · response · front-end
· back-end

## 8: Model View Controller



model · view · controller · config · template · layout · database · table · entity · onetomany

## 9: Forms



routes · get · post · delete · template loops · submit · buttons · 404

## 10: Sessions



New Session ID
(first request)

request →   Session Valid   ← request

Session Invalid
(timeout)
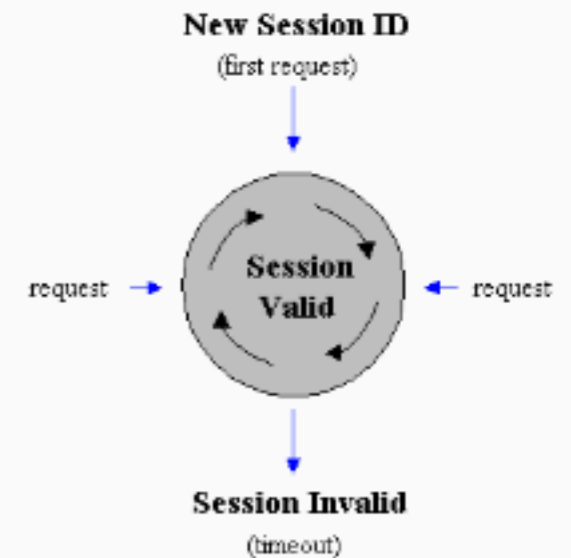
stateless · stateful · tracking · cookies · signup · login · logout · session object · clearing

# Fundamentals of Web Application Development
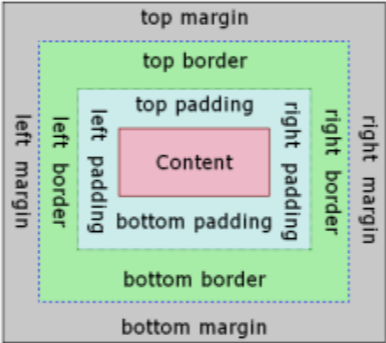
**11: Sessions & Models**

play list

song · playlist · session · add · delete · login · signup

**12: Deployment**

heroku · cli · config · database · dashboard · logs · startup · management · shutdown

Moving an Application to
the Cloud

| 1: Introducing HTML | 2: Introducing CSS | 3: The Box Model | 4: Navigation | 5: HTML Templates |
|---|---|---|---|---|
| web · client/server · browser · html · documents · elements · attributes · links ·images · nesting · block · inline | markup · style · function· stylesheet · rules · selectors · declarations· properties · values · classes · ids · inheritance | content · padding · border · margin · style · width · colour · dom · layout · float · left · right | html versions · header · main · nav · primary · secondary · footer · semantic elements · html style guide | servers · hosting · deployment · dns · local server · dry · template engine · ejs · partials · layouts |

Assignment 1 based on skills acquired in topics 1-5

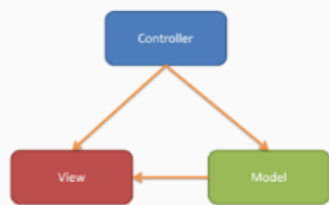Allocated 40% of overall module grade

## 6: CSS Frameworks

review · bootstrap · semantic ui · container · segment · grid · stackable · tables · icons · images · row · col

## 7: Applications

sites · apps · frameworks · command line · ide · java · request · response · front-end · back-end

## 8: Model View Controller

model · view · controller · config · template · layout · database · table · entity · onetomany

## 9: Forms

routes · get · post · delete · template loops · submit · buttons · 404

## 10: Sessions

New Session ID
(first request)

request          request

Session Valid

Session Invalid
(timeout)

stateless · stateful · tracking · cookies · signup · login · logout · session object · clearing

## 11: Sessions & Models

play list

song · playlist · session · add · delete · login · signup

## 12: Deployment

heroku · cli · config · database · dashboard · logs · startup · management · shutdown

Assignment 2 based on skills acquired in topics 6-12

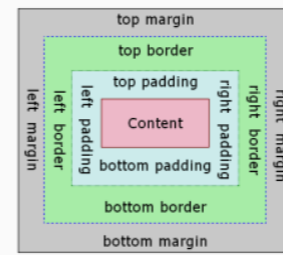Allocated 60% of overall module grade

## 1: Introducing HTML

web · client/server · browser · html · documents · elements · attributes · links ·images · nesting · block · inline

## 2: Introducing CSS

markup · style · function· stylesheet · rules · selectors · declarations· properties · values · classes · ids · inheritance

## 3: The Box Model

content · padding · border · margin · style · width · colour · dom · layout · float · left · right

## 4: Navigation

html versions · header · main · nav · primary · secondary · footer · semantic elements · html style guide

## 5: HTML Templates

servers · hosting · deployment · dns · local server · dry · template engine · ejs · partials · layouts
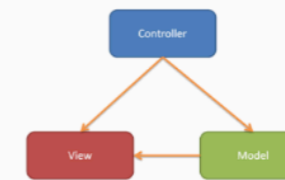
## 6: CSS Frameworks

review · bootstrap · semantic ui · container · segment · grid · stackable · tables · icons · images · row · col

## 7: Applications

sites · apps · frameworks · command line · ide · java · request · response · front-end · back-end

## 8: Model View Controller

model · view · controller · config · template · layout · database · table · entity · onetomany

## 9: Forms

routes · get · post · delete · template loops · submit · buttons · 404

## 10: Sessions

stateless · stateful · tracking · cookies · signup · login · logout · session object · clearing

## 11: Sessions & Models

song · playlist · session · add · delete · login · signup

## 12: Deployment

heroku · cli · config · database · dashboard · logs · startup · management · shutdown

**The Nature of the Web**

code · html · http · standards · evolution · role of client · role of servers · learning resources

**HTML Basics**

elements · attributes · paths · absolute · relative · nesting · block · inline · labs

**Lab-1.1: Editing HTML**

editor · files · text · tags · browser · reference

**Lab-1.2: HTML Structure**

folders · head · title · link · image · references

Topic 01

Introducing HTML
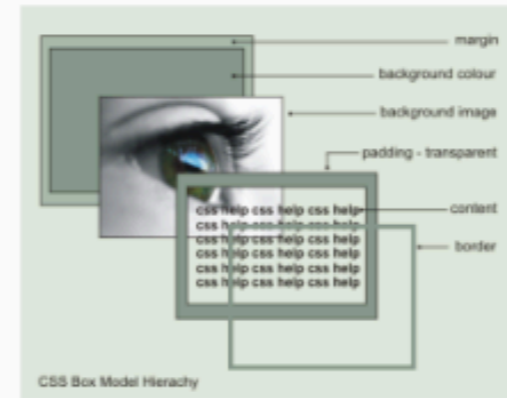
## HTML Elements



structural elements · head elements · text elements · list elements · image elements · shared attributes
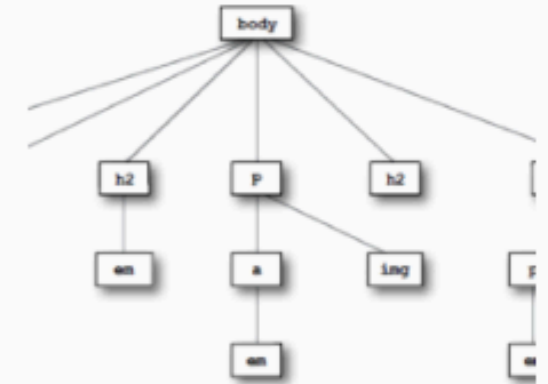
## CSS Basics



markup · presentation · style · rules · selectors · declarations · properties · values

## CSS Rules



CSS Box Model Hierachy

combining rules · combining selectors · class · id · div

## CSS Cascade



rules · class · elements · explicit · inheritance · default · most specific · order

## Lab-2 CSS Intro



inheritance · classes · fonts · colours · indentation · best practices
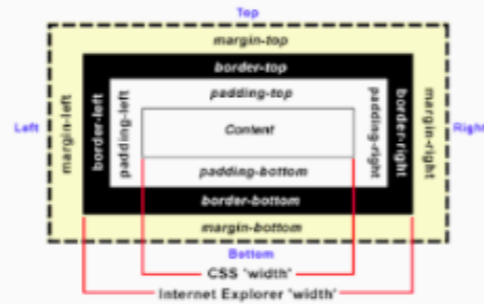
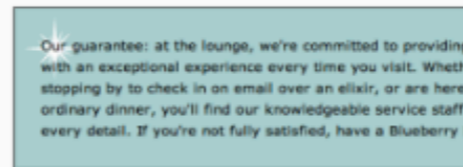# Topic 02

# Introducing CSS

## Web Standards Evolution



standards · w3c · whatwg · sgml · xhtml · html5 ·

## Box Model Fundamentals



content · padding · border · margin · variations · fonts · dimensions

## Box Model Example



border-width · border-style · padding · width · margin-left · text-align · float

## Multicolumn Layout



box structure · containing block · margins · floating · clearing · multicolumn layout

## Lab-3a Layout



fonts · content · images · classes · folding editor · sidebar · float

## Lab-3b Multicolumn



header · maincontent · navigation · footer · primary · secondary

# Topic 03

# Box Model

## HTML Style Guide



indentation · encoding · doctype · validity · semantics · entities · type attributes · quotations

## Navigation



nav · tab · current · padding · border · menu · li · ul

## Semantic HTML



header · main · nav · aside · article · footer · section · figure

## CSS Style Guide



validity · names · name style · selectors · shorthand · delimiters · order · stops · quotations

## Lab-4a Navigation



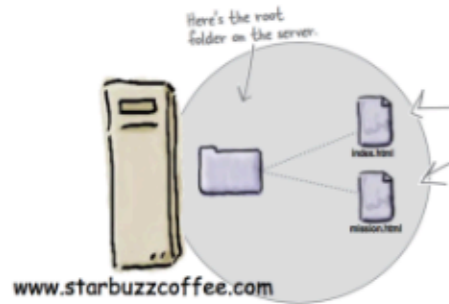nav · tab · current · padding · border · menu · li · ul

## Lab-4b Case Study



header · main · nav · aside · article · footer · section · figure

## Topic 04

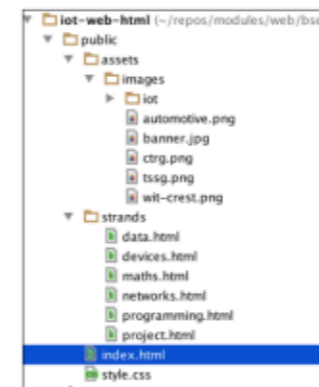## Navigation, Semantics & Style Guides

## Deployment

www.starbuzzcoffee.com

clients · servers · hosting · domains · dns · paths · http · response codes

## Harp & Surge

harp                    Documentation

The static web server with built-in preprocessing.

Harp serves Jade, Markdown, EJS, CoffeeScript, Sass, LESS and Stylus as HTML, CSS & JavaScript—no configuration necessary.

command prompt · node · harp · surge · server · compile

## Case Study

```
iot-web-html (~/repos/modules/web/bsc-2
  public
    assets
      images
        iot
          automotive.png
          banner.jpg
          ctrg.png
          tssg.png
          wit-crest.png
      strands
        data.html
        devices.html
        maths.html
        networks.html
        programming.html
        project.html
      index.html
      style.css
```

structure · layout · semantic elements · fonts · web safe fonts · images · picture element
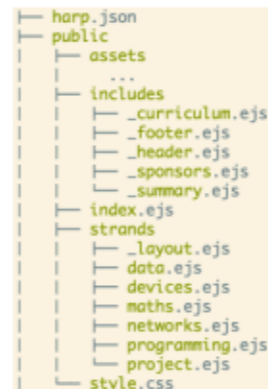
## Templates
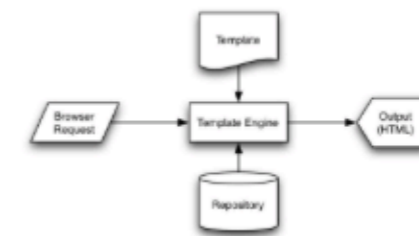
EJS · dry · wet · engine · partials · includes · layouts · paths · compile

## Lab-5a Harp & Surge

Install software tools to serve a web site locally and also to deploy the web site to a public web server.

## Lab-5b Templating

```
harp.json
public
  assets
    ...
  includes
    _curriculum.ejs
    _footer.ejs
    _header.ejs
    _sponsors.ejs
    _summary.ejs
  index.ejs
  strands
    _layout.ejs
    data.ejs
    devices.ejs
    maths.ejs
    networks.ejs
    programming.ejs
    project.ejs
  style.css
```

Rebuild the IoT web site from thee last lab using templating. This version of the site will aim to significantly reduce the content the author has to manage by reusing 'templates' containing common sections.
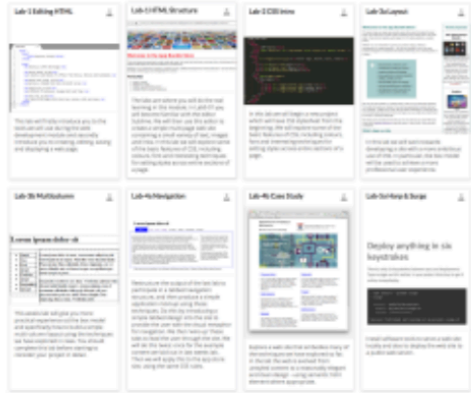
## Lab-5c Templating & Nav

Rework the tabbed navigation site from lab 04 to use EJS template

Topic 05

HTML Templates & Deployment

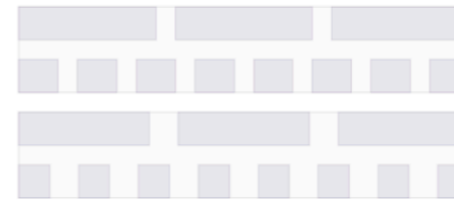## Lab Review



lab-1 · lab-2 · lab-3 · lab-4 · lab-5 · lab-6

## Semantic-UI I: Container & Segment

| | Mobile | Tablet |
|---|---|---|
| Width | 100% | 723px |
| Gutter Size | 1em | Fluid |
| Responsive Visibility | mobile only | tablet only |
| Device Width | below 768px | 768px - 991px |

project structure · semantic ui archive · container · segment · raised · stacked

## Semantic-UI II: Grids & Images

row · column · aligned · center · top · image · small · medium · large

## Semantic-UI III: Tables

| Employee | | Correct Guesses |
|---|---|---|
| Lena | Human Resources | 22 |
| Matthew | Fabric Design | 15 |
| Lindsay | Entertainment | 12 |
| Mark | Executive | 11 |

table · celled · padded · single line · striped · inverted

## Semantic Part IV: Layout

grid · stackable · padded · aligned · color · icons · cdns

## Lab-6a Semantic UI 1

Rebuild the iot web site using semantic-ui

## Lab-6b Semantic UI 2

Continue to enhance the IoT web site with additional Semantic-UI styles & Components

Topic 06

CSS Frameworks

## Web Sites/Applications

theme · content · navigation · structure · templates · style · interaction · business logic · context · static · dynamic

## Starting to Play

```
~ play! 1.5.0, http://www.playframework.org

~ Usage: play cmd [app_path] [--options]

~ with,  new      Create a new application
~        run      Run the application in the
~        help     Show play help
```
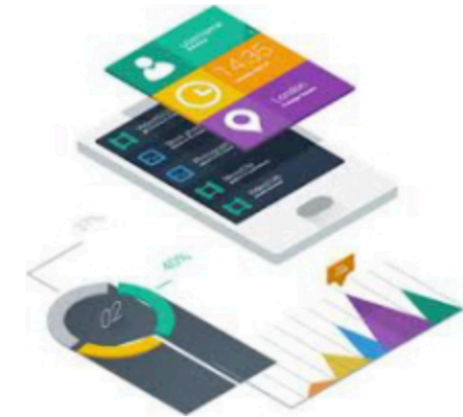
download · expand · path · verify · run · idealize · skeleton app

## Web App Introduction

structure · front-end · backend · router · model · view · controller

## Front-end

layout · partials · views · tags · about · dashboard · main · start

## Back-end

**BACK - END**

request · router · controller · view · response

## Lab-07a Play Setup

```
~ play! 1.5.0, http://www.playframework.org

~ The new application will be created in c:\
~ What is the application name? [playdemo]
```

Install and test Git + the Play Framework

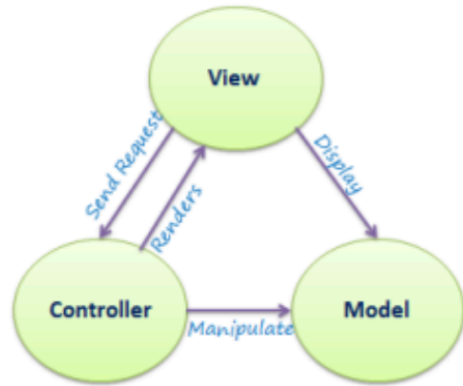## Lab-07b Playlist 1

PLAYLIST # 1
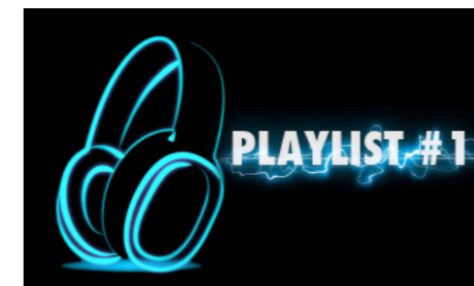
Import, rename and run a new starter project. Extend the project to include a Model.

Topic 07

Applications

## Model View Controller



request · router · controller · view · response

## Views



{#extends /} · {#set /}· {#list /}·
/#list /} · {#menu /}·
{#listsongs /}

## Models



table · row · mem · yaml · Song
· Playlist · ArrayList ·
OneToMany ·
OnApplicationStart

## Lab-08a
## Playlist-2



Move the playlist model into the
database. Prime the database
from a YAML file.

## Lab-08b
## Playlist-3



Move the playlists into their
own view. Introduce routes for
opening the playlist and also
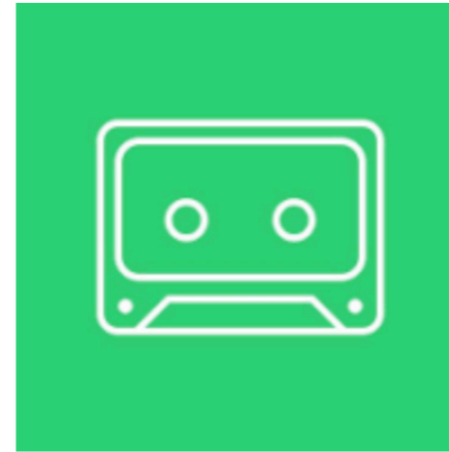deleting individual songs.

# Topic 08

# Models &
# Views

## Todo



A Separate case study - a simple todo list application

## Add Todo



add item to todolist - detailed walkthrough

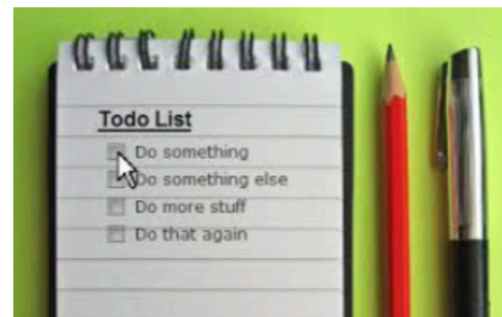## Playlist Management



List, add and delete playlists

## Song Management



List, add and delete Songs

## Lab-09b Todolist-1



Develop a completely new application, using the techniques we have explored so far.

## Lab-09a Playlist-4



Introduce forms into a play application to enable the user to create playlists.

Topic 09

Forms

## Todo Review



A quick tour of the Todo app so far

## Sessions



Sessions enable us to track a user, enabling login, logout and also to follow the user from page to page in an application
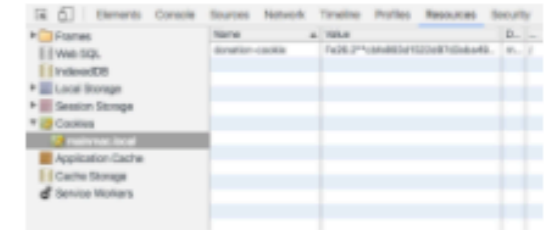
## Sessions in Todo



Log-in

Email

homer@simpson.com

Password

••••••

Login
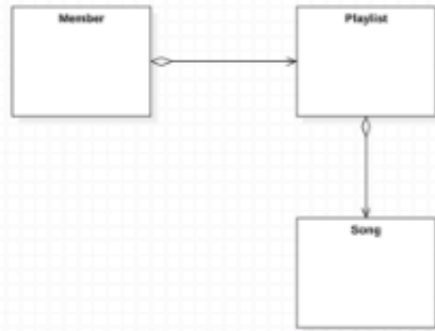
Introduce session management into the Todo app

## Lab-10 Todolist-2



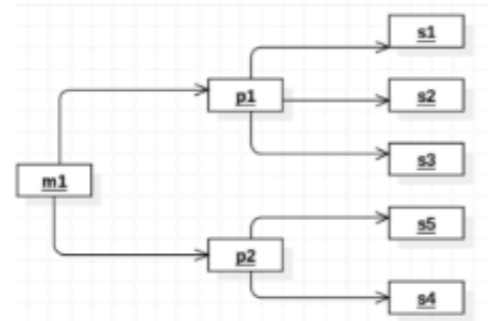Incorporate sessions tracking into the todo app

Topic 10

Sessions

## Playlist Sessions

Introduce session management into the Playlist 4 Application

## Playlist Models

Review the structure and manipulation of the Playlist Model

## Project 2 Specification

Draft specification for Assignment 2

## Lab-11a Playlist Review

Review the Playlist Application

## Lab-11b Playlist 5

Incorporate Sessions into the latest Playlist Application

# Topic 11
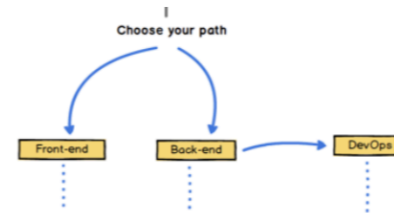
# Sessions & Models

## ICT Skills Studio + Next Onsite

Schedule and structure of ICT Skills Studio + details on June Onsite

## Deployment

Moving a Play web application from localhost to the cloud

## Skills Roadmap

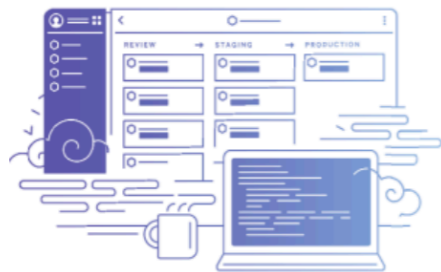A peek into the future of web development - roles, knowledge and technologies
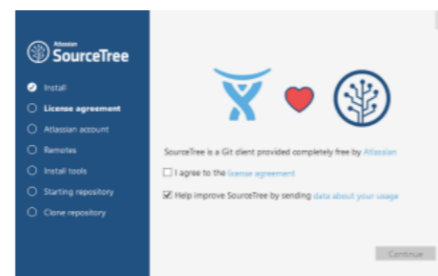
## Play References + Cheat Sheet

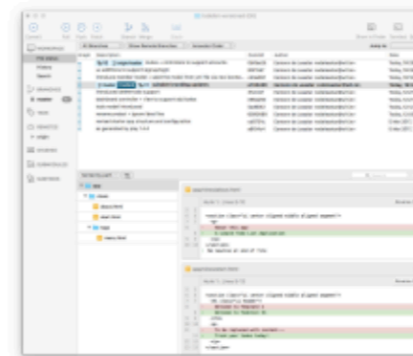Play books & videos + Cheat Sheet

## Lab-12a Deploy

Deploy a Play Application to the cloud

## Lab-12b Git Setup

Install and Configure Git + the Sourcetree git GUI

## Lab-12c Git Usage

Rebuild Todolist - this time committing to git version control as the app is composed using Sourcetree

Topic 12

Deployment + Review