



ОНЛАЙН-ОБРАЗОВАНИЕ

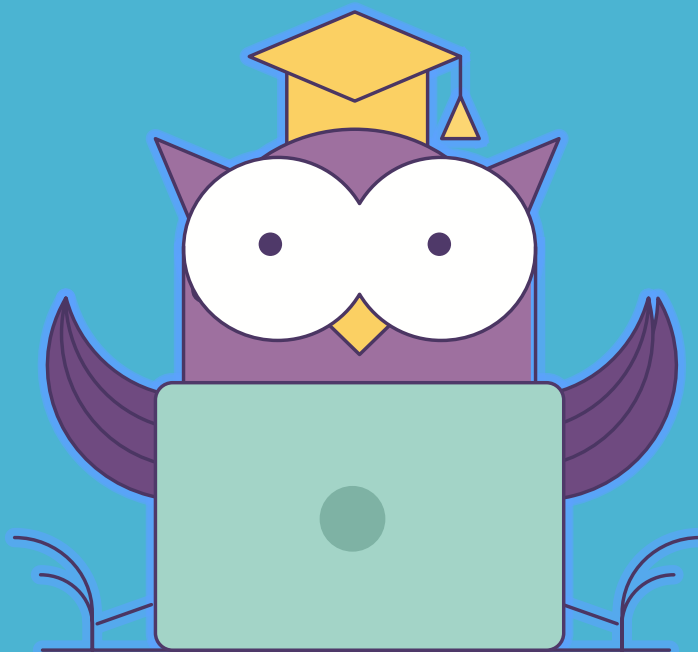
Modern JavaScript Frameworks

Summary

Александр Коржиков



Как меня слышно и видно?



> Напишите в чат

+ если все хорошо

– если есть проблемы со звуком или с видео

- **Zoom**
- **Presentations** with **remark**
- Do you want a final test?
- What about extra lessons?

- <https://vuejs.org/v2/guide/comparison.html>

Comparison with Other Frameworks

- <https://developers.google.com/web/>

Web Fundamentals

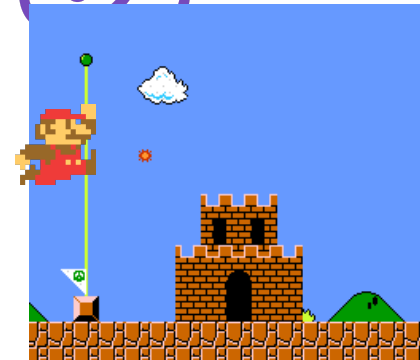
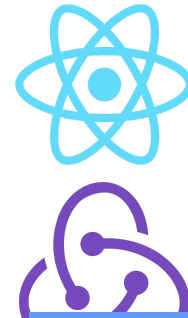
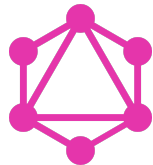
- Выделять характеристики проектов и окружения
- Решать задачи выбора и сравнения фреймворков, понимать их преимущества и недостатки

Темы

- Technologies
- Summary
- Comparison
- Самостоятельный проект



express



- React Native / NativeScript
- Augmented / Virtual Reality
- A11Y / Styles
- Tools - Lighthouse
- Elm / EmberJS / Aurelia
- GraphQL
- Electron
- Tensorflow

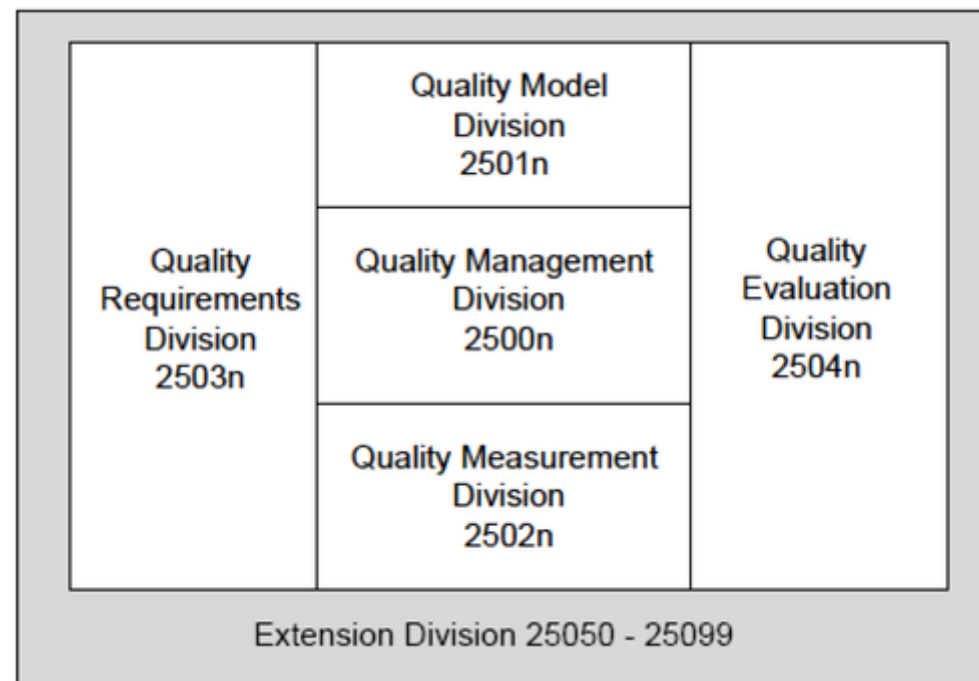
Какую бы технологию добавили
бы Вы?



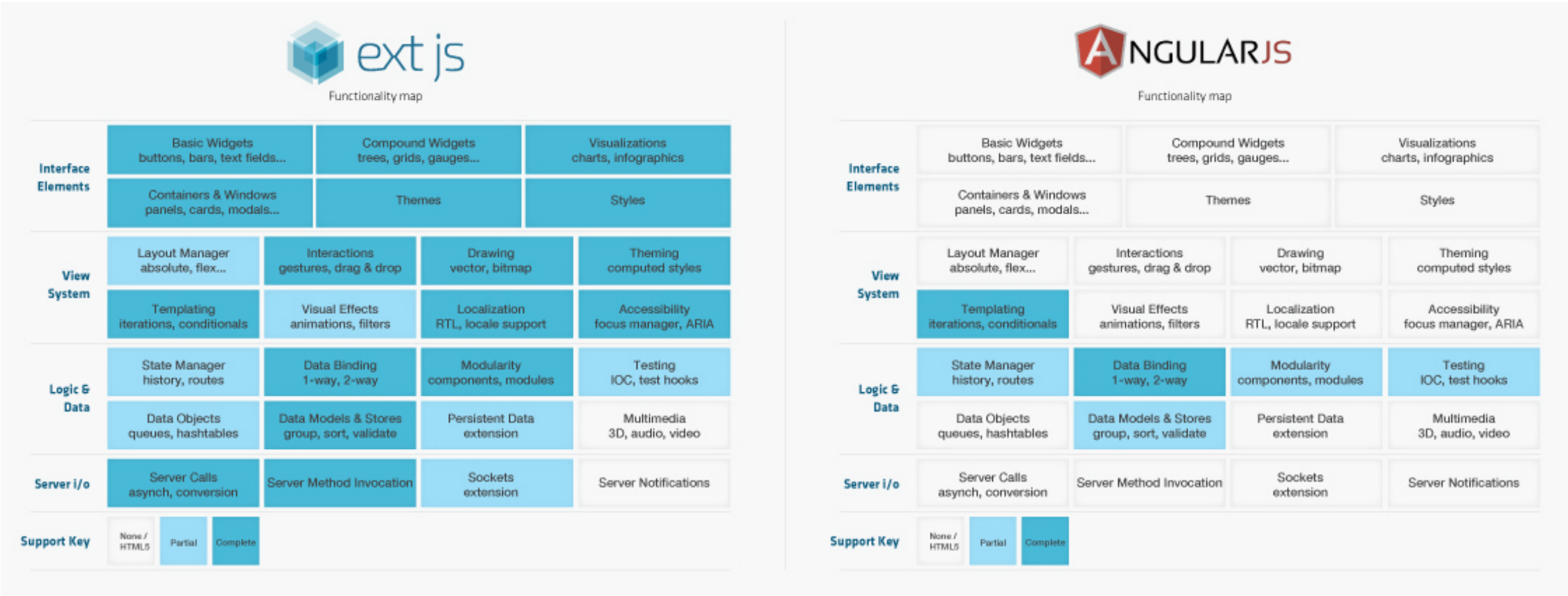
Как можно сравнивать технологии?



Systems and software Quality Requirements and Evaluation



Comprehensive specification and evaluation of the quality of software and software-intensive computer systems is a key factor in ensuring value to stakeholders. This can be achieved by defining the necessary and desired quality characteristics associated with the stakeholders' goals and objectives for the system © ISO 25010



Features

- scaffolding / testing / building projects (CLI)
- state management
- server-side rendering
- styles ...

Performance efficiency

- size
- performance / speed ...

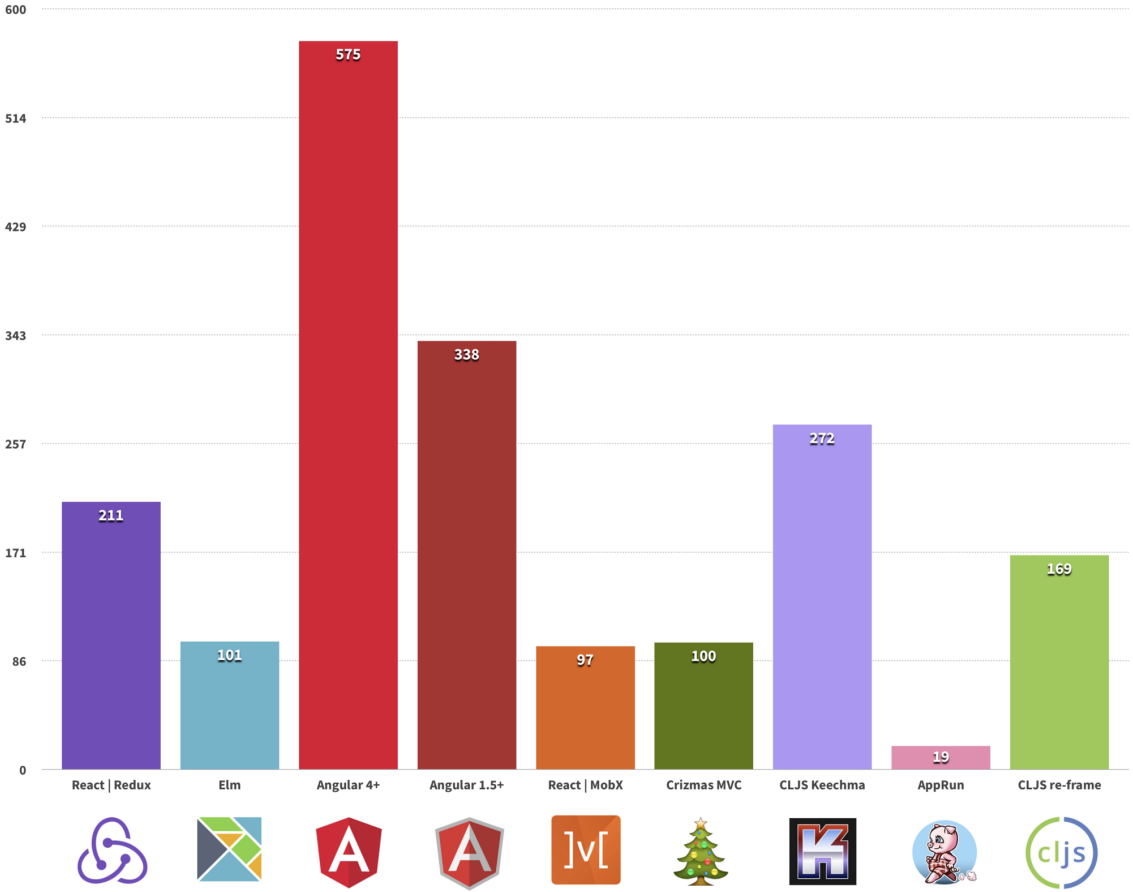
of framework or set of libraries

- React+Redux — 156k or 167k with plugins Angular 1 – 158k minimum, 240k with router, HTTP and animation - system
- Polymer — 222k minimum, 302k (spec compliant)
- Aurelia — 252k minimum, 302k with standard plugin
- Ember — 435k including router
- Angular 2 — 698k minimum, 919k with RxJS, 1023k with RxJS and router and HTTP client

2016

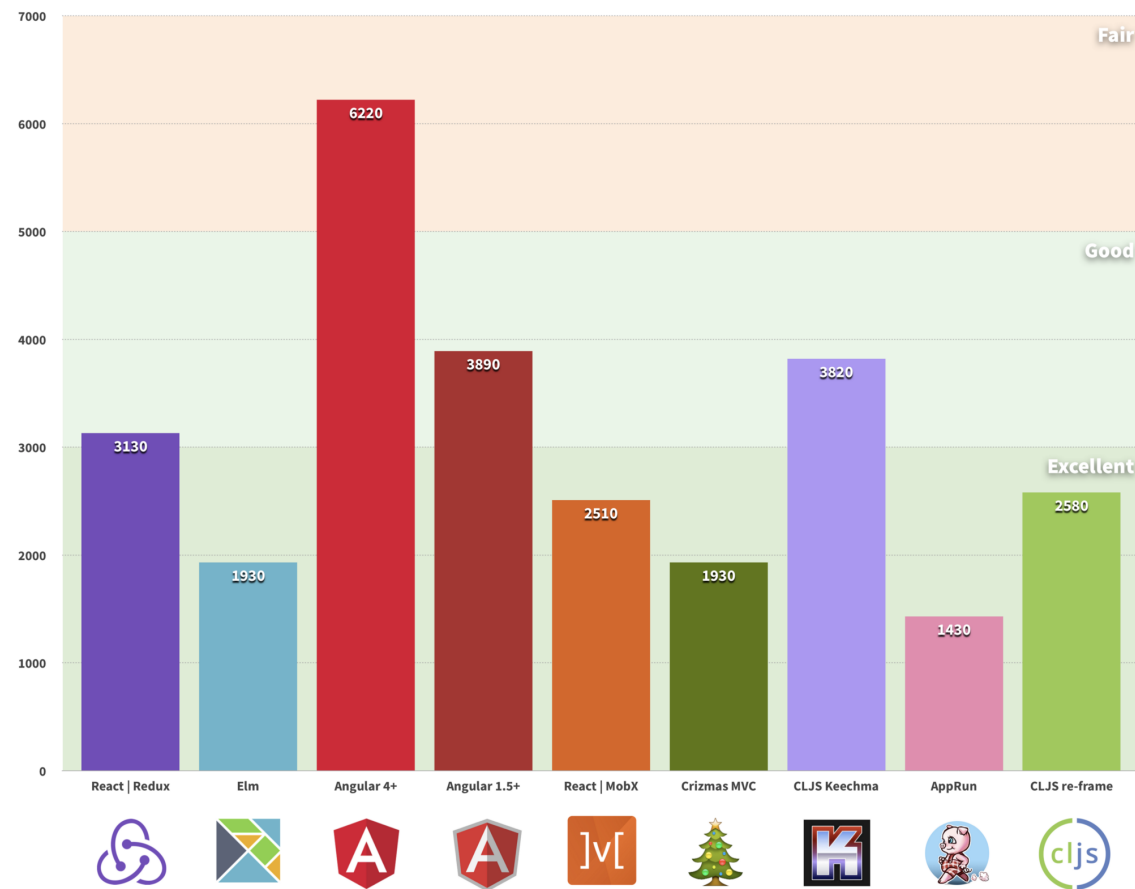
of framework or set of libraries

Name	Size
Ember 2.2.0	435K
Ember 1.13.8	486K
Angular 2	566K
Angular 2 + Rx	766K
Angular 1.4.5	143K
Vue 2.4.2	58.8K
Inferno 1.2.2	48K
Preact 7.2.0	16K
React 0.14.5 + React DOM	133K
React 0.14.5 + React DOM + Redux	139K
React 16.2.0 + React DOM	97.5K



First Meaningful Paint

<https://developers.google.com/web/tools/lighthouse/audits/first-meaningful-paint>



create rows: Duration for creating 1000 rows after the page loaded

replace all rows: Duration for updating all 1000 rows of the table (with 5 warmup iterations)

partial update: Time to update the text of every 10th row for a table with 10000 rows (with 5 warmup iterations)

select row: Duration to highlight a row in response to a click on the row. (with 5 warmup iterations)

swap rows: Time to swap 2 rows on a 1K table. (with 5 warmup iterations)

create many rows: Duration to create 10,000 rows

startup time: Duration for loading and parsing the javascript code and rendering the page

<https://rawgit.com/krausest/js-framework-benchmark/master/webdriver-ts-results/table.html>

- Compatibility
- Standards compliance
- Browsers Support
- Programming Language
- ...

The browser is the framework

#UseThePlatform

- **Aurelia:** HTML, ES 2016, Web Components
- **Polymer:** HTML, ES 2015, Web Components
- **Ember:** HTML, ES 2015
- **Angular:** ES 2016 (TypeScript). Non Compliant: NG2 Markup and Dart
- **AngularJS:** HTML, ES5. Non Compliant: Modules, Dependency Injection
- **React:** ES 2015. Non Compliant: JSX

- Learning path
- Popularity and community size
- Support
- License

...

Portability

- Adaptability
- Replaceability

...

- *degree to which a system, product or component performs specified functions under specified conditions for a specified period of time*
- maturity
- availability
- recoverability
- *degree to which a product or system protects information and data so that persons or other products or systems have the degree of data access appropriate to their types and levels of authorization*
- confidentiality
- integrity

- Modularity
- Reusability
- Testability ...

Maintainability Index

Oman and Hagemeister, Idaho University 1991

```
MI = MAX(0, (171 - 5.2 * ln(V) - 0.23 * (G) - 16.2 * ln(LOC))*100 / 171)

// V = Halstead Volume
// G = Cyclomatic Complexity
// LOC = count of source Lines Of Code (SLOC)
```

- **Effectiveness** - accuracy and completeness with which users achieve specified goals
- **Efficiency** - resources expended in relation to the accuracy and completeness with which users achieve goals
- **Satisfaction** - degree to which user needs are satisfied when a product or system is used in a specified context of use
- **Freedom from risk** - degree to which a product or system mitigates the potential risk...
- **Context coverage** - degree to which a product or system can be used...

- What is the product?
- What is the app you are going to build?
- Who are the clients?
- What is the codebase?
- Who is the team?

Before you start work on your next project, ask yourself these four questions

- How can you make your development teams more productive?
- Can you accurately estimate the development effort involved in making long-lived enterprise applications?
- Can your developers easily re-use code across the company's complete application portfolio, regardless of the end-user device or platform?
- Can you accurately predict the long-term maintenance requirements of an application across its entire lifecycle and potential end-point delivery platforms?

Quality Q&A



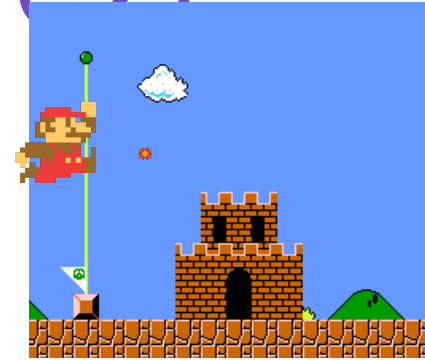
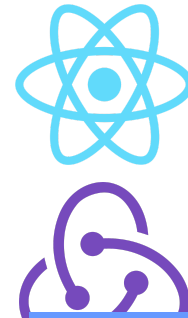
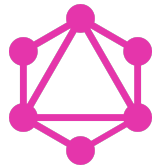
- Нет времени на раскачку
- Определиться с проектом к следующему занятию
- Описать идею и план исполнения (несколько предложений)
- Месяц самостоятельной работы с возможностью консультации
- Несколько общих занятий - консультаций

- Task Runner для создания части Continuous Integration цикла
- Recipe Roulette для управления и рекомендации рецептов
- Elements Dashboard - магазин Web компонент, созданных на одном из библиотек. В приложении можно видеть рейтинг, демонстрацию и документацию зарегистрированных элементов

- Определиться с датой (не более 5 человек на занятие) и написать в общий канал в slack
- Презентация проекта на 5-10 минут
- Рефлексия об использованной технологии



express



Спасибо!

Удачи!

