

Web Development Review

Roadmap 2017

Web Development 2017

Introducing HTML



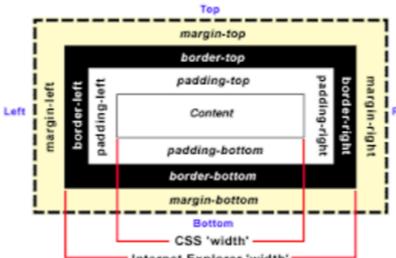
We explore the foundations of web and get to grips with the fundamentals of the HTML language. As you will see, its structure and format is relatively straightforward, and you will be able to understand the basics very quickly. We will be focusing on a small number of 'tags' to get started, and also on the ways in which different html files can be linked together to form a site.

Introducing CSS



To introduce 'style' into a page we need another language - Cascading Style Sheets. This is a different language from HTML and is usually stored in a separate file - the stylesheet.

The Box Model



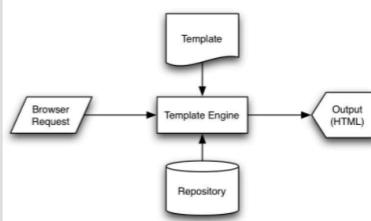
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Navigation



Central to a well design site is a clear and understandably navigation structure. This must easily allow the user to explore the site, provide sufficient context such that the user knows where they are at any stage, and do this in a visually pleasing and efficient manner.

HTML Templates



Review the HTML & CSS constructs covered so far. Introduce html templating using EJS. Refactor a site to use templating techniques.

CSS Frameworks

Programming

At the heart of many IoT applications is data: measurements, events alarms and other information that must be relayed, stored and ultimately turned into knowledge. Learn the fundamentals of modern approaches to data in this strand.



Networks

This strand will explore modern networks and cloud technology. Be able to configure, network and manage all categories of computer systems from simple controllers to single board board computers, mobiles and full workstations.



Data Science

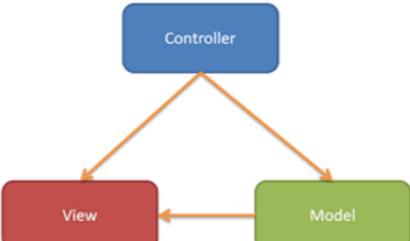
Modern web layouts are not considerably more complex and sophisticated than in the past - particularly as mobile is now considered the 'first' destination for any site. To tackle the complex issues CSS Frameworks have arisen as a convenient way to support multiple browsers and different screen sizes & resolutions.

Starting to Play



To build a web application we need a web framework. This will define the superstructure of our application and provide essential features to enable us to compose a complicated and efficient web application

Model View Controller



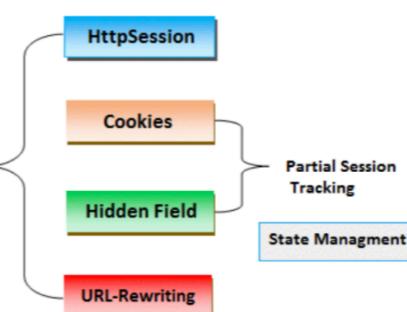
Introducing Models, and exploring how the MVC Triad works

Forms



Providing input to an application is usually encapsulated in a Form. Review the need for forms and explore how they are implemented in Play.

7: Sessions



Review the role of Sessions in web applications. Incorporate the hapi-auth-cookie plugin into HAPI application to manage sessions. Review session strategies, protected and unprotected routes, cookie passwords, timeouts and other configuration options.

Git, Github & Bitbucket



Learn the basics of git and github repository management.

Assignment Studio + Deployment



Sign up for Heroku for free

Assignment Studio + Deployment

HTML + CSS Foundations

Introducing HTML



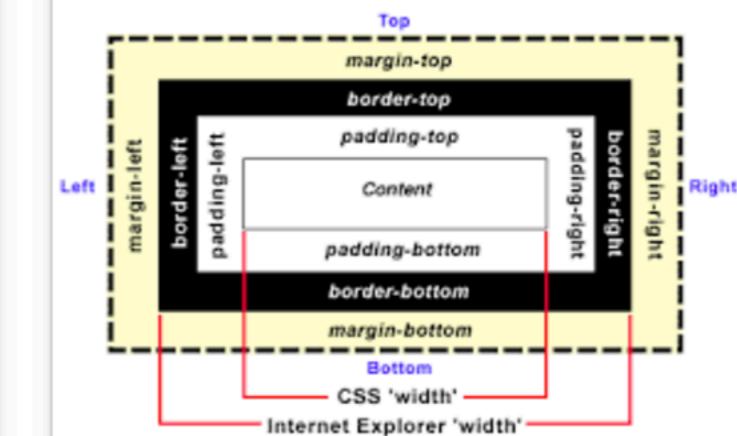
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Navigation, Templates + CSS Frameworks

Navigation

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CSS Frameworks

Programming
Learn a broad range of programming and problem solving skills, including exciting new platforms, software tools and languages. Use these skills to build apps for mobile, cloud and device based IoT applications. Evolve a portfolio of fascinating applications.

Data Science
At the heart of many IoT applications is data: measurements, events alarms and other information that must be relayed, stored and ultimately turned into knowledge. Learn the fundamentals of modern approaches to data in this strand.

Networks
This strand will explore modern networks and cloud technology. Be able to configure, network and manage all categories of computer systems from simple controllers to single board board computers, mobiles and full workstations.

Project
Building exciting IoT projects in every semester of the programme. Your projects will combine skills acquired from the other strands and enable you to build a comprehensive and compelling portfolio of IoT applications and services.

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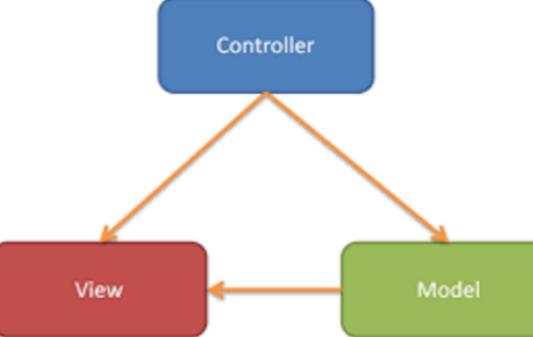
Web Applications in Play

Starting to Play



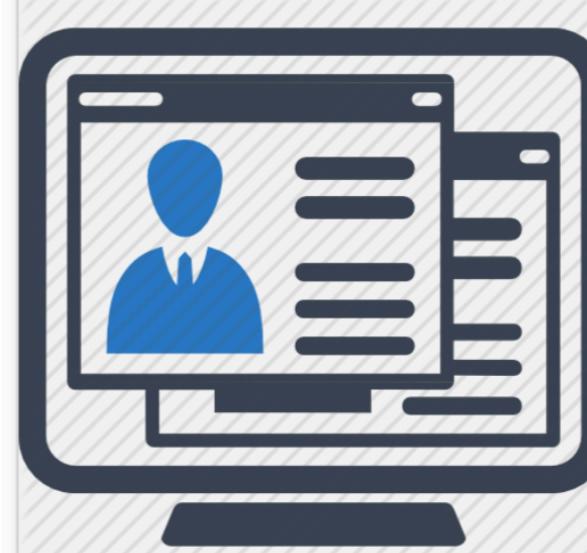
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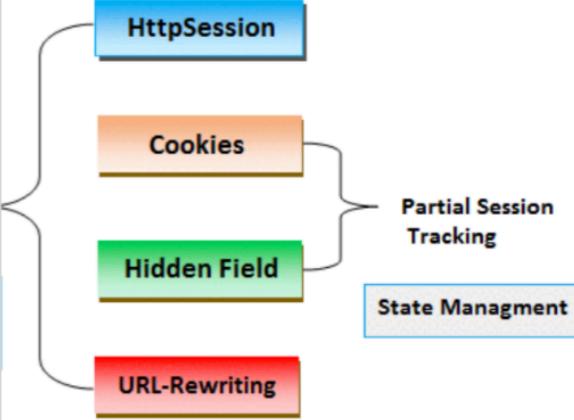
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Git + Deployment

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[Sign up for Heroku for free](#)

Assignment Studio + Deployment

Introducing HTML

The Nature of the Web



The World Wide Web permeates or lives to an extraordinary degree. However, most of us are unaware of the its technical underpinnings. In this session we explore the nature of the Web and in particular the role of HTTP protocol and the HTML standard. We also identify the 'client/server' nature of the web and its implications. In this context we will gain an understanding of the role of the 'browser' in presenting a web page, and begin to understand pages are retrieved and rendered.

HTML Basics



We can now explore the basics of HTML and we will try to get to grips with the fundamentals of the HTML language. As you will see, its structure and format is relatively straightforward, and you will be able to understand the basics very quickly. We will be focusing on a small number of 'tags' to get started, and also on the ways in which different html files can be linked together to form a site.

Lab-1 Editing HTML



```
index.html
1 <html>
2   <head>
3     <title>Starbuzz Coffee</title>
4   </head>
5
6   <body>
7     <h1>Starbuzz Coffee Beverages</h1>
8
9     <h2>House Blend, $1.49</h2>
10    <p>A smooth, mild blend of coffees from Mexico, Bolivia and Guatemala.</p>
11
12    <h2>Mocha Cafe Latte, $2.35</h2>
13    <p>Espresso, steamed milk and chocolate syrup.</p>
14
15    <h2>Cappuccino, $1.89</h2>
16    <p>A mixture of espresso, steamed milk and foam.</p>
17
18    <h2>Chai Tea, $1.85</h2>
19    <p>A spicy drink made with black tea, spices, milk and honey.</p>
20
21 </html>
```

This lab will firstly introduce you to the tools we will use during the web development module and secondly introduce you to creating, editing, saving and displaying a web page.

Lab-1 HTML Structure



Welcome to the App Bundle Store

This store brings you great app bundles week after week. We select the best power user apps from a broad range of super highest quality apps from the best publishers, at great prices.

Whether you are interested in gaming or graphics design, software development or media production - we have the bundle others, delivering you an exciting take on a scene.

Favourites

- Hype by Tumult
- Webstorm by Idea
- Sublime, by sublimetext.com/ll
- Desktop Utility by Sweet Productions

The labs are where you will do the real learning in this module. In Lab0-01 you will become familiar with the editor Sublime. We will then use this editor to create a simple multi-page web site containing a small variety of text, images and links. In this lab we will explore some of the basic features of CSS, including colours, font and interesting techniques for setting styles across entire sections of a page.

Introducing CSS

HTML Elements



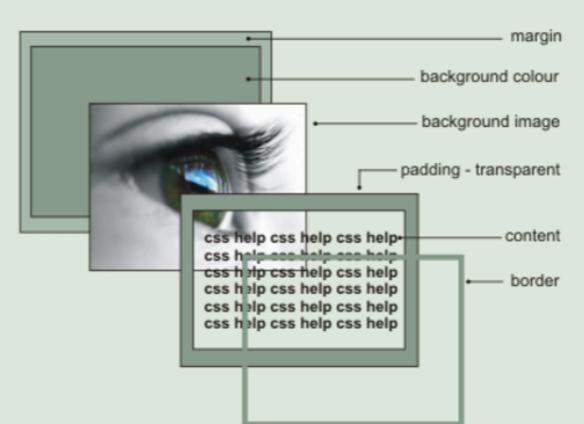
HTML Elements are at the heart of the HTML specification. There are perhaps a dozen categories or elements to explore -in Lab-01 we explored elements from 5 of these categories. Here we review these and examine the role and format of each one in detail.

CSS Basics



This language looks simple at first, but as we will see in the next few weeks, it is considerably more complex than HTML and will require a very careful approach to get right

CSS Rules



In order to style the same html elements in different ways we need to use classes. This allows us to target specific occurrences of an html element for styling purposes.

CSS Cascade



Inheritance is a key feature in how CSS applies rules, and it has some interesting side effects

Lab-2 CSS Intro



```
<!DOCTYPE HTML>
<html>
  <head>
    <title>APP Store</title>
    <link type="text/css" rel="stylesheet" href="style.css" media="screen" />
  </head>
  <body>
    <h1>Score: Apps, Movies, Music, Books</h1>
    <ol>
      <li><a href="apps.html">Apps</a></li>
      <li><a href="music.html">Music</a></li>
      <li><a href="movies.html">Movies</a></li>
    </ol>
    <div class="main_panel">
      <h2>New Games</h2>
      <ul>
        <li>Clear All</li>
        <li>Google Box</li>
        <li>Squinks</li>
      </ul>
    </div>
  </body>
</html>
```

In this lab we will begin a new project which will have CSS stylesheet from the beginning. We will explore some of the basic features of CSS, including colours, font and interesting techniques for setting styles across entire sections of a page.

CSS Box Model

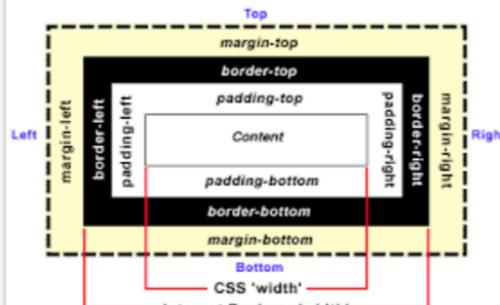
Classes, IDs & Divs



```
<div id="header">  
<div id="nav">  
<div class="article">  
  <div class="section"></div>  
  <div id="sidebar"></div>  
</div>
```

These three concepts are essential in order to build useful style sheets. They allow us to define different regions, elements and subsets of elements on a page.

Box Fundamentals



At the heart of the layout engine in web browsers is a concept called the 'box model'. This defines a general layout structure for all HTML elements, providing a language for specifying important dimensions and relationships to other elements.

Box Model Example



Our guarantee: at the lounge, we're committed to providing with an exceptional experience every time you visit. Whether stopping by to check in on email over an elixir, or are here ordinary dinner, you'll find our knowledgeable service staff to every detail. If you're not fully satisfied, have a Blueberry B

```
ut that's not all; at  
.guarantee {  
  border-color: black;  
  border-width: 1px;  
  border-style: solid;
```

A worked example of the box model in action. This example featured in this week's lab, and demonstrates the major features of the model.

Multicolumn Layout



Using an understanding of the fundamental features of the box model we can start to produce more interesting page layouts. This will allow us to grow multi-column pages that can vary according to the size of the browser windows used to view them.

Project 1 Specification



When you finish these labs you will have the knowledge to prepare your first project for this module. The briefing is here - pay close attention to the guidelines

Lab-3a Layout



Welcome to the App Bundle Store

This store brings you great app bundles week after week. We select the best power user apps from a broad range of suppliers and combine them into great deals. These are the highest quality apps from the best publishers, at great prices.

Whether you are interested in gaming or graphics design, software development or media production - we have the bundle for you. Each app bundle is designed to compliment the others, delivering you an exciting take on a scene.

Our guarantee: at the store, we're committed to providing you with an exceptional quality and reliability. Every application is checked in detail for stability, usability and interoperability. If you are unhappy with any individual app in a bundle we will refund you the full amount for the complete suite, no questions asked.

We roll over the bundles on a weekly basis, so be sure to check back regularly for bundle that suits your tastes. If you don't see application bundles that suit your interests - please let us know! We are always interested in combining new and interesting bundles and will strive to figure out your needs and match them to current or upcoming offerings.

Now that you've got an idea of what we do, why not call into our store? We have created some [detailed directions](#) to get you here in record time. Come and join us anytime.

What's Apps we Like

Weekly Specials

Mac Supercharge Bundle



It's been a long time since the last free Mac bundle that big. StackSocial just published its so called Mac Freebie Bundle 2.0 which contains 10 apps worth \$150. Most of them are about design and have not been part of bundles before.

Freebie



StackSocial just published its so called Free Onedesoft Mac Tool Bundle, which contains apps from Onedesoft. The bundle worth \$146 will be probably available only a couple of days so you'd better

Lab-3b Multicolumn



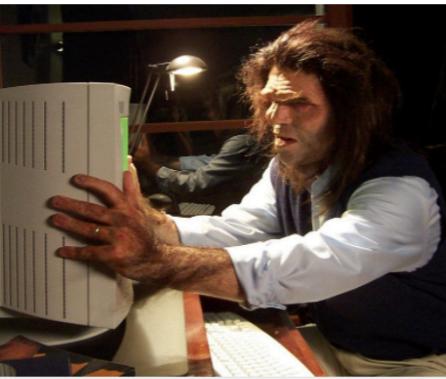
Lorem ipsum dolor sit

• Mauris	• Sed feugiat nisi at sapien. Phasellus varius tincidunt ligula. Praesent nisi. Duis sollicitudin. Donec dignissim, est vel auctor blandit, ante est laoreet neque, non pellentesque mauris turpis eu purus.
• Cras	Suspendisse mollis leo nec diam. Vestibulum pulvinar tellus sit amet nulla fringilla semper. Aenean aliquam urna et accumsan sollicitudin, tellus pede lobortis velit, nec placerat dolor pede nec nibh. Donec fringilla. Duis adipiscing diam at enim. Vestibulum nibh.
• Proin	
• Integer	
• Curabitur	
• Integer	
• Suspendisse	
• Quisque	

This week's lab will give you more practical experience of the box model and specifically how to build a simple multi-column layout using the techniques we have explored in class. You should complete this lab before starting to consider your project in detail.

Navigation

The Evolution of the Web



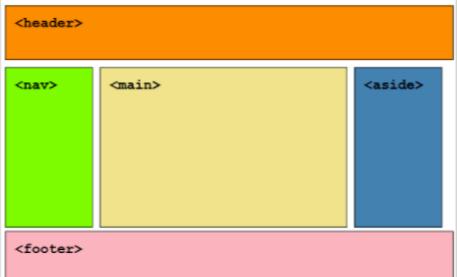
Both HTML & CSS continue to evolve. Understanding where it is going is part and parcel of becoming a programmer. Here we look at some aspects of the history of HTML, including some major milestones in its evolution.

Navigation



Central to a well designed site is a clear and understandably navigation structure. This must easily allow the user to explore the site, provide sufficient context such that the user knows where they are at any stage, and do this in a visually pleasing and efficient manner.

Semantic HTML



HTML5, the latest version of the standard, introduced a range of new elements. Among the most interesting are the so-called 'semantic' elements. These attempt to re-examine the proliferation of DIVs in html, and proposed an alternative vocabulary that would better reflect the purpose of many of these DIVs

HTML/CSS Style Guide

```
<ul>
  <li>Fantastic
  <li>Great
</ul>
```

```
.example {
  color: blue;
}
```

A review of some of the guidelines from the Google HTML/CSS style recommendations.

Lab-4a Navigation

Lorem ipsum dolor sit

Mus Cuius Integer Curabitur Integer Suspender Quisque

Proin quis orci ex erat molestie varius. Proin condonum erat in lecto. Ut ipsum. Et lacus laetare plena dictum.

Proin quis orci ex erat molestie varius. Proin condonum erat in lecto. Ut ipsum. Et lacus laetare plena dictum.

Restructure the output of the last lab to participate in a tabbed navigation structure, and then produce a simple application mockup using these techniques. Do this by introducing a simple tabbed design into the site to provide the user with the visual metaphor for navigation. We then 'wire-up' these tabs to lead the user through the site. We will do this twice: once for the example content we laid out in last weeks lab. Then we will apply this to the app store site, using the same CSS rules.

Lab-4b Case Study

The screenshot shows a web page for the Waterford Institute of Technology. The title is "Bachelor of Science in Computing & Internet of Things". The page features several sections: "APPLIED COMPUTING IN THE INTERNET OF THINGS", "Program your World!", "Programming", "Data Science", "Devices", "Mathematics", "Networks", and "Project". Each section has a brief description and a link to more information.

Explore a web site that embodies many of the techniques we have explored so far. In the lab the web is evolved from unstyled content to a reasonably elegant and clean design - using semantic html element where appropriate.

HTML Templating

Deployment

www.starbuzzcoffee.com

Deploying a site involves understanding a little more about Clients & Servers, Hosting Providers, Domain Names, Transferring the Sites Files, HTTP and Absolute & Relative Paths

Harp & Surge

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

Harp.js and Surge.sh are the two services we will use to serve the page locally, and also to deploy it to a public web server.

Case Study

iot-web-html (~/repos/modules/web/bsc-2)

- public
- assets
- images
- iot
- automotive.png
- banner.jpg
- ctrgr.png
- tssg.png
- wit-crest.png
- strands
- data.html
- devices.html
- maths.html
- networks.html
- programming.html
- project.html
- index.html
- style.css

Templates

The EJS template system implements mechanisms for assembling sites from templates - which are called 'partials' in EJS. Additionally, there is a complimentary 'layout' mechanism for reusing entire page structures.

Lab-5a Harp & Surge

```
$ npm install --global surge
$ surge
project: path/to/my-project
domain: my-project.surge.sh
upload: [=====]
Success! Published and running at my-project.surge.sh
```

Deploy anything in six keystrokes

There's only six keystrokes between you and deployment: Type `surge` and hit `enter` in your project directory to get it online immediately.

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 the 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 Navigation

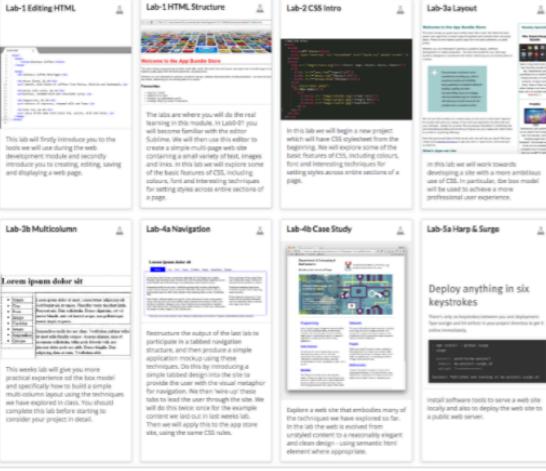
Rework the tabbed navigation site from lab 04 to use EJS template

CSS Frameworks

Lab Review



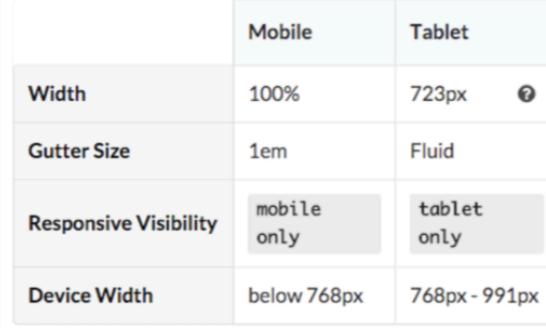
Review of the Labs to date



Semantic-UI I



An overview of the container and segments styles in the framework



Semantic-UI II



An exploration of the Grid and Image styles.



Semantic-UI III



An exploration of the Tables

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

Semantic Part IV



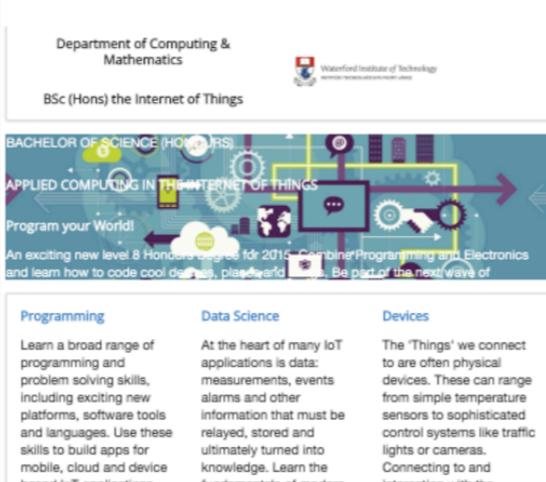
Our final tour of the Semantic-UI library - with a focus on icons, variations in segments and responsive grids



Lab-6a Semantic UI



Rebuild the iot web site using semantic-ui



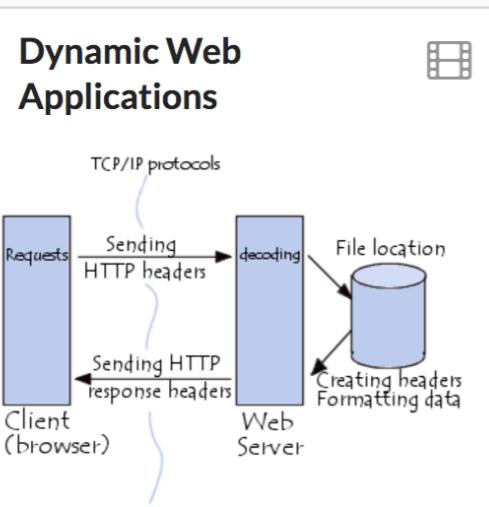
Lab-6b Semantic UI



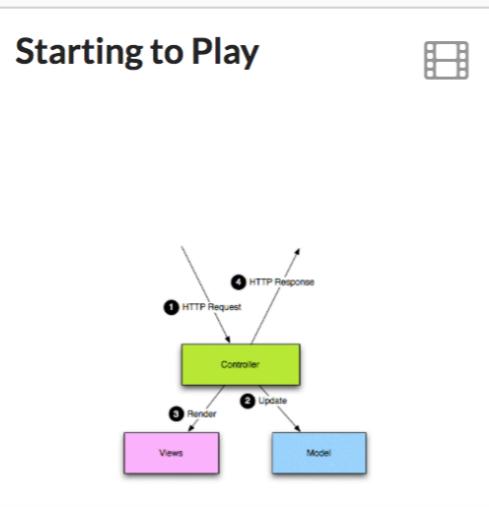
Continue to enhance the IoT web site with additional Semantic-UI styles & Components



Starting to Play



The applications to date have been static - essentially a collecting of individual web pages. For more sophisticated web site we need to move to creating web applications. This will require a shift to considering the web site as an aggregating of fragments of web pages, composed and assembled by a program we also write.



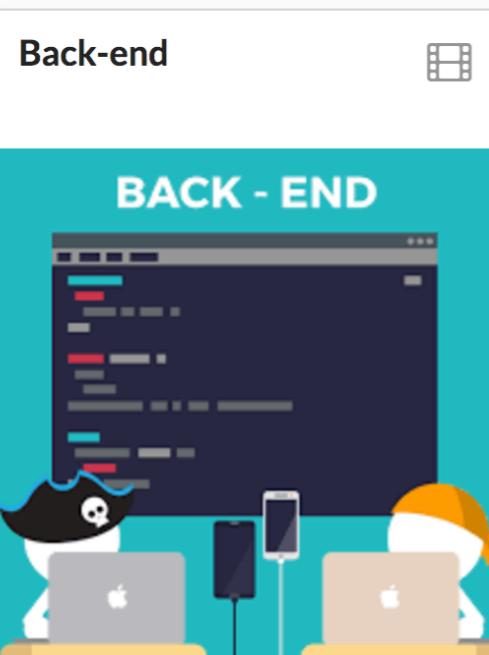
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Structure of a web app: Front-end Vs Backend. Routers, Models, Views, Controllers



Review the front end of a Play Project, consisting of view, layouts and partials.



The back end of a Play project consists of routes, controllers, models + configuration.

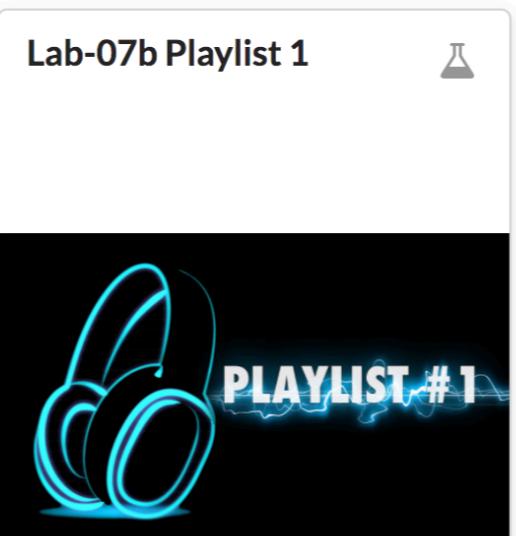
Lab-07a Play Setup

A screenshot of a Windows command prompt window titled 'C:\Windows\system32\cmd.exe'. The user runs 'play new spacebook' to create a new application named 'spacebook'. They then navigate to the directory and run 'play eclipsify' to prepare it for Eclipse.

```
C:\dev\prj>play new spacebook
[info] play 1.3.0, https://www.playframework.com
[info] The new application will be created in C:\dev\prj\spacebook
[info] What is the application name? [spacebook]
[info] OK, the application is created.
[info] Start with : play run spacebook
[info] Have Fun!

C:\dev\prj>cd spacebook
C:\dev\prj\spacebook>play eclipsify
[info] play 1.3.0, https://www.playframework.com
[info] using java version "1.8.0_31"
[info] OK, the application "spacebook" is ready for eclipse
[info] To use Import/General/Existing project to import C:\dev\prj\spacebook into a
[info] eclipse
[info] Use eclipsify again when you want to update eclipse configuration files.
[info] However, it's often better to delete and re-import the project into your work
[info] space since eclipse keeps dirty caches...
C:\dev\prj\spacebook>
```

Review the spacebook-semantic project from an earlier lab. Become familiar with the Command Prompt. Install 2 new programming environments: a Web Framework called Play and an Integrated Development Environment called Eclipse.



Import, renams and run a new starter project. Extend the project to include a Model. Rework the views to display the model.

Model View Controller

Views



Beethoven Sonatas

Song	Artist
Piano Sonata No. 3	Beethoven
Piano Sonata No. 7	Beethoven
Piano Sonata No. 10	Beethoven

Beethoven Concertos

Song	Artist
Piano Concerto No. 1	Beethoven
Piano Concerto No. 12	Beethoven
Piano Concerto No. 23	Beethoven

Explore the play templating language in more depth

Models



SELECT * FROM SONG;

ID	ARTIST	DURATION	TITLE
1	Beethoven	0	Piano Sonata No. 3
2	Beethoven	0	Piano Sonata No. 7
3	Beethoven	0	Piano Sonata No. 10
4	Beethoven	0	Piano Concerto No. 27
5	Beethoven	0	Piano Concertos No. 17
6	Beethoven	0	Piano Concerto No. 10

(6 rows, 6 ms)

Edit

Playu includes a simple relational database - we can preload and read/write from this db in our app.

Lab-08a Playlist-2



Move the playlist model into the database. Prime the database from a YAML file. Modify the Model classes to work with this database. Render the models from the database.

Lab-08b Playlist-3



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

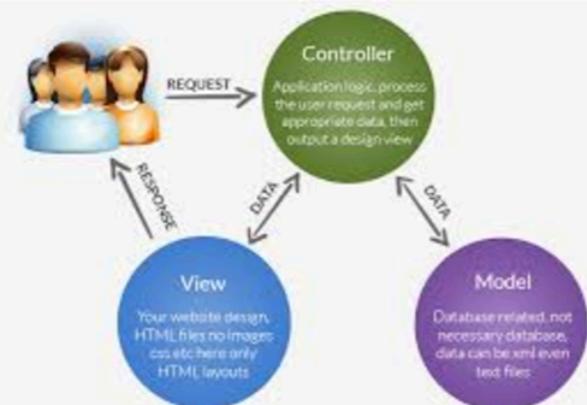
Forms

Todo



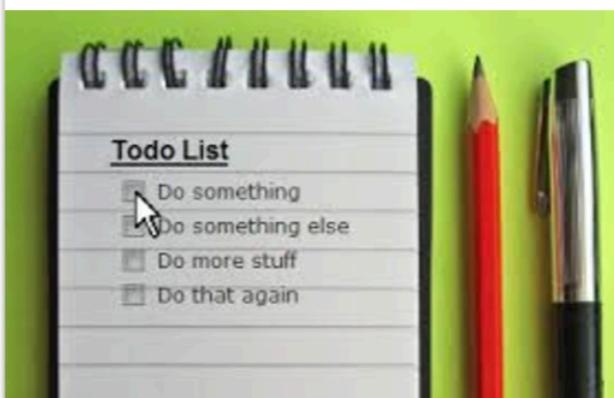
A Separate case study - a simple todo list application

Playlist Features



Complete a review of the playlist features

Lab-09b Todolist-1



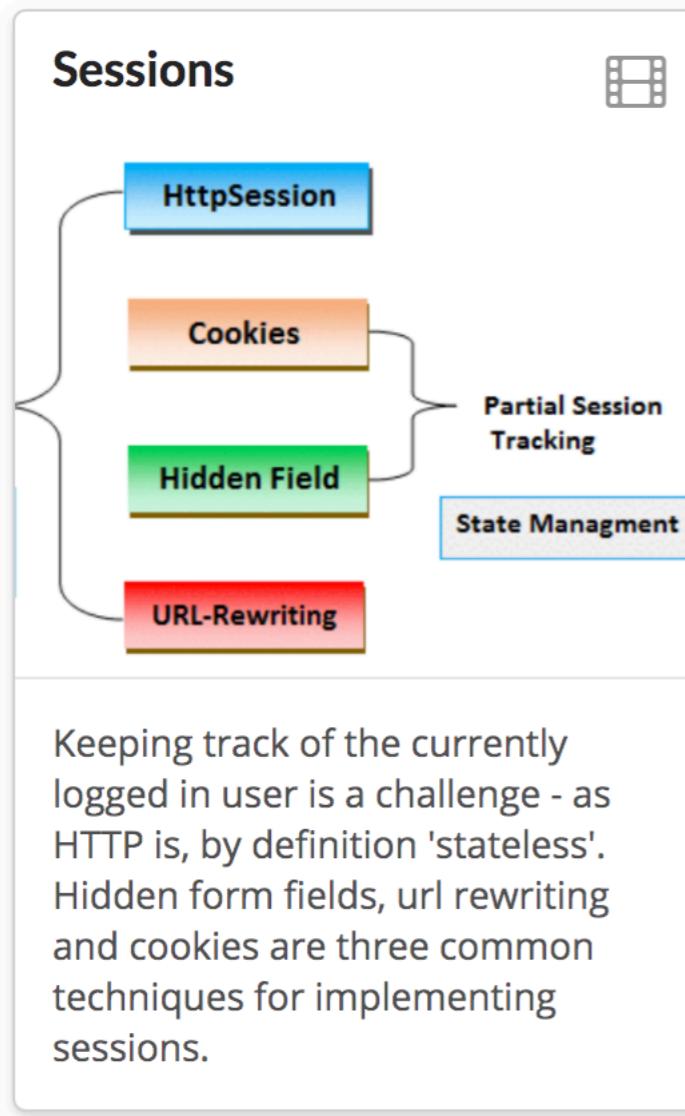
Develop a completely new application, using the techniques we have explored so far.

Lab-09a Playlist-4



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

Sessions



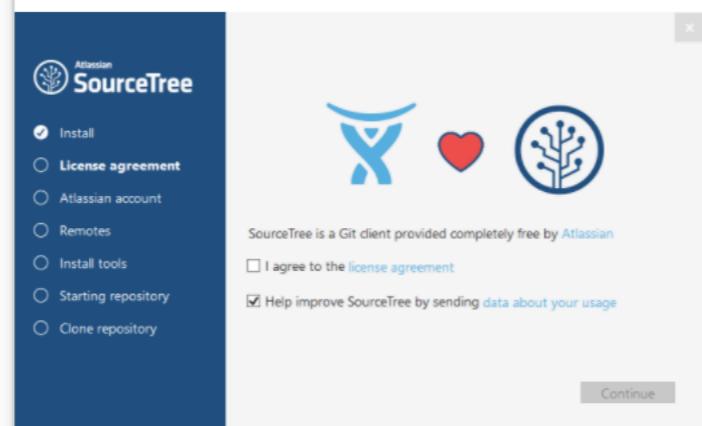
Lab-10 Todolist-2

Name	Value
donation-cookie	Fe26.2**cbfe863d1522d87d2eba49..

Incorporate sessions tracking into the todo app

Git

Lab-11a Sourcdtree



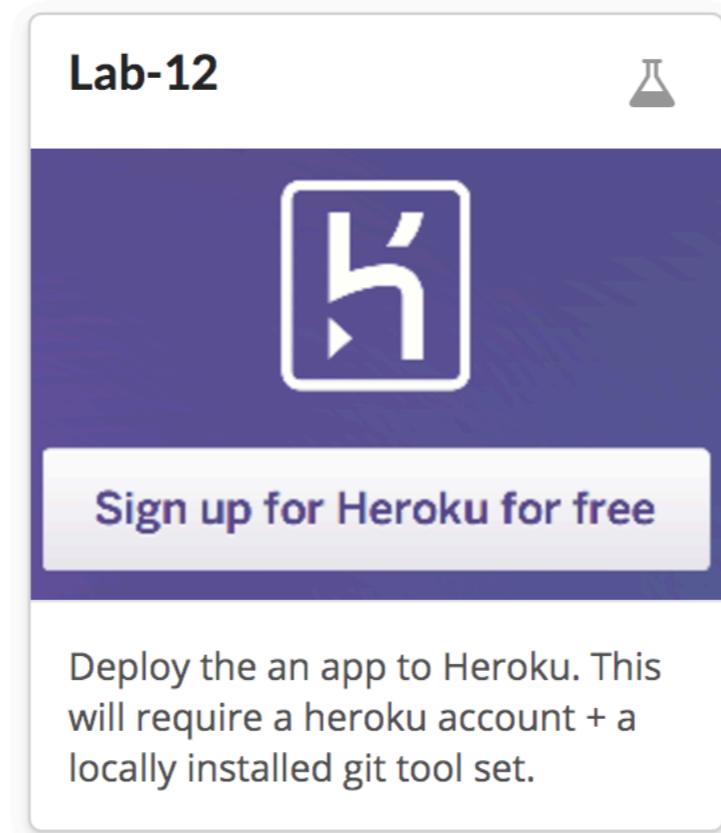
Install and Configure Sourcetree

Lab-11b Todolist-3

A screenshot of the GitHub desktop application interface. The top navigation bar includes 'Commit', 'Pull', 'Push', 'Branch', 'Merge', and 'Stash'. The main window shows a commit history for a repository named 'todolist-versioned (GH)'. The commits are listed with details like author, date, and commit message. Below the commit list are two code diff panes. The top pane shows changes to 'app/views/about.html' with a green hunk containing the text 'About this app - simple Todo List Application'. The bottom pane shows changes to 'app/views/start.html' with a green hunk containing the text 'Welcome to Template 3 - simple Todo List Application'.

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

Deployment



Front-end Labs

Lab-1 Editing HTML

This lab will firstly introduce you to the tools we will use during the web development module and secondly introduce you to creating, editing, saving and displaying a web page.

Lab-1 HTML Structure

Welcome to the App Bundle Store

The labs are where you will do the real learning in this module. In Lab0-01 you will become familiar with the editor Sublime. We will then use this editor to create a simple multi-page web site containing a small variety of text, images and links. In this lab we will explore some of the basic features of CSS, including colours, font and interesting techniques for setting styles across entire sections of a page.

Lab-2 CSS Intro

In this lab we will begin a new project which will have CSS stylesheet from the beginning. We will explore some of the basic features of CSS, including colours, font and interesting techniques for setting styles across entire sections of a page.

Lab-3a Layout

Welcome to the App Bundle Store

In this lab we will work towards developing a site with a more ambitious use of CSS. In particular, the box model will be used to achieve a more professional user experience.

Lab-3b Multicolumn

Lorem ipsum dolor sit

- Menus
- Crus
- Spots
- Books
- Cards
- Tables
- Forms
- Tables
- Forms

Suspendisse mollis leo nec diam. Vestibulum pulvinar tellus at metus magna tempor. Aenean aliquam, urna et fermentum sollicitudin, tellus pede lobortis vel, nec placerat dolor pede nec nibh. Donec fringilla. Duis adipiscing diam ut enim. Vestibulum nisl.

This weeks lab will give you more practical experience od the box model and specifically how to build a simple multi-column layout using the techniques we have explored in class. You should complete this lab before starting to consider your project in detail.

Lab-4a Navigation

Lorum ipsum dolor sit

Restructure the output of the last lab to participate in a tabbed navigation structure, and then produce a simple application mockup using these techniques. Do this by introducing a simple tabbed design into the site to provide the user with the visual metaphor for navigation. We then 'wire-up' these tabs to lead the user through the site. We will do this twice: once for the example content we laid out in last weeks lab. Then we will apply this to the app store site, using the same CSS rules.

Lab-4b Case Study

Explore a web site that embodies many of the techniques we have explored so far. In the lab the web is evolved from unstyled content to a reasonably elegant and clean design - using semantic html element where appropriate.

Lab-5a Harp & Surge

```
npm install --global surge
surge
project: path/to/my-project
domain: my-project.surge.sh
upload: [*****]
Success! Published and running at my-project.surge.sh
```

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

Lab-5b Templating

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 Navigation

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

Lab-6a Semantic UI

Department of Computing & Mathematics

BACHELOR OF COMPUTER SCIENCE

APPLIED COMPUTING IN THE INTERNET OF THINGS

Program your World

An exciting new level 3 programme, taught 100% online, designed for students interested in the Internet of Things and want to learn how to code cool IoT applications.

Programming Data Science Devices

At the heart of many IoT applications is data. Learn how to collect data from sensors, analyse it and make decisions based on it. The IoT is often physical and requires devices like sensors and actuators. Learn how to connect them to your code and interact with the physical world to the subject of this strand.

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

Lab-6b Semantic UI

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TSSG ctrg AUTOMOTIVE CONTROL GROUP

Back-end Labs

Lab-07a Play Setup

Review the spacebook-semantic project from an earlier lab. Become familiar with the Command Prompt. Install 2 new programming environments: a Web Framework called Play and an Integrated Development Environment called Eclipse.

Lab-07b Playlist 1

Import, renames and run a new starter project. Extend the project to include a Model. Rework the views to display the model.

Lab-08a Playlist-2

Move the playlist model into the database. Prime the database from a YAML file. Modify the Model classes to work with this database. Render the models from the database.

Lab-08b Playlist-3

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

Lab-10 Todolist-2

Incorporate sessions tracking into the todo app

Lab-11a Sourcdtree

Install and Configure Sourcdtree

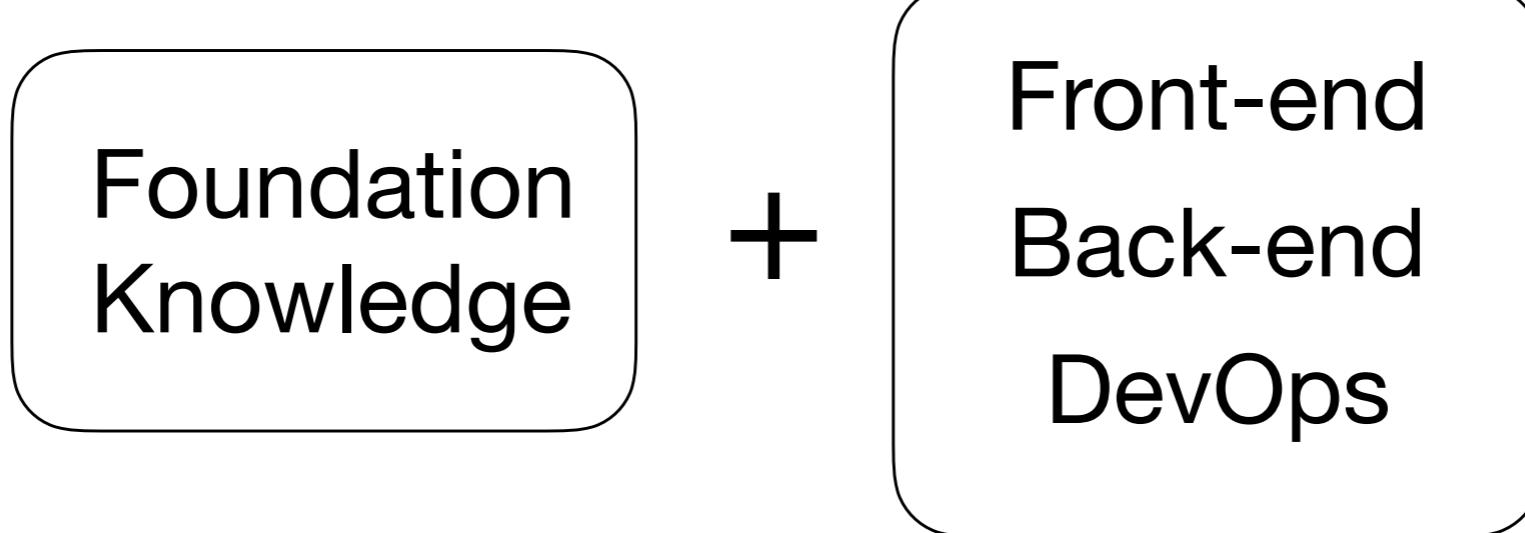
Lab-11b Todolist-3

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

Lab-12

Deploy the an app to Heroku. This will require a heroku account + a locally installed git tool set.

A roadmap to becoming a web developer in 2017



<https://github.com/kamranahmedse/developer-roadmap>

Foundation Knowledge

Git - Version Control

SSH

HTTP/HTTPs and APIs

Basic Terminal Usage

Learn to Research

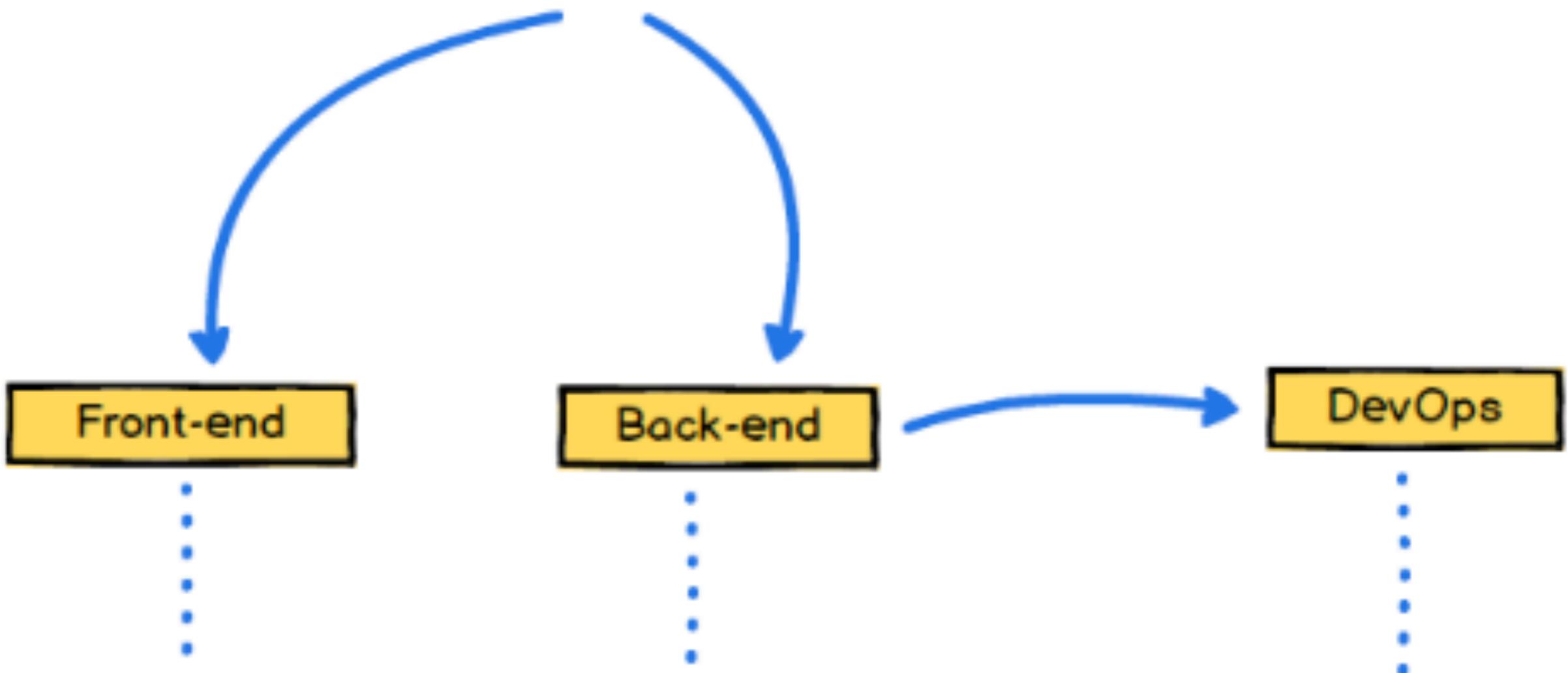
Datastructures & Algorithms

Character Encodings

Github

Create your profile. Explore the relevant opensource projects. Make your habit to look under the hood for the projects you like. Create and contribute to opensource projects.

Choose your path



Front-end + Back-end + DevOps == Full Stack

Front-end

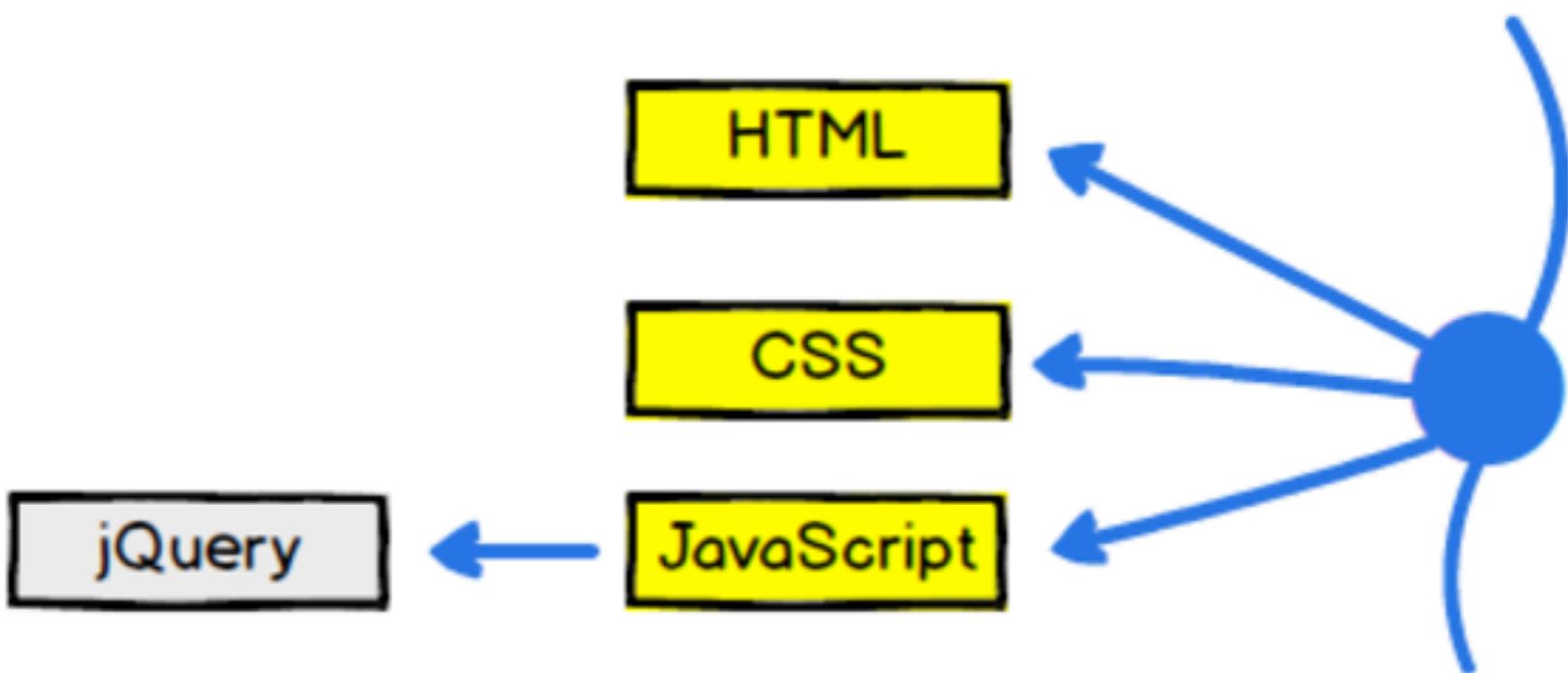
Basics

CSS Frameworks & Processors

JS Client Frameworks + Tools

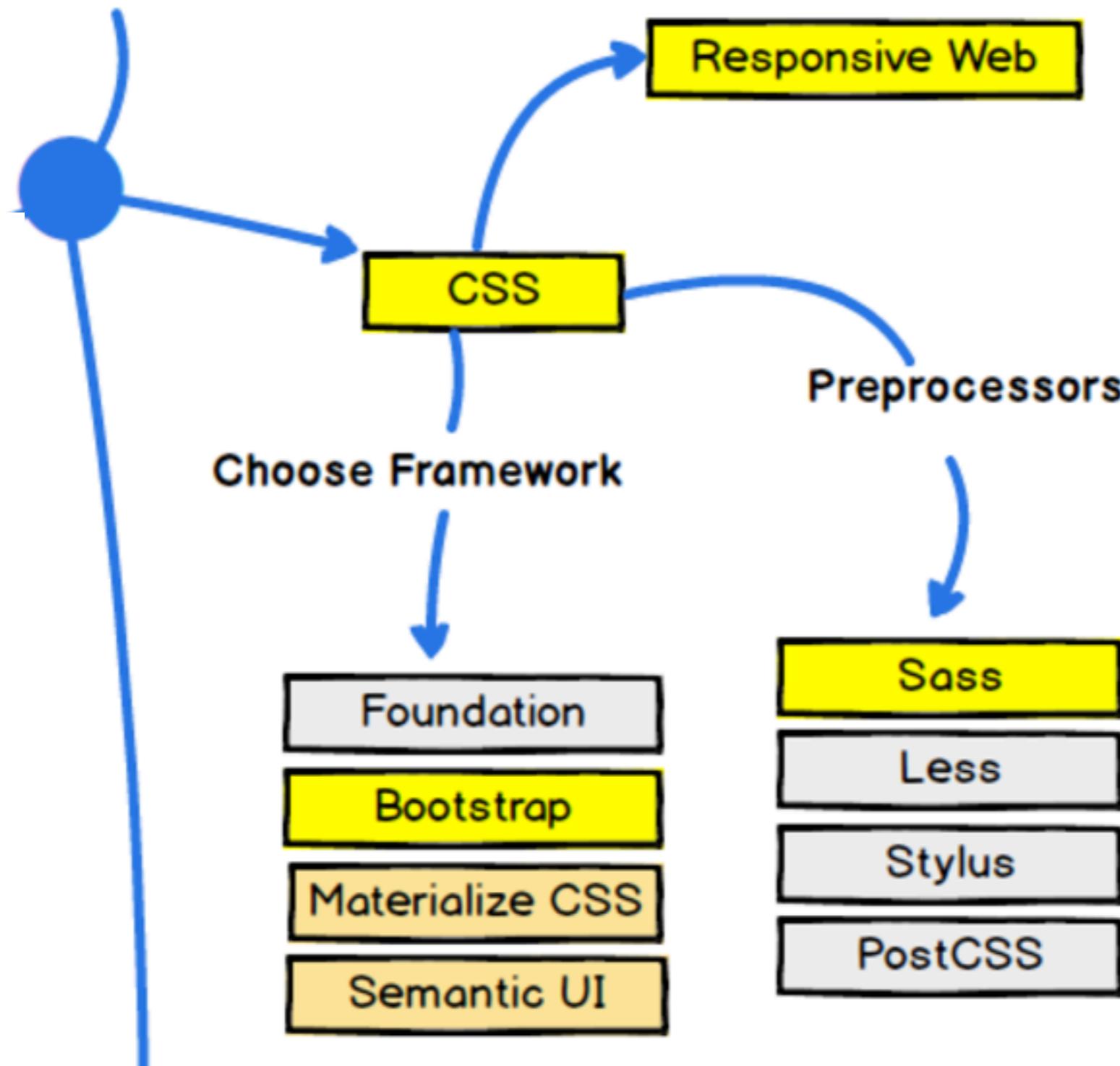
CSS Mastery, Graphics & Visualisation

Front-end: Basics

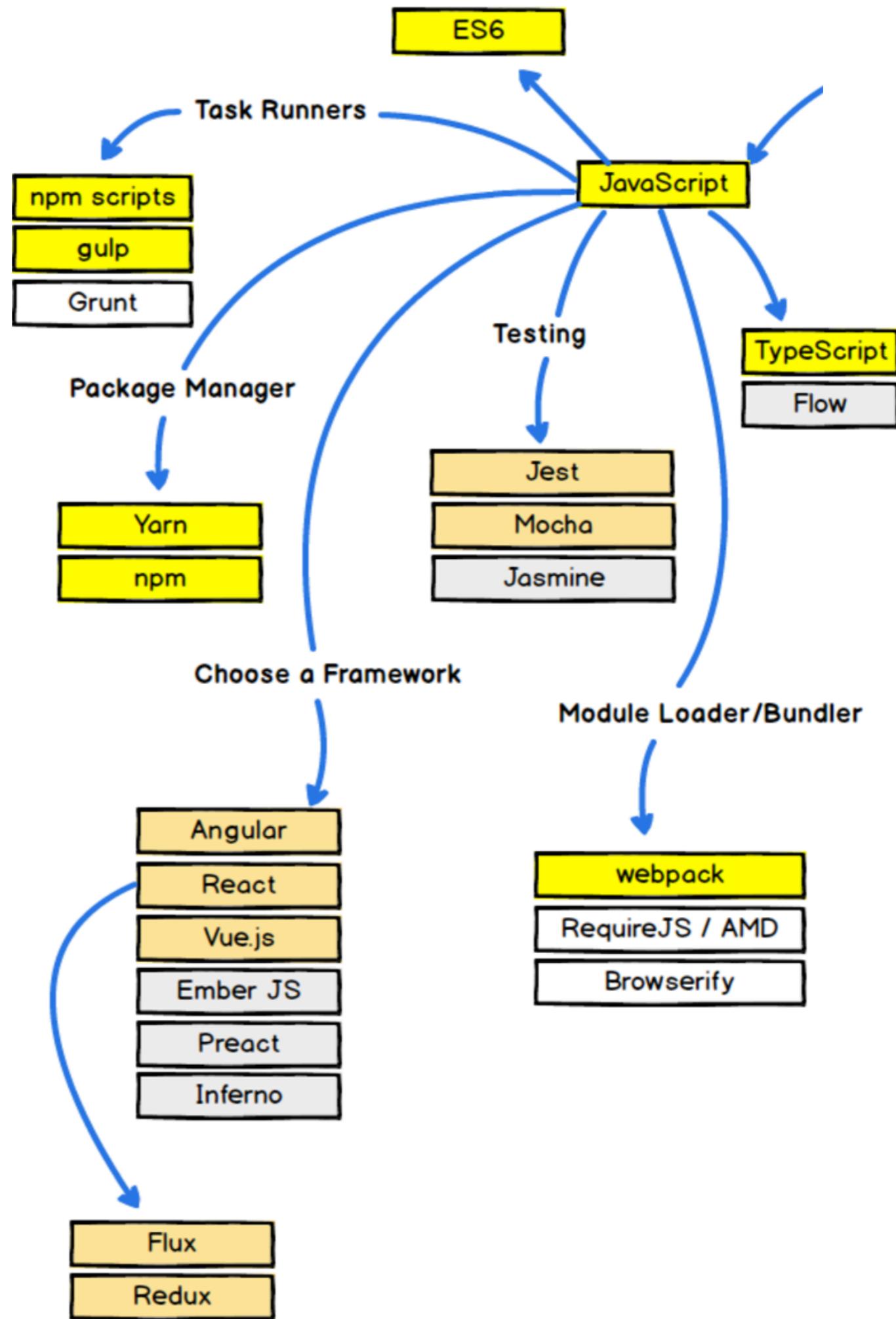


Front-end: CSS Frameworks & Processors

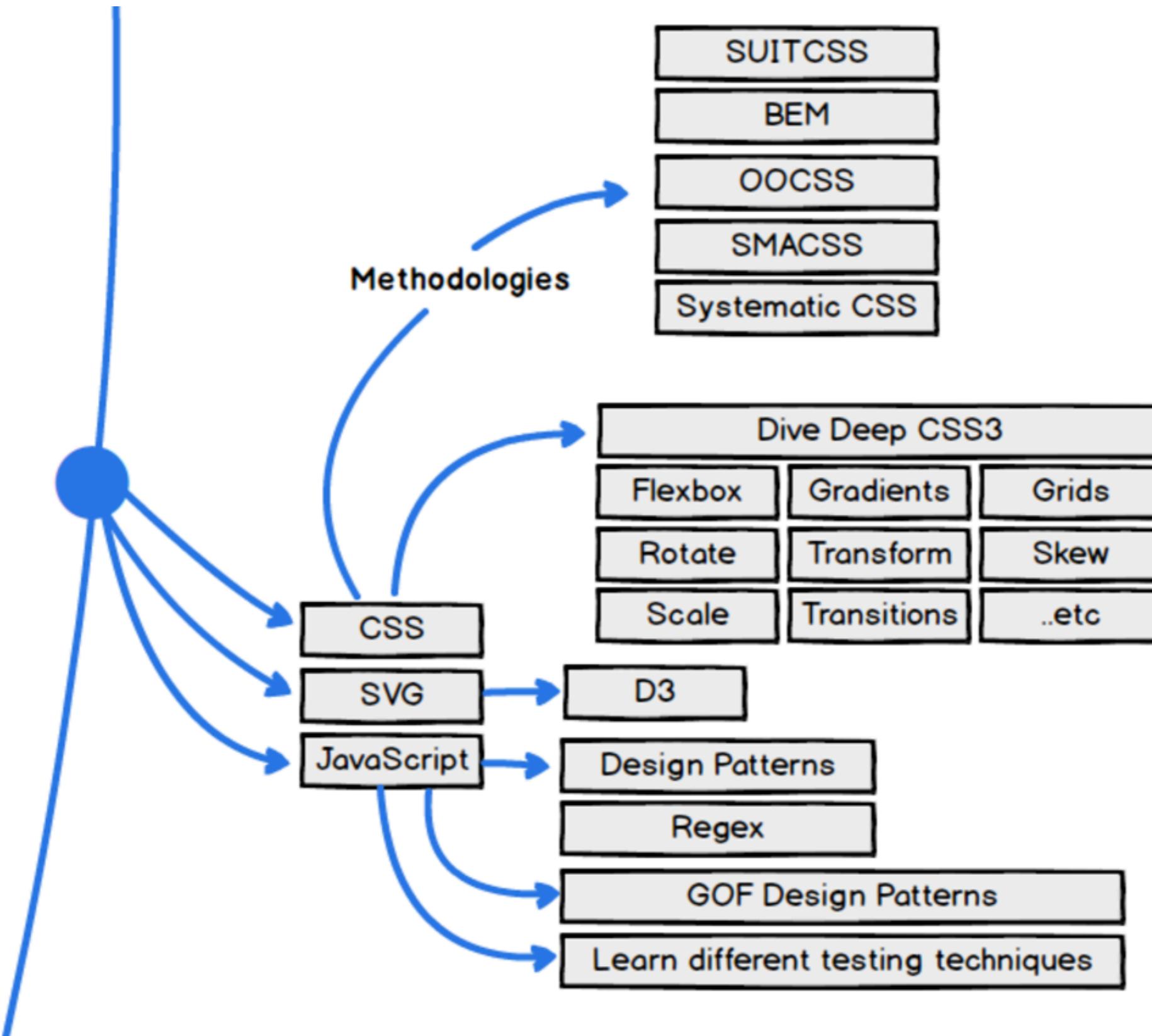
Getting Deeper



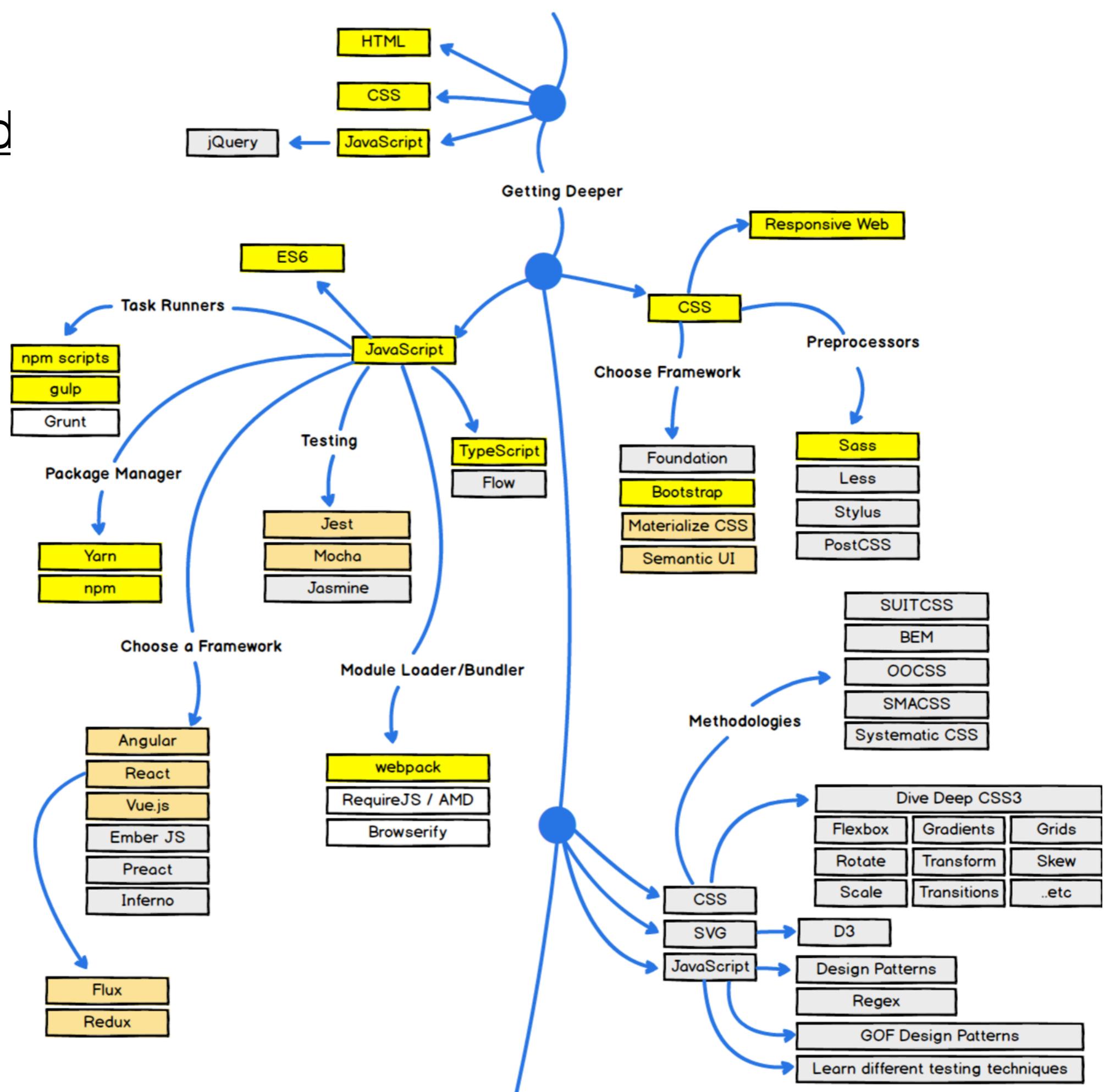
Front-end: JS Client Frameworks, & Tools



Front-end: CSS Mastery, Graphics & Visualisation



Front-end



Back-end

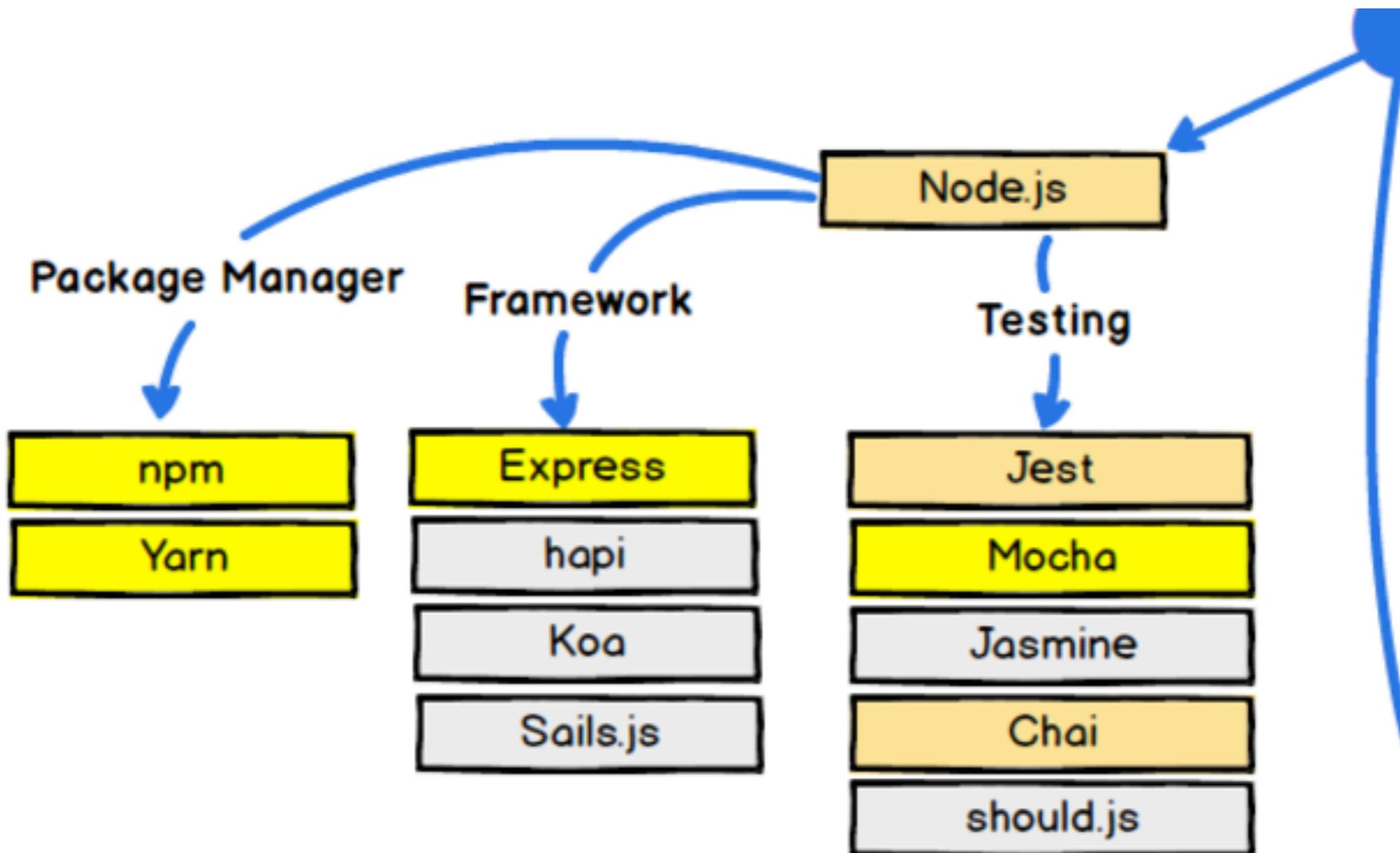
Node.js

Infrastructure + Key Techniques

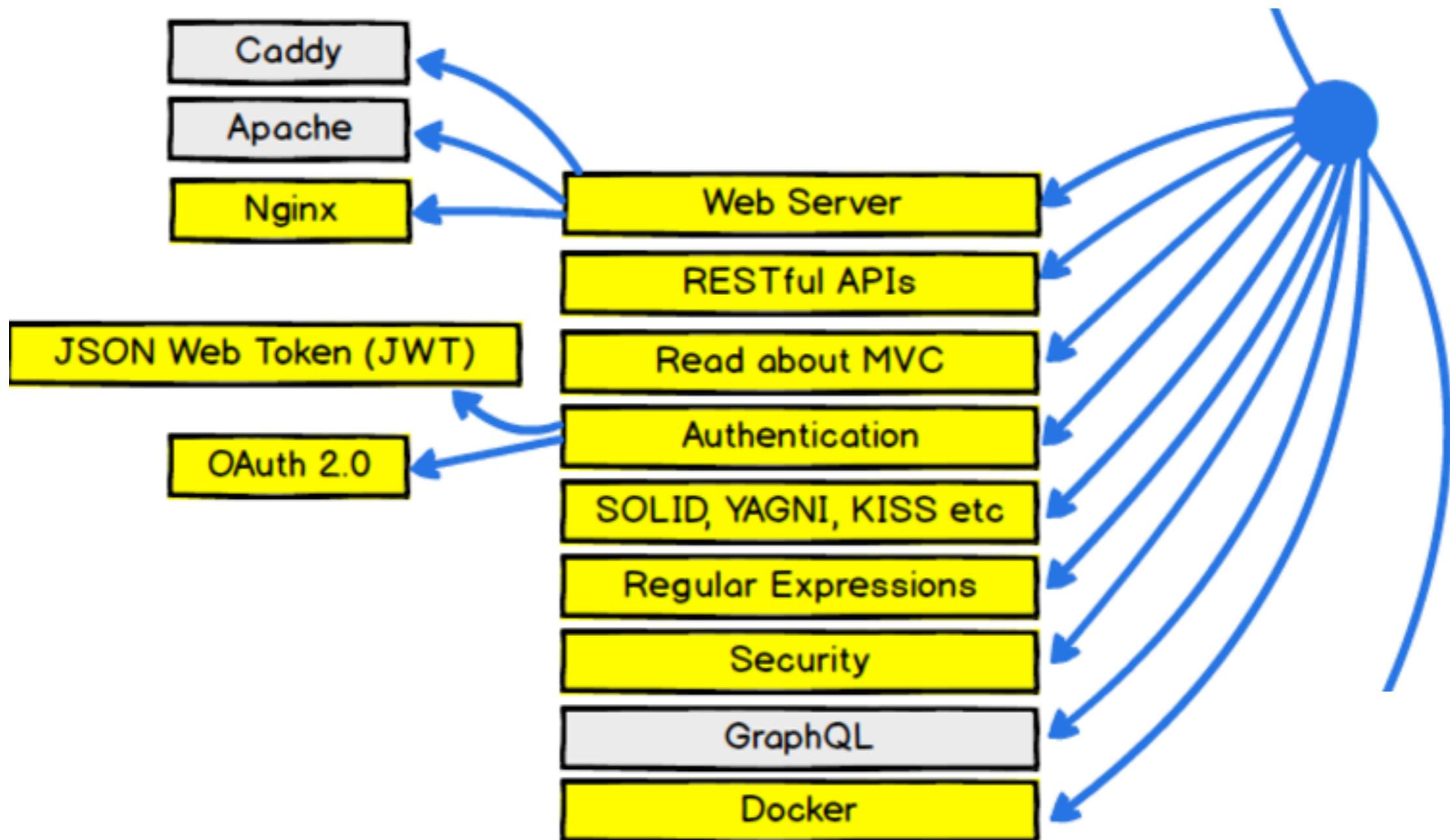
Database

Patterns

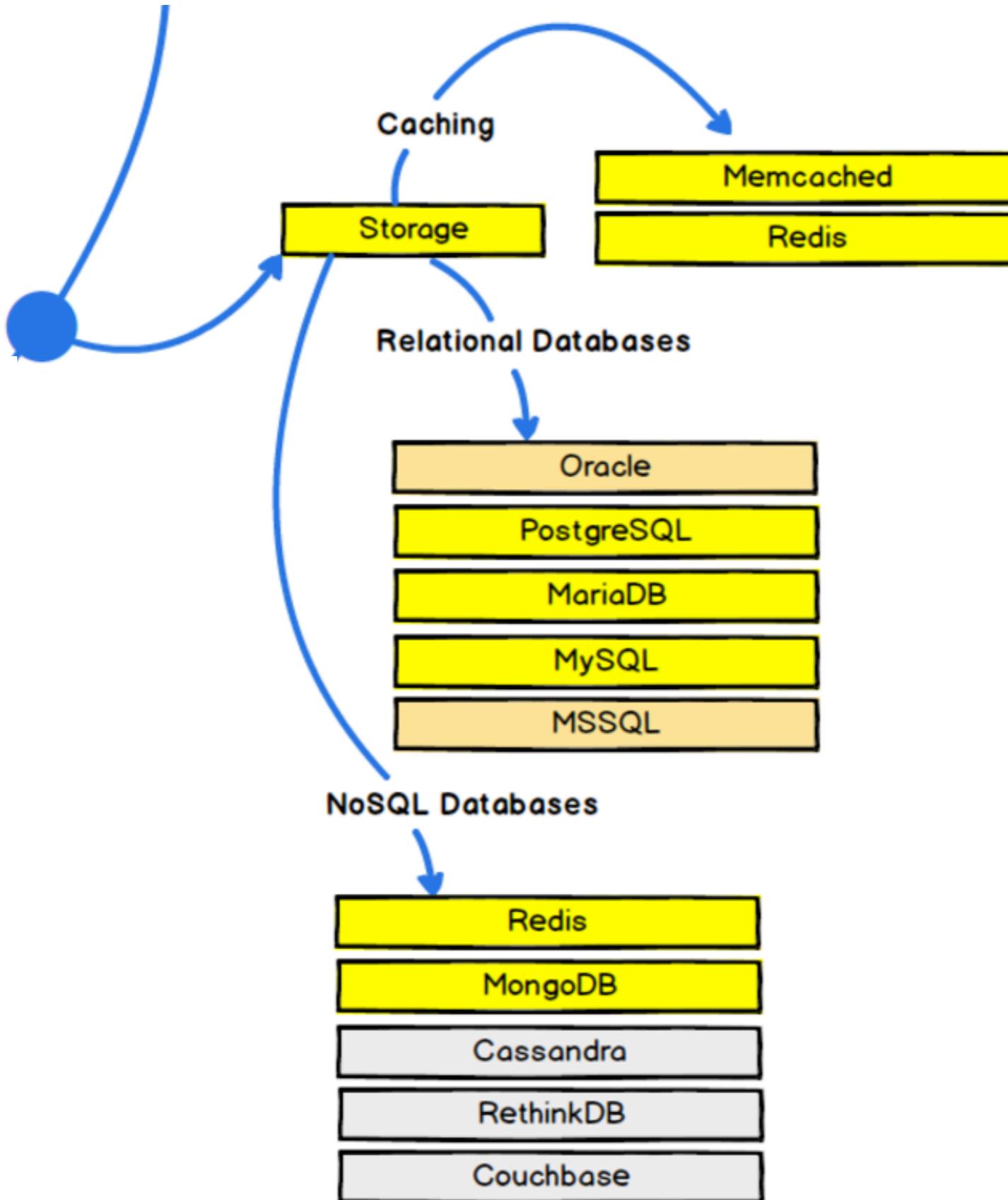
Back-end: Node



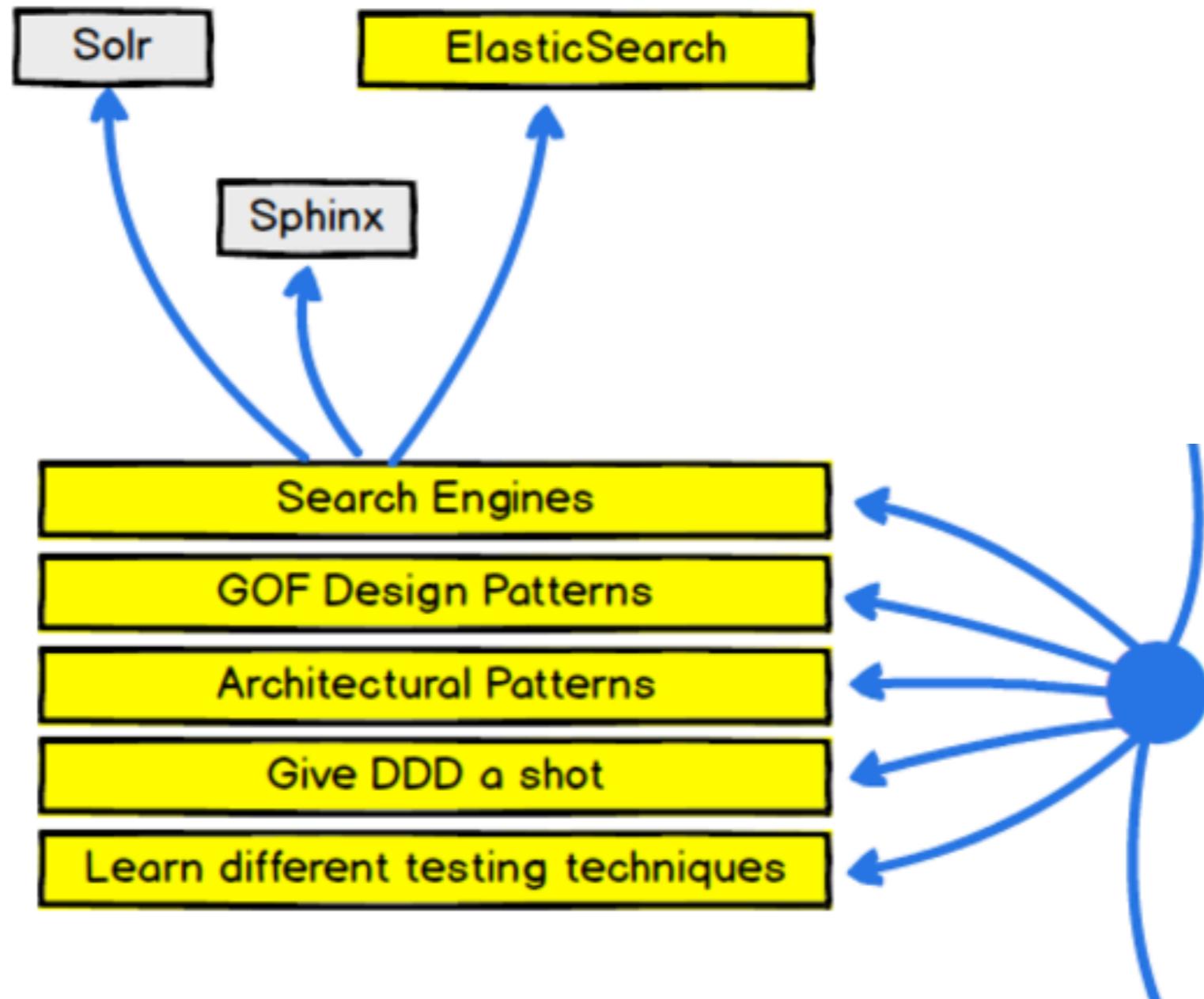
Back-end: Infrastructure + Key Techniques



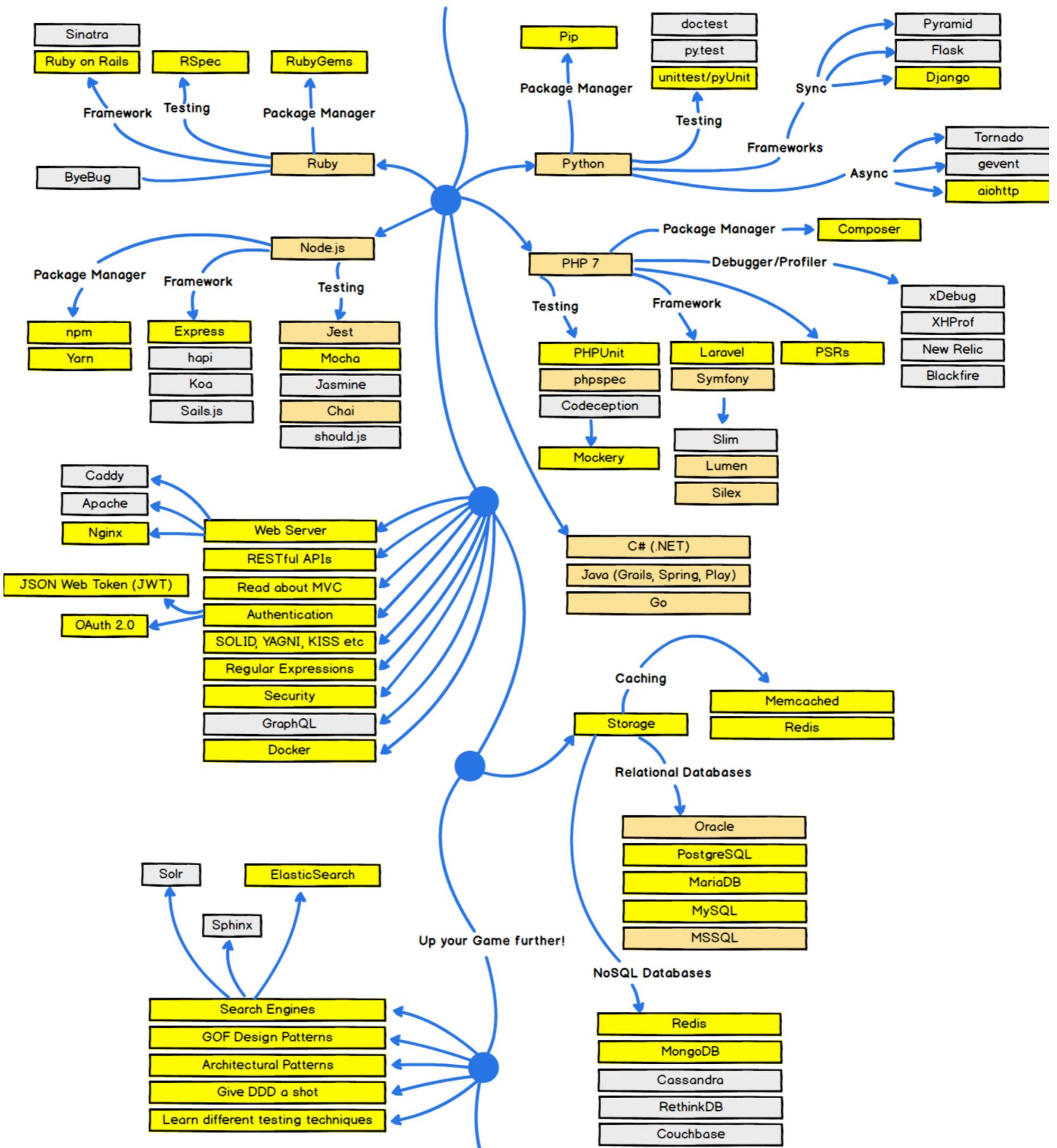
Back-end: Database



Back End: Patterns



Back End:



DevOps

