VISUALIZING ALGORITHM DEVELOPMENT PROCESS By: Sergio Quijano

Major Topics



01

HELDING AN IDEA

How to shift from just an idea to start developing?



02

DEVELOPMENT

What implications appear in the development process?



RESULT

How did the idea resulted?

IDEA How to come with it?

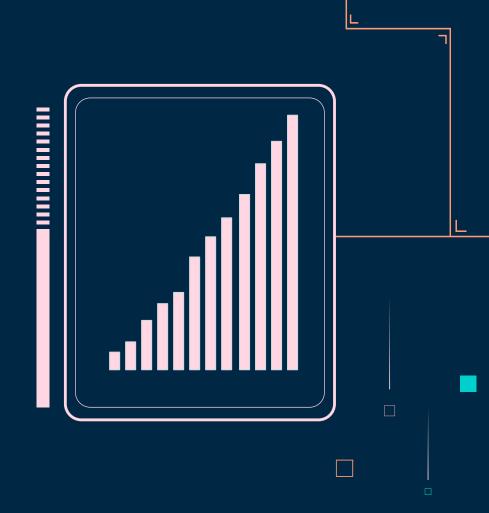
Initial Idea

- Searching for a project
- Getting out there
- Try it out



Initial Idea

- Searching for a project
- Getting out there
- Try it out



DEVELOPMENT
What steps to get to our goal?

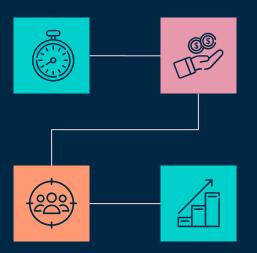
Different ways

Python (?)

Tkinter (I would be interested to know how)

Java (?)

Haven't done anything with Java GUI



React.js

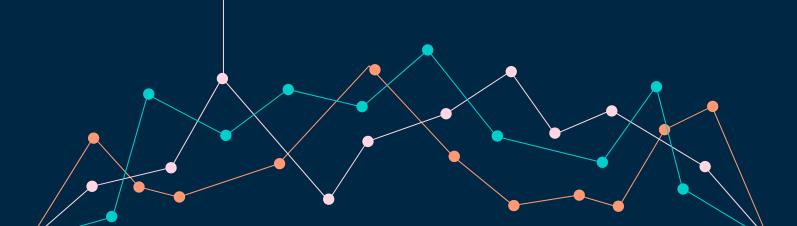
Why not?

Vanilla JS

Only thing I know how

React.js?

I think I can handle that



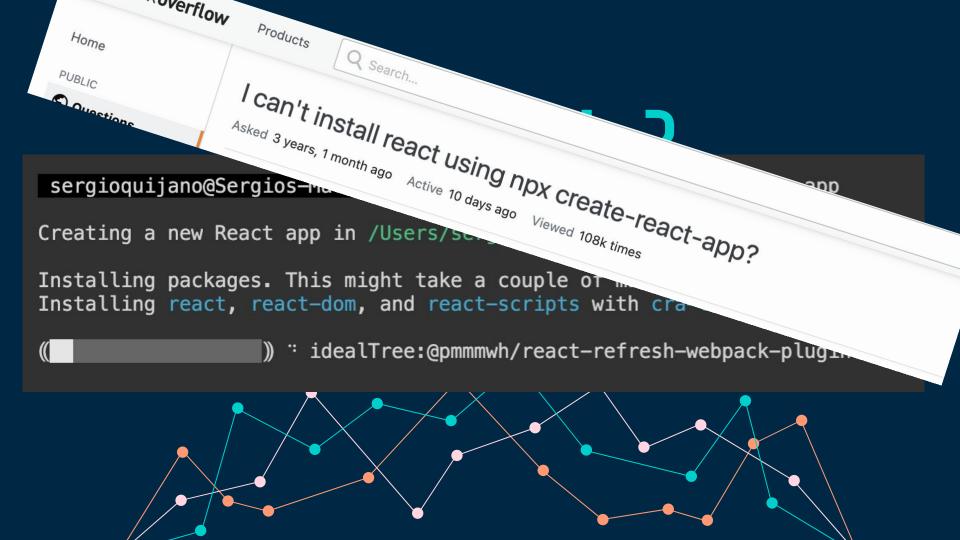
Doact ic?

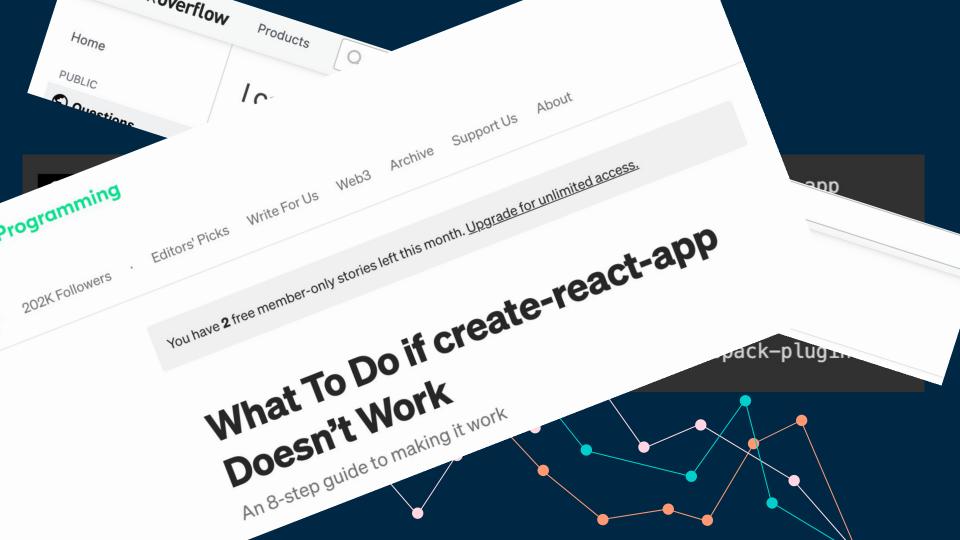
sergioquijano@Sergios-MacBook-Pro > ~ npx create-react-app my-app

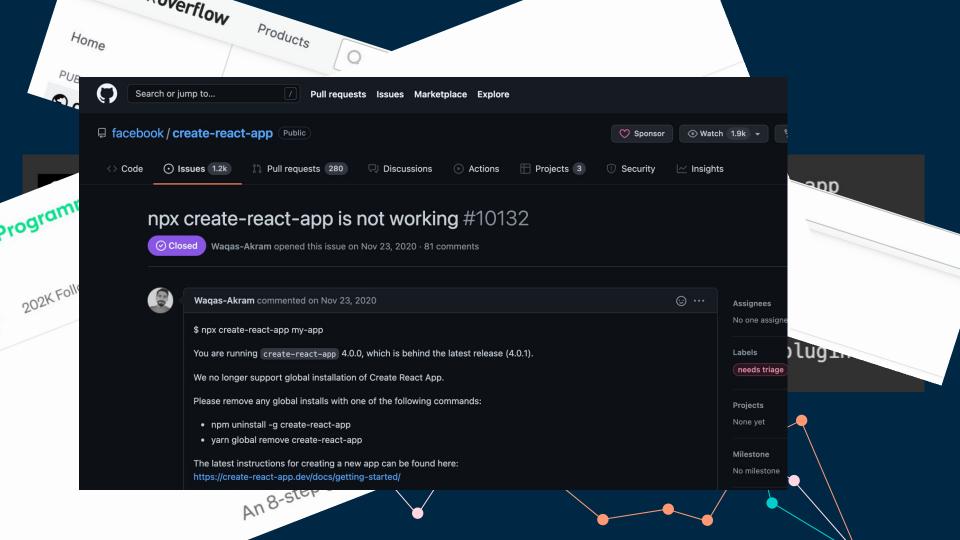
Creating a new React app in /Users/sergioquijano/my-app.

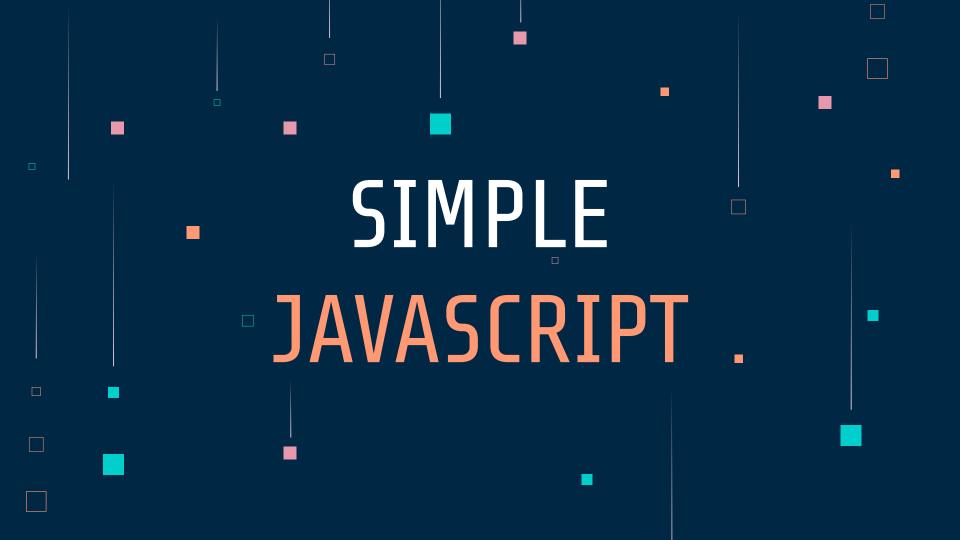
Installing packages. This might take a couple of minutes.
Installing react, react-dom, and react-scripts with cra-template...



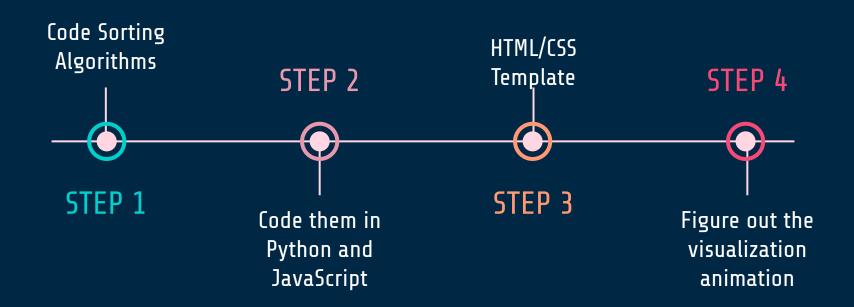








PROCESS PLAN



SORTING ALGORITHMS



SELECTION SORT



$$\rightarrow$$
 [3,2,4,1] \rightarrow [2,3,4,1] \rightarrow [2,3,4,1] \rightarrow [1,3,4,2]

$$\rightarrow$$
 [1,3,4,2,] \rightarrow [1,3,4,2] \rightarrow [1,2,4,3] \rightarrow [1,2,4,3]

$$\rightarrow$$
 [1,2,4,3] \rightarrow [1,2,3,4] \rightarrow [1,2,3,4]

BUBBLE SORT



$$\rightarrow$$
 [3,2,4,1] \rightarrow [2,3,4,1] \rightarrow [2,3,4,1] \rightarrow [2,3,4,1]

$$\rightarrow$$
 [2,3,1,4] \rightarrow [2,3,1,4] \rightarrow [2,3,1,4] \rightarrow [2,1,3,4]

$$\rightarrow$$
 [2,1,3,4] \rightarrow [2,1,3,4] \rightarrow [1,2,3,4]

INSERTION SORT



$$\rightarrow$$
[3,2,4,1] \rightarrow [2,3,4,1] \rightarrow [2,3,4,1] \rightarrow [2,3,4,1]

$$\rightarrow$$
 [2,3,4,1] \rightarrow [2,3,1,4] \rightarrow [2,3,1,4] \rightarrow [2,1,3,4]

$$\rightarrow$$
[2,1,3,4] \rightarrow [1,2,3,4]

$$\rightarrow$$
 [3,2] | [4,1] \rightarrow [3] | [2] | [4] | [1]

$$\rightarrow$$
 [2,3] | [4] | [1] \rightarrow [2,3] | [1,4]

$$\rightarrow$$
 [2,3] | [1,4] \rightarrow [1,2,3,4]





$$\rightarrow$$
 [3,2] | [4,1] \rightarrow [3] | [2] | [4] | [1]

$$\rightarrow$$
 [2,3] | [4] | [1] \rightarrow [2,3] | [1,4]

$$\rightarrow$$
 [2,3] | [1,4] \rightarrow [1,2,3,4]



$$\rightarrow$$
 [3,2] | [4,1] \rightarrow [3] | [2] | [4] | [1]

$$\rightarrow$$
 [2,3] | [4] | [1] \rightarrow [2,3] | [1,4]

$$\rightarrow$$
 [2,3] | [1,4] \rightarrow [1,2,3,4]



$$\rightarrow$$
 [3,2] | [4,1] \rightarrow [3] | [2] | [4] | [1]

$$\rightarrow$$
 [2,3] | [4] | [1] \rightarrow [2,3] | [1,4]

$$\rightarrow$$
 [2,3] | [1,4] \rightarrow [1,2,3,4]



QUICK SORT



$$\rightarrow$$
 [3,2,4,1,5] \rightarrow [3,2,4,1,5] \rightarrow [3,2,1,4,5] \rightarrow

$$\rightarrow$$
 [3,2,1] | [4,5] \rightarrow [3,2,1] \rightarrow [1,2,3] | [4,5]

$$\rightarrow$$
[1,2,3,4,5]

ASYNCHRONOUS PROGRAMMING



Understand Synchronous Programming

- Asynchronous JavaScript

ASYNCHRONOUS PROGRAMMING

```
function wait(milisec) {
   return new Promise((resolve) => {
       setTimeout(() => {
          resolve("");
       }, milisec);
   });
};
```



RESULT

Let's see how it came through



SOURCES

https://www.brianheinold.net/ds/data_st ructures_book_v2.html#chapter:sorting

https://www.quora.com/What-are-some -good-ideas-about-project-on-algorith ms-and-or-data-structures



https://developer.mozilla.org/es/docs/Learn/JavaScript/Asynchronous

https://www.w3schools.com/j s/js_promise.asp

Do you have any questions?

THANKS!







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