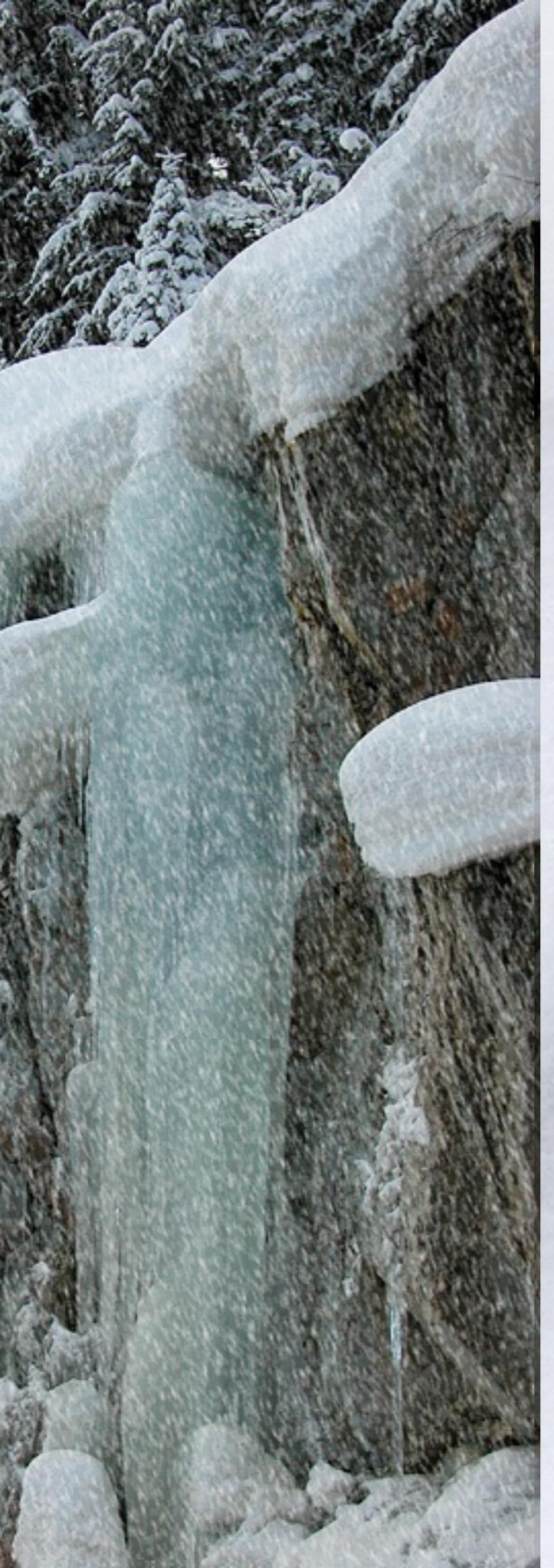


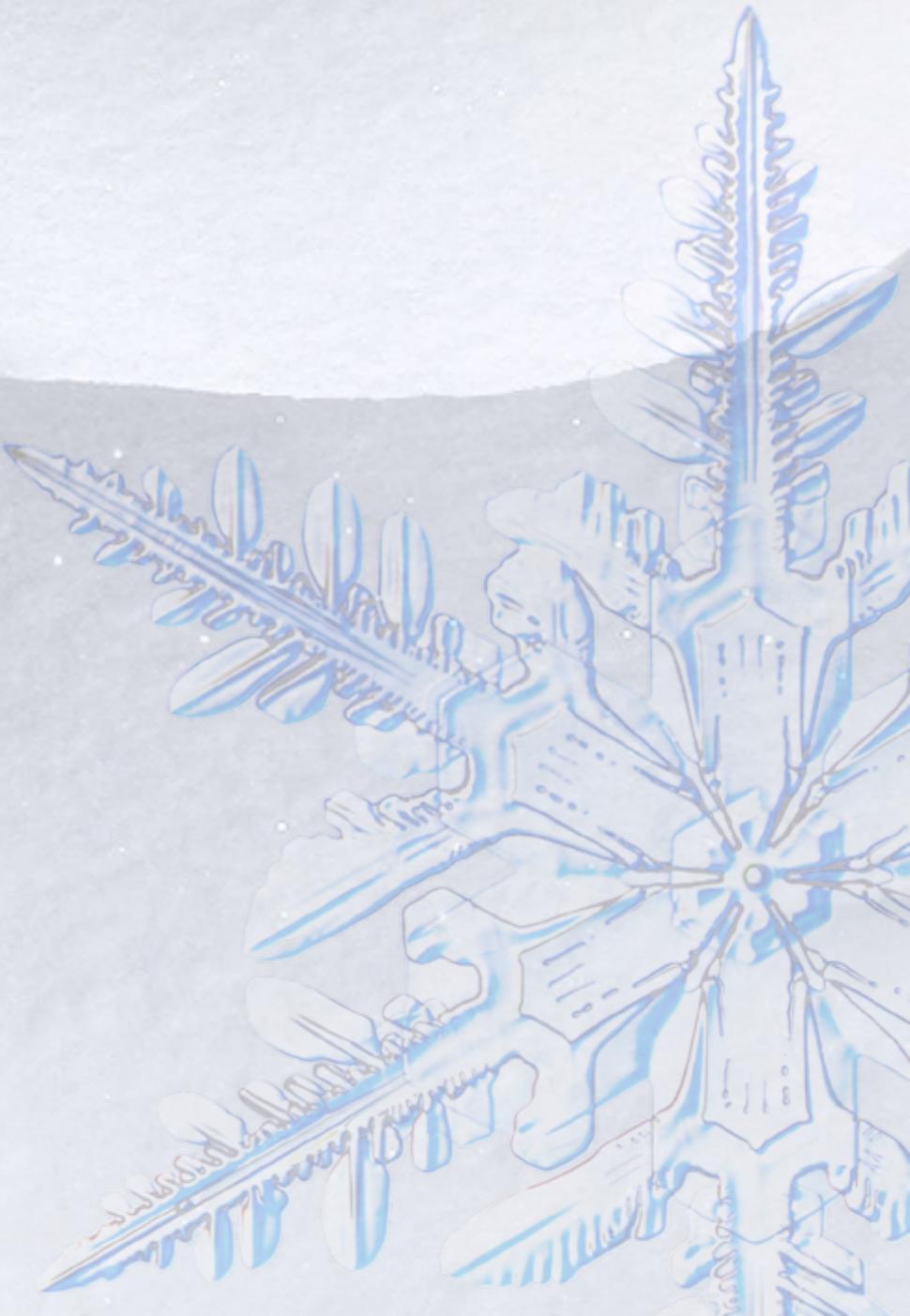
# Front-end Development

Haitao LIU  
[haitao.liu@nju.edu.cn](mailto:haitao.liu@nju.edu.cn)





# Outline

- ❖ *Introduction*
  - ❖ **Browsers**
  - ❖ **References**
- 

# Course Goals

- ❖ A general understanding of the fundamentals of the Internet and WWW
- ❖ Knowledge and experience with the major web technologies
- ❖ Introduction to terms and acronyms
- ❖ Insight into what constitutes a well designed, usable web application

# Course Contents

## Full Stack Web Development

- \* HyperText Markup Language (HTML) for authoring web pages
- \* Cascading Style Sheets (CSS) for supplying stylistic information to web pages
- \* JavaScript for creating interactive web pages
- \* Asynchronous JavaScript and XML (Ajax) for enhanced web interaction and applications
- \* Nodejs
  - Structured Query Language (SQL) for interacting with databases

## Optimization

- \* http
- \* performance

# THE FRONT-END SPECTRUM



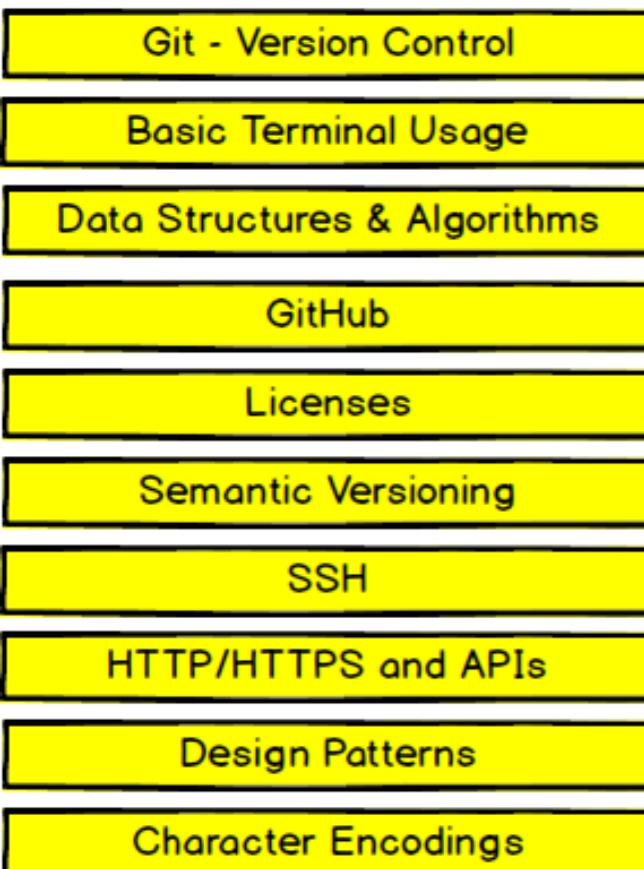
# 前端工程师应掌握的技术栈



# Web开发学习路线图

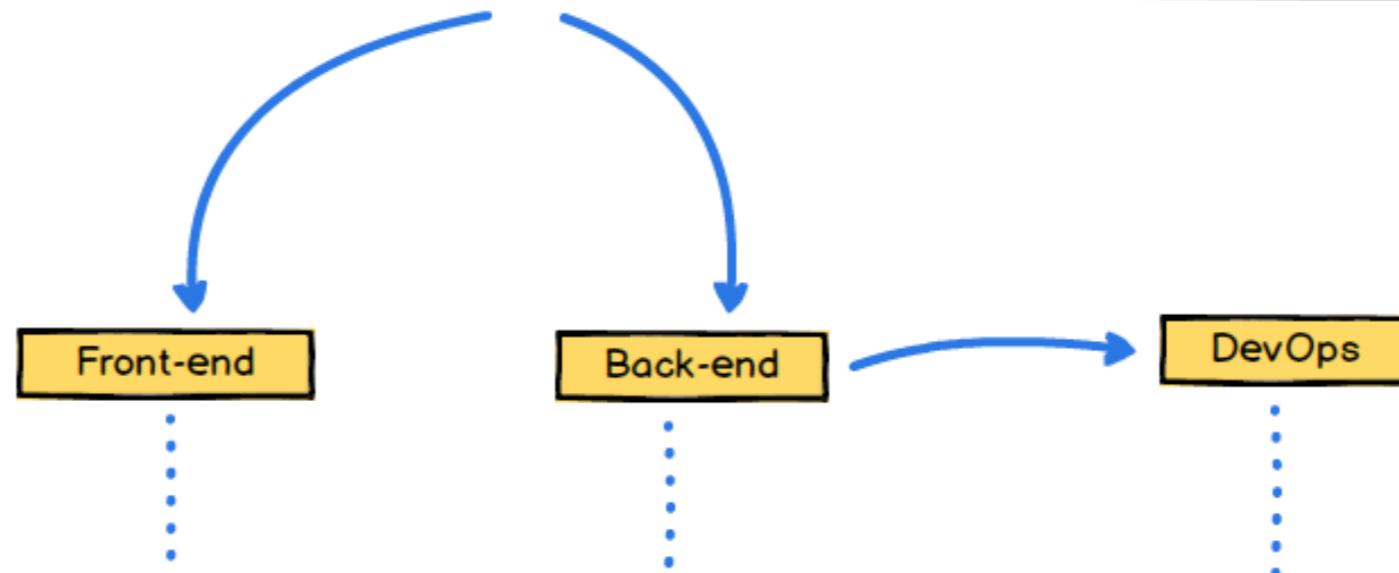
- ❄️ <https://github.com/kamranahmedse/developer-roadmap>
- ❄️ <https://frontendmasters.com/guides/learning-roadmap/>
- ❄️ <https://zhuanlan.zhihu.com/p/339835359>

Required for any path



## Web Developer in 2021

Choose your path



Find the detailed version of this roadmap along with resources and other roadmaps

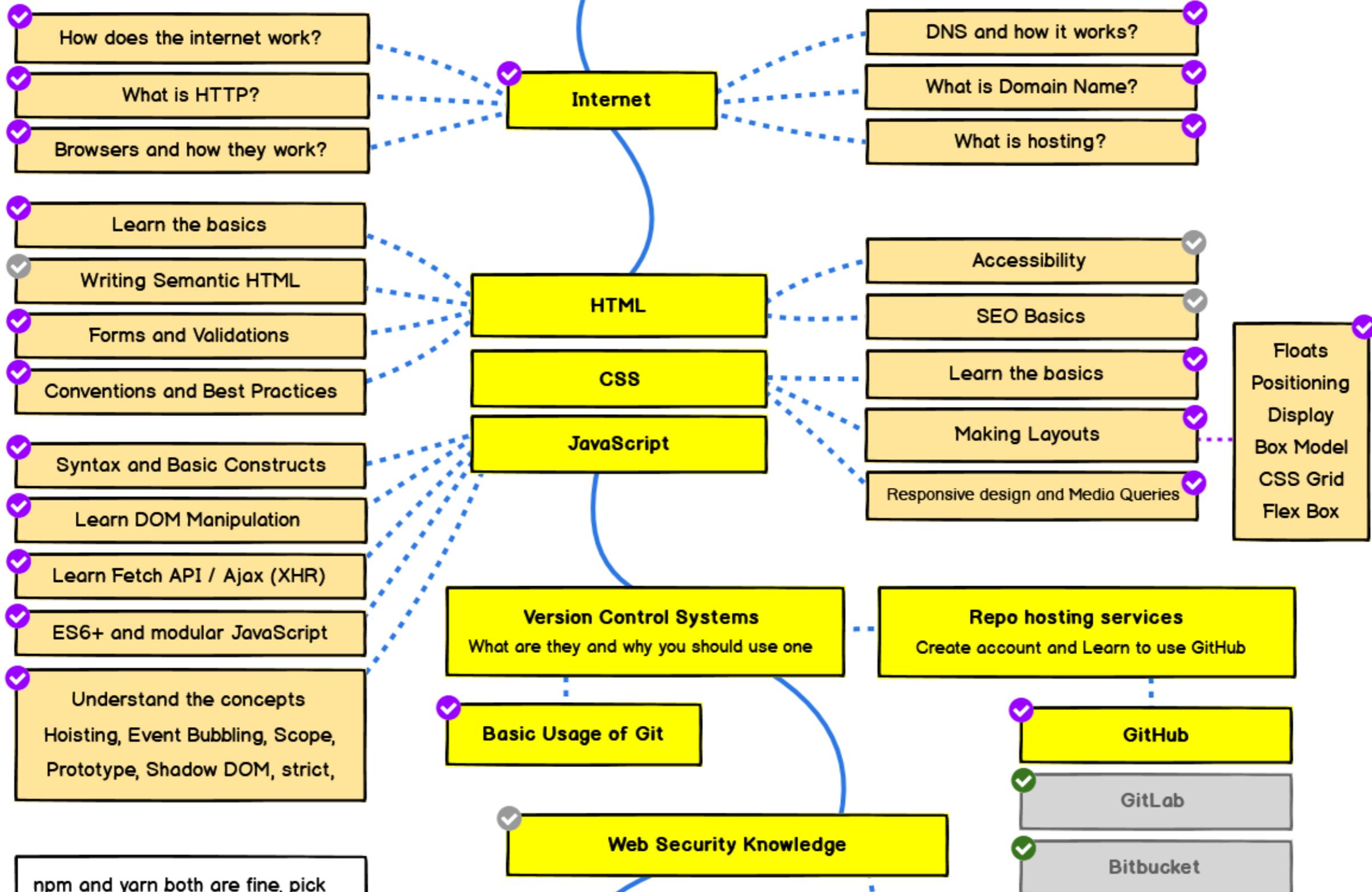
<http://roadmap.sh>

- ✓ Personal Recommendation / Opinion
- ✓ Alternative Option - Pick this or purple
- ✓ Order in roadmap not strict (Learn anytime)
- I wouldn't recommend

Find the detailed version of this roadmap along with resources and other roadmaps

<http://roadmap.sh>

# Front-end



one or learn both, there is not much difference.

- ✓ npm
- ✓ yarn

## Package Managers

Get at least a basic knowledge of all of these

- |       |                         |
|-------|-------------------------|
| HTTPS | Content Security Policy |
| CORS  | OWASP Security Risks    |

BEM

OOCSS

SMACSS

## CSS Architecture

With modern frameworks and CSS-in-JS you don't have to worry about these anymore but still it would be a good idea to get familiarized with BEM atleast.

## CSS Preprocessors

With how the modern frameworks there has been more push towards CSS-in-JS so you may not need these but still a good idea to familiarize yourself.

Sass

PostCSS

Less

npm scripts

Gulp

## Task Runners

Webpack

Rollup

Parcel

## Module Bundlers

## Build Tools

## Linters and Formatters

Prettier

ESLint

StandardJS

Styled Component

CSS Module

Styled JSX

Emotion

Radium

Glamorou

## Pick a Framework

React.js

Angular

Vue.js

Redux

MobX

RxJS

NgRx

VueX

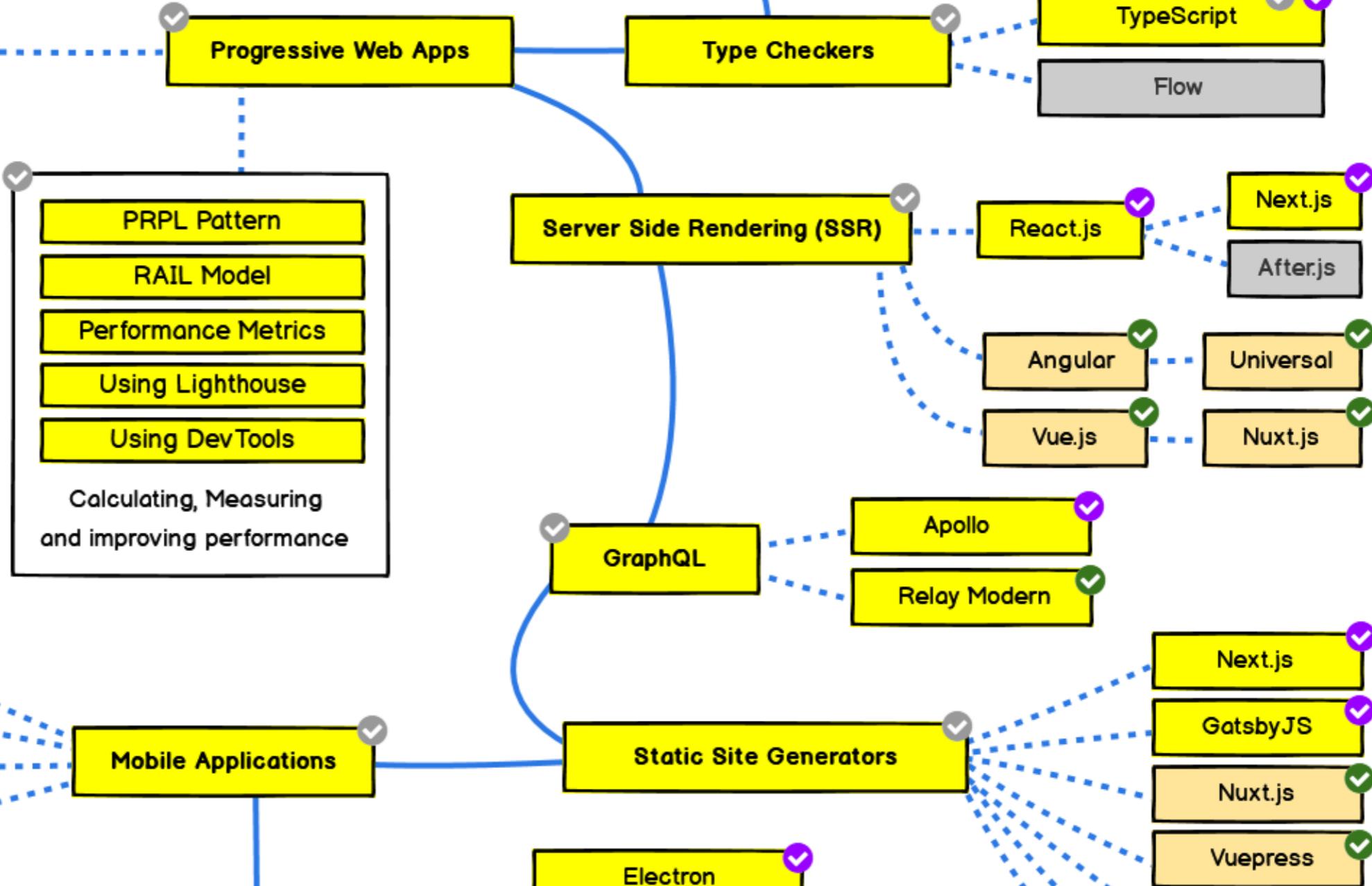
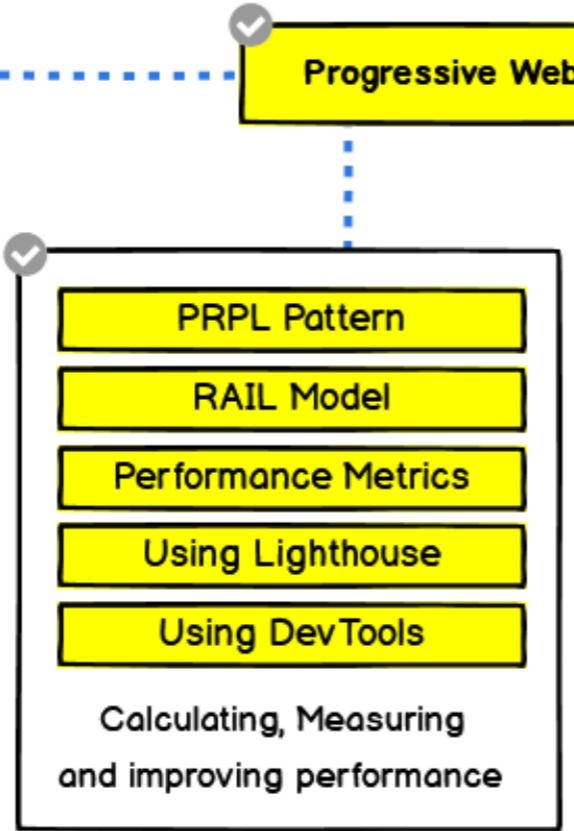
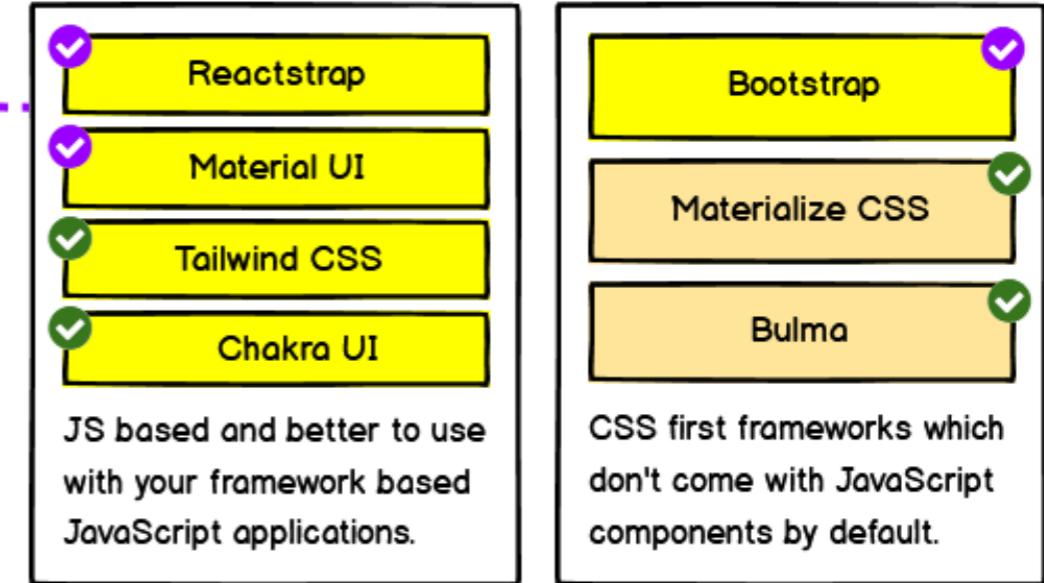
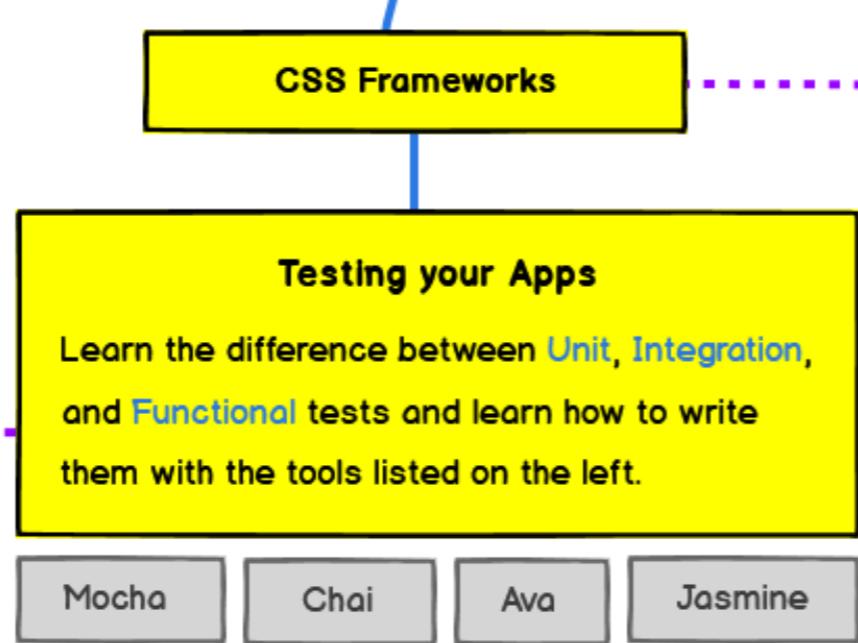
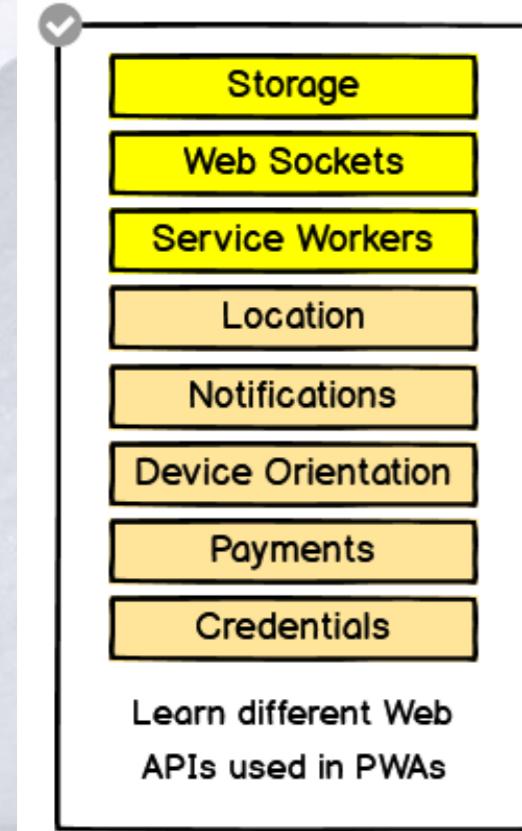
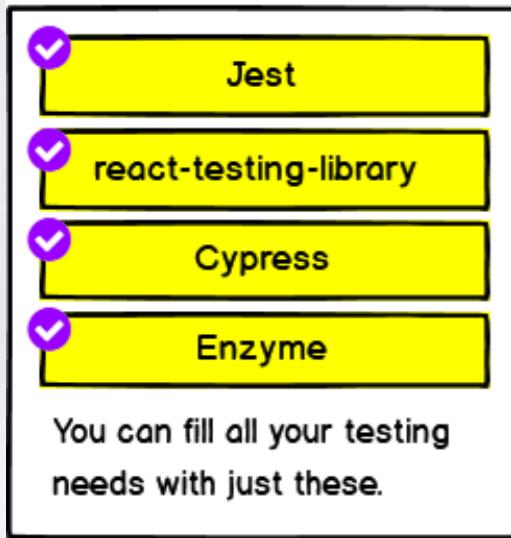
## Modern CSS

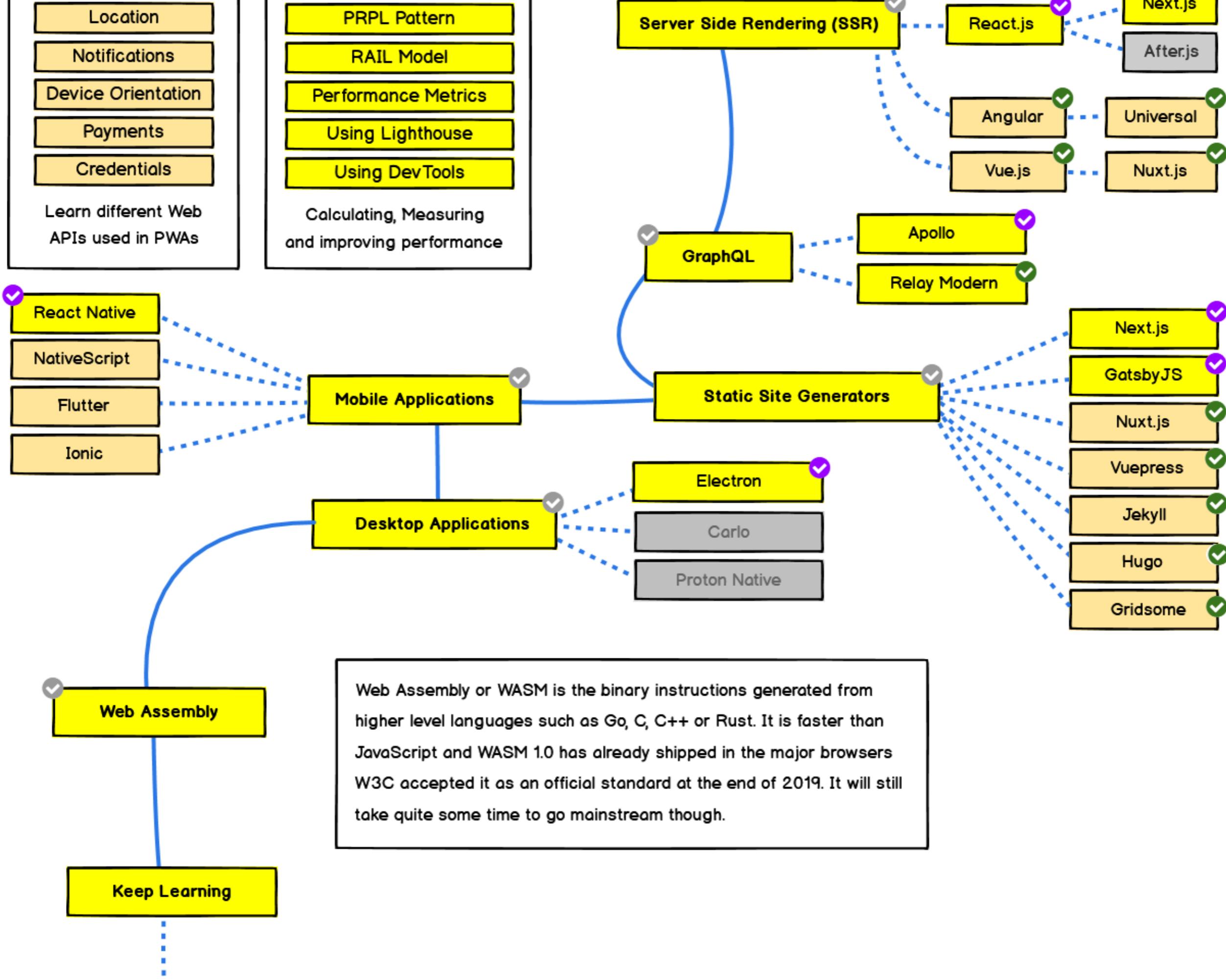
## Web Components

HTML Templates

Custom Elements

Shadow DOM



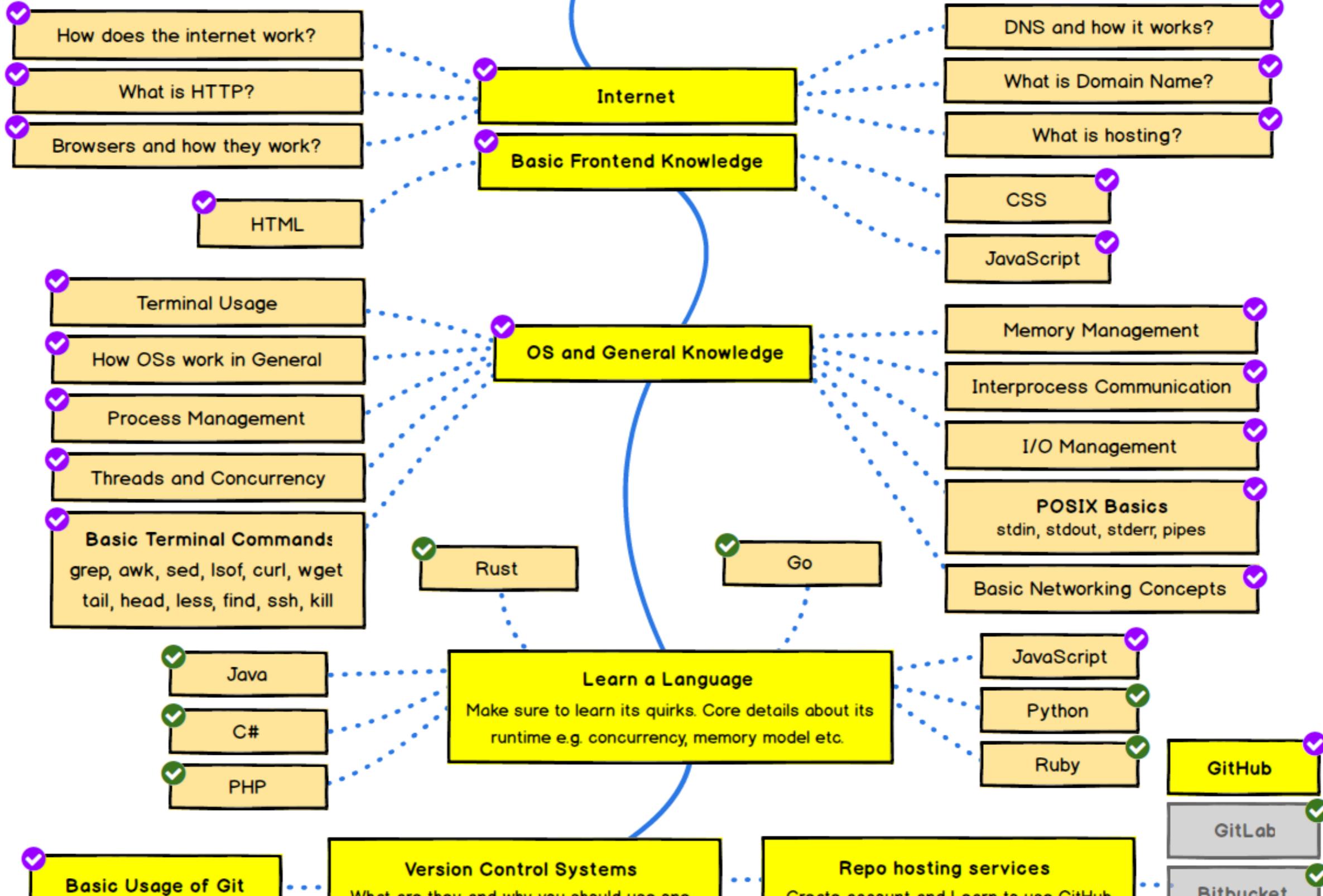


- ✓ Personal Recommendation / Opinion
- ✓ Alternative Option - Pick this or purple
- ✓ Order in roadmap not strict (Learn anytime)
- I wouldn't recommend

Find the detailed version of this roadmap along with resources and other roadmaps

[http:// roadmap.sh](http://roadmap.sh)

# Backend



# Course Arrangement

- ❖ 4\*8 weeks
  - \* Teaching
  - \* Homeworks

# 考核

Coursework - 50%

- \* Experiments + Homeworks

Exam - 50%

- \* Two hour written examination

\*

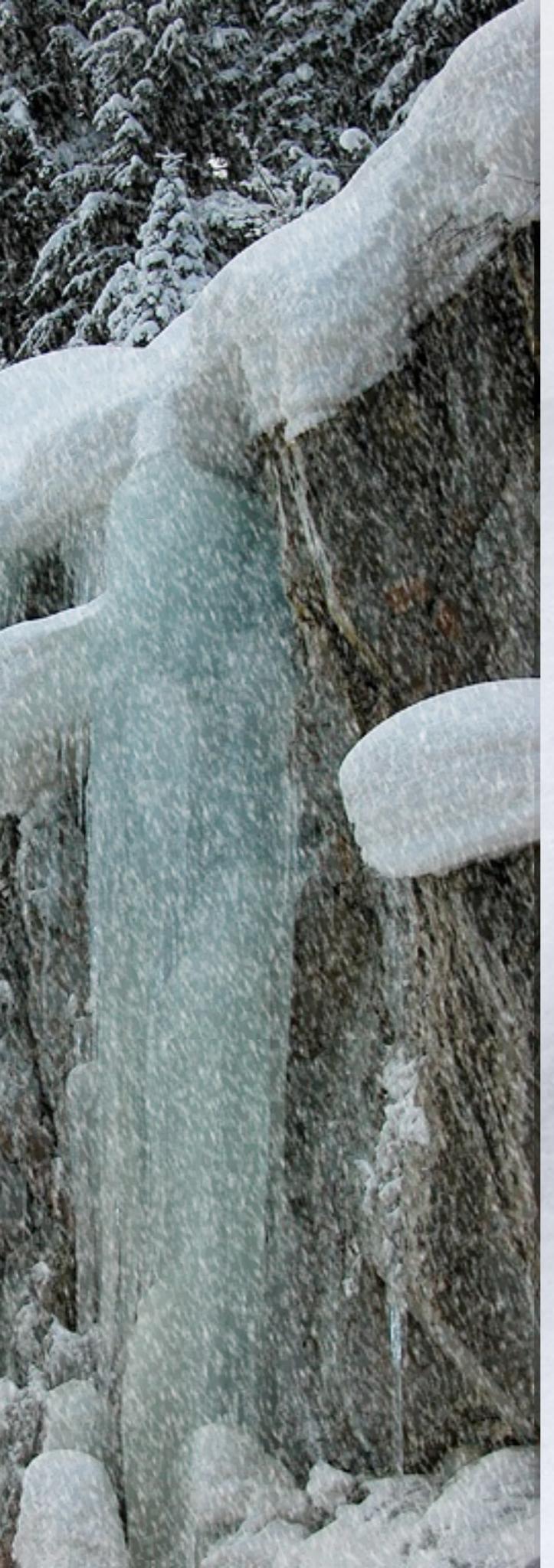
# 交流方式

❖ Moodle

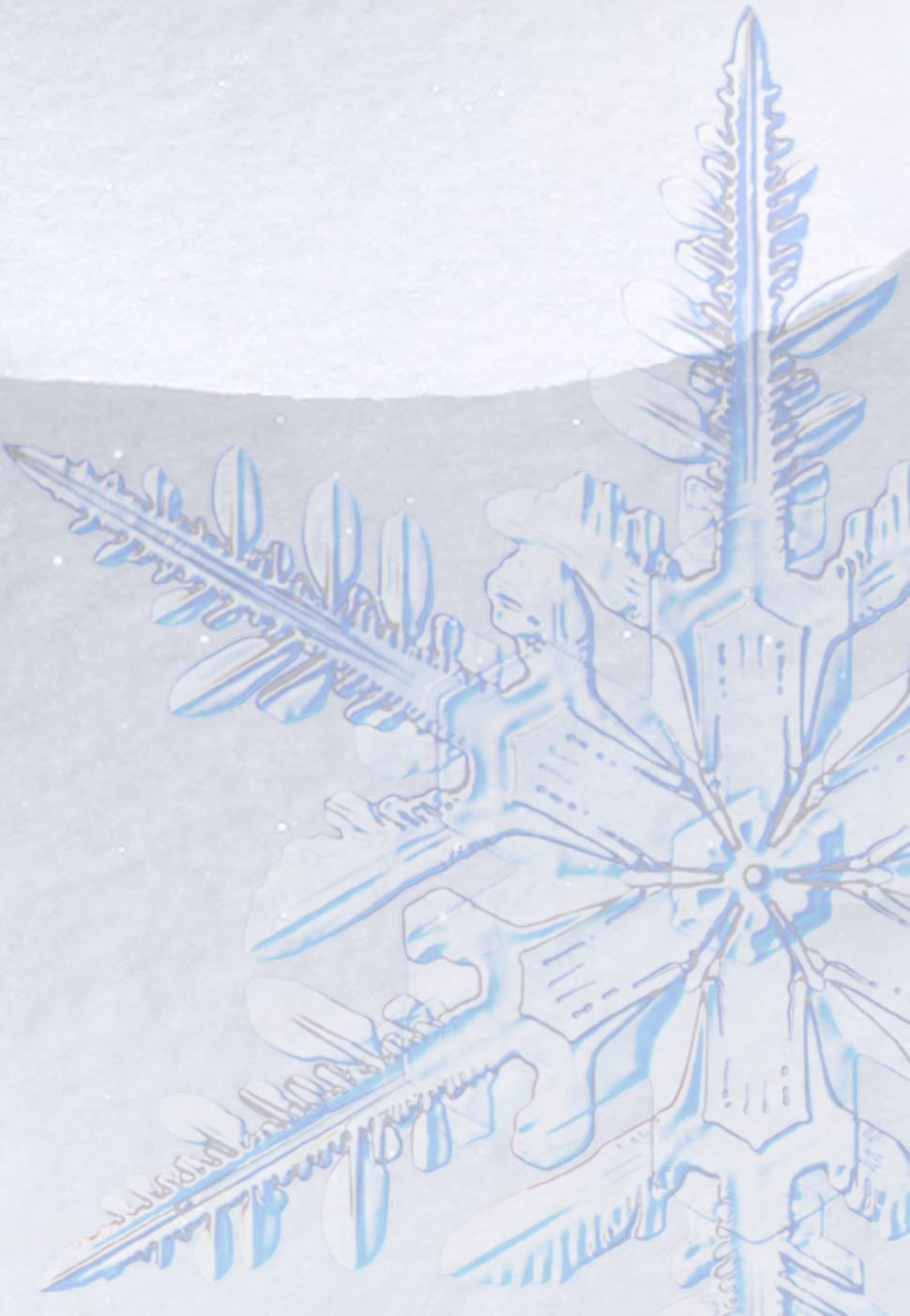
❖ qq群

❖ email: haitao.liu@nju.edu.cn





# Outline

- ❖ **Introduction**
  - ❖ **Browsers**
  - ❖ **References**
- 

# 拥抱不确定性

## 十年前

- \* 微软垄断下严格限定的边界

## 现在

- \* 宽松
- \* 比如响应式web设计、渐进渐强

## 放弃所谓绝对的解决方案。。。。

- \* 不同设备，不同的浏览器，不同规格的屏幕访问

# 从微软独家垄断到今天百花齐放

## ❄ 第一次浏览器大战

- \* 1995 - 1999

## ❄ 后.com时代

- \* 2000 - 2005, IE占据了90%左右的市场份额

## \* 今天

- \* IE, Chrome, Firefox, Opera, Safari
- \* 移动设备的大规模增长
- \* 浏览器版本更新频率极快

# 我们现在所处的位置

## ❄ 可变因素

- \* 屏幕分辨率
- \* 像素深度
- \* 浏览器兼容性
- \* 屏幕大小
- \* 人机交互输入框类型
- \* .....

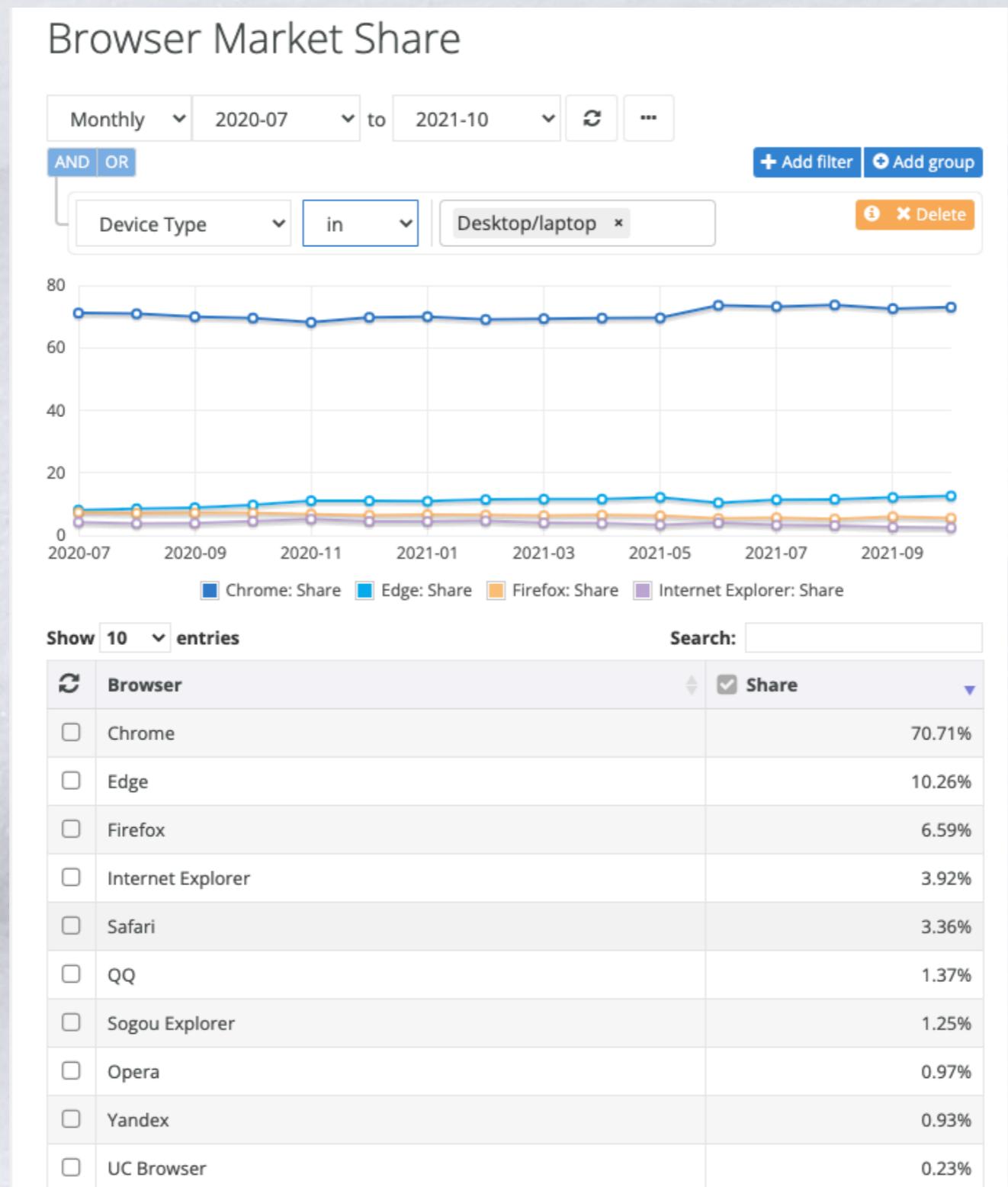
# 浏览器

- ✿ 四大派系，核心是布局引擎，用以决定文档和样式如何渲染
  - \* 微软的Trident，IE的内核
  - \* 基于开源项目WebKit的浏览器
  - \* 基于Blink开源项目的浏览器
    - \* 2013从Webkit中派生，是最新版的Chrome和Opera的布局引擎
  - \* Mozilla公司的Gecko，Firefox的内核

# JavaScript引擎

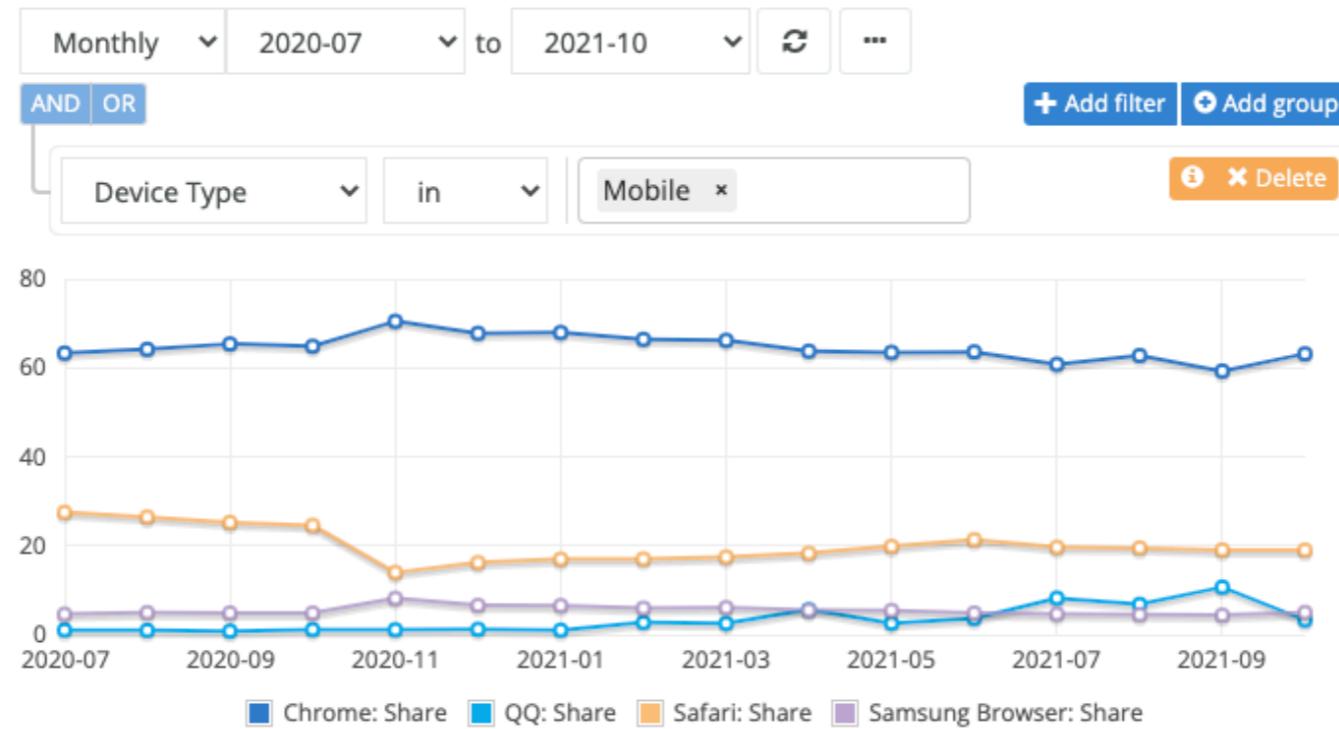
- ❄ Chakra, IE
- ❄ SquirrelFish Extreme / Nitro, Webkit
- ❄ V8, Chrome和Opera
  - \* 第一个在执行前将JS编译为原生代码的JS引擎
- ❄ SpiderMonkey, Firefox

# Desktop & laptop Browsers



# Mobile Browsers

## Browser Market Share



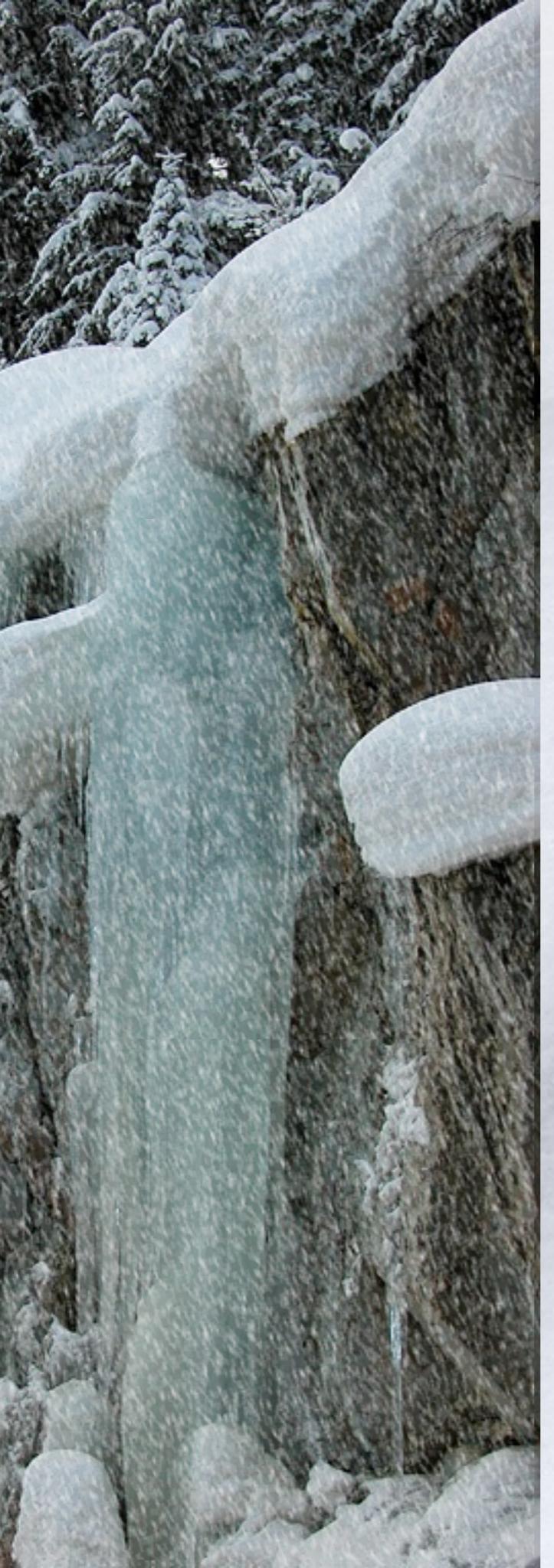
Show 10 entries

Search:

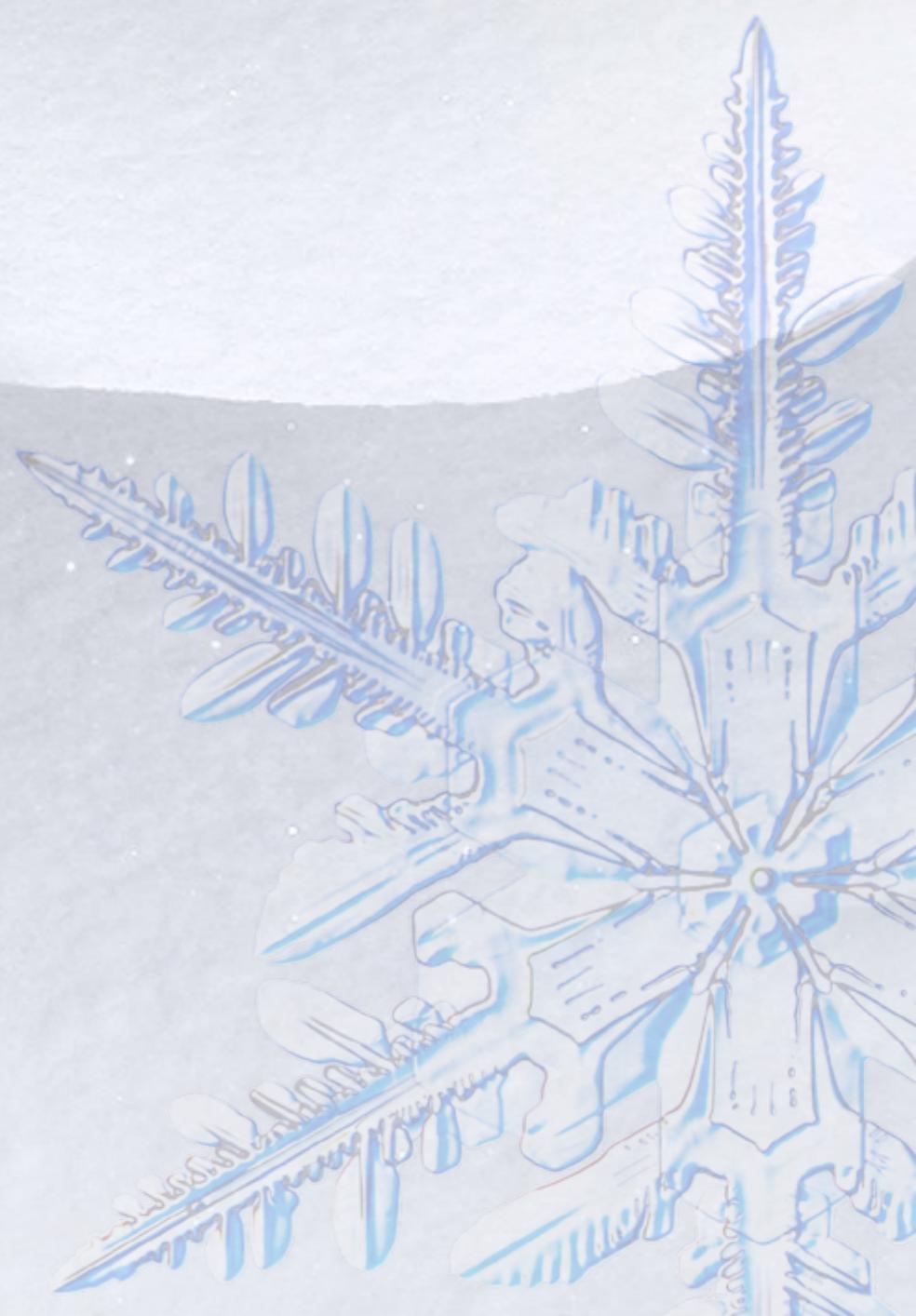
<input type="checkbox"/>	Browser	<input checked="" type="checkbox"/> Share
<input type="checkbox"/>	Chrome	64.39%
<input type="checkbox"/>	Safari	21.76%
<input type="checkbox"/>	Samsung Browser	5.23%
<input type="checkbox"/>	QQ	2.82%
<input type="checkbox"/>	Opera	1.55%
<input type="checkbox"/>	Baidu	1.20%
<input type="checkbox"/>	Opera Mini	0.85%
<input type="checkbox"/>	Android Browser	0.68%
<input type="checkbox"/>	UC Browser	0.58%
<input type="checkbox"/>	Firefox	0.58%

# So

- ❄ 测试尽可能多的浏览器是必要
- ❄ 然而为特定浏览器或浏览器版本开发或写特定的代码，很少奏效。这是一个过于庞大的清单
- ❄ 需要考虑的是特性，特性检测



# Outline

- ❖ **Introduction**
  - ❖ **Browsers**
  - ❖ **References**
- 

# Text books and notes

❖ Slides available from:

- \* Moodle

❖ Recommended Text:

- \* [美] 道格拉斯·克罗克福德 (Douglas Crockford) 著, 死月 (朱凯迪) 译. JavaScript悟道. 人民邮电出版社.2021.
- \* 侯策 著。前端开发核心知识进阶：从夯实基础到突破瓶颈(博文视点出品)。电子工业出版社，2020。
- \* [美] 克里斯·阿基诺, 托德·甘迪 (Chris, Aquino, Todd, Gandee) 著, 奇舞团译. Web开发权威指南. 人民邮电出版社,2017.
- \* Others: 参见各章

# Additional Resources

- ❄ MDN Web Docs, <https://developer.mozilla.org/zh-CN/>
- ❄ W3C Documentation
  - \* <http://www.w3.org/>
- ❄ <https://devdocs.io/>
  
- ❄ <https://www.w3school.com.cn/>
- ❄ <http://www.w3schools.com/>
- ❄ [www.stackoverflow.com](http://www.stackoverflow.com)
- ❄ More.....
  
- ❄ <https://frontendchecklist.io/>, 适用于现代网站和细致开发人员的完美前端清单
- ❄ Egghead
- ❄ <https://frontendmasters.com/>
  - \* <https://frontendmasters.com/guides/learning-roadmap/>

# Software

❄️ JetBrains WebStorm

❄️ VS code/Atom.io/Sublime Text

❄️ Chrome

\* 开发者工具，便于调试，与标准兼容性好，Web开发的首选浏览器。

❄️ vscode.dev

❄️ Others.....

# Thanks!!!

