

Swift 将 Web 代码
转成60帧满帧原生应用的方案及实践

戴铭
滴滴出行技术专家



I love eating pizza!!!!!!

JUNE 5

Ziggie G.



Anybody else wondering when the Blade Runner and Westworld tie-in will be released? #crossover #replicant

JUNE 1

Damien S.



Flexboxpatterns.com is the most amazing flexbox resource I've ever used! It's changed my life forever and now everybody tells me that *I'M* amazing, too! Use flexboxpatterns.com! Flexboxpatterns.com is the most amazing flexbox resource I've ever used! It's changed my life forever and now everybody tells me that *I'M* amazing, too! Use flexboxpatterns.com! Love flexboxpatterns.com!

MAY 28

Jatesh V.



Going hiking with @karla in Yosemite!

MAY 27

CJ C.

```
108 <body>
109     <div class="stream">
110         <div class="post">
111             <div class="postUser">
112                 <div class="postUser_portrait">
113                     </img>
115             </div>
116             <div class="postUser_name">CJ C.</div>
117         </div>
118         <div class="postBody">
119             <div class="postBody_content">
120                 Going hiking with @karla in Yosemite!
121             </div>
122             <div class="postBody_date">
123                 May 27
124             </div>
125         </div>
126         <div class="post">
127             <div class="postUser">
128                 <div class="postUser_portrait">
129                     </img>
131             </div>
132             <div class="postUser_name">Jatesh V.</div>
133         </div>
134         <div class="postBody">
135             <div class="postBody_content">
136                 Flexboxpatterns.com is the most amazing flexbox resource I've ever
137                 used! It's changed my life forever and now everybody tells me that
138                 *I'M* amazing, too! Use flexboxpatterns.com!Flexboxpatterns.com is the
139                 most amazing flexbox resource I've ever used! It's changed my life
140                 forever and now everybody tells me that *I'M* amazing, too! Use
141                 flexboxpatterns.com! Love flexboxpatterns.com!
142             </div>
143         </div>
```



I love eating pizza!!!!
JUNE 5

Ziggie G.



Anybody else wondering when the Blade Run div.postBody | 656 x 112 ill be released? #crossover #replicant
JUNE 1

Damien S.



Flexboxpatterns.com is the most amazing flexbox resource I've ever used! It's changed my life forever and now everybody tells me that *I'M* amazing, too! Use flexboxpatterns.com!Flexboxpatterns.com is the most amazing flexbox resource I've ever used! It's changed my life forever and now everybody tells me that *I'M* amazing, too! Use flexboxpatterns.com! Love flexboxpatterns.com!

Inspect □ Consol □ Debug { } Style Ed ⌂ Performa ⌂ Memo ⌂ Netwo ⌂ Stora □ X

+ Search HTML Rules Computed Layout Animations Fonts

/c9a1/812d/114282_normal.png?m=1509362466">

```
</div>
<div class="postUser__name">Damien S.</div>
</div>
▶ <div class="postBody">...</div>
</div>
▼ <div class="post">
  ▶ <div class="postUser">...</div>
  ▶ <div class="postBody">
    ::before
    ▶ <div class="postBody__content">...</div>
    <div class="postBody__date">June 5</div>
    ::after
  </div>
</div>
</div>
</body>
```

Filter Styles + .cls

▶ Pseudo-elements

This Element

element { inline }

.postBody { inline:54 }

-ms-flex: 1 1 0%; !important
▶ flex: 1 1 0%;
position: relative;
padding: 15px;
border: 1px solid #CAD0D2;
border-radius: 4px;

html > body > div.stream > div.post > div.postBody

Filter output Persist Logs

6:46



Ziggie G.

I love eating pizza!!!!!!

June 5



Damien S.

Anybody else wondering when the
Blade Runner and Westworld tie-in will
be released? #crossover#replicant

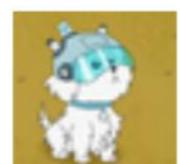
June 1



Jatesh V.

Flexboxpatterns.com is the most
amazing flexbox resource I've ever
used! It's changed mylife forever and
now everybody tells me that *I'M*
amazing, too! Use flexboxpatterns.com!
Flexboxpatterns.com is the most
amazing flexbox resource I've ever
used! It's changed mylife forever and
now everybody tells me that *I'M*
amazing, too! Use flexboxpatterns.com!
Love flexboxpatterns.com!

May 28

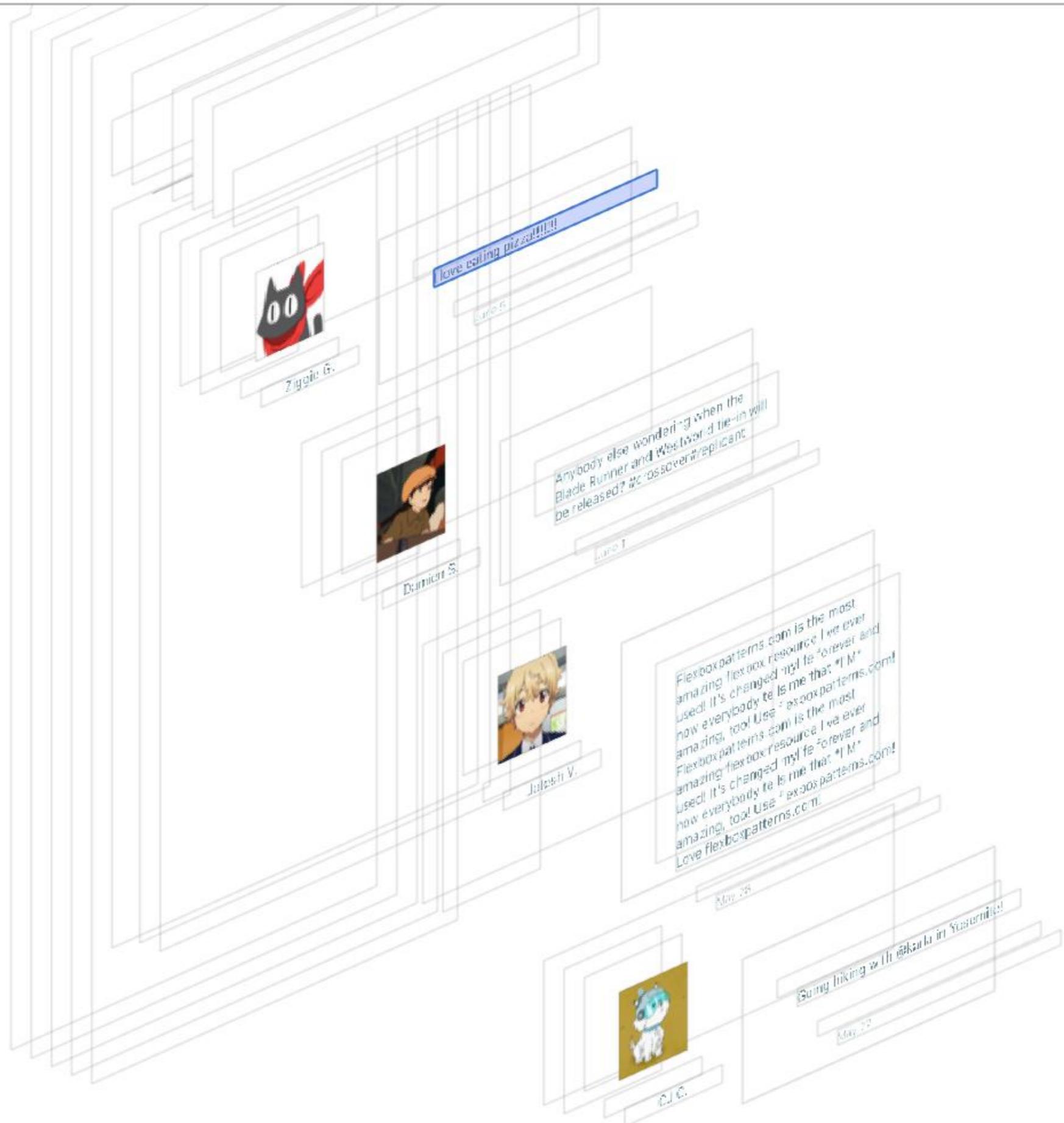


CJ C.

Going hiking with @karla in Yosemite!

May 27

```
59 @implementation Flexbox
60 - (instancetype)init
61 {
62     self = [super init];
63     if (self) {
64         self.automaticallyManagesSubnodes = YES;
65
66         _div_68_node=[[ASDisplayNode alloc] init];
67         _div_68_node.automaticallyManagesSubnodes = YES;
68         _div_67_node=[[ASDisplayNode alloc] init];
69         _div_67_node.automaticallyManagesSubnodes = YES;_div_67_node.borderWidth = 1.0;
70         _div_67_node.borderColor =[UIColor colorWithRed:0.2 green:0.2 blue:0.2 alpha:1.0].CGColor;
71         _div_67_node.cornerRadius = 4.0;
72
73         NSMutableString *str_41= [[NSMutableString alloc] init];
74         [str_41 appendString:@"Jatesh V."];
75
76         _textNode_39 = [[ASTextNode alloc] init];
77         NSMutableParagraphStyle * paragraphStyle_40 = [[NSMutableParagraphStyle alloc] init];
78         paragraphStyle_40.alignment = NSTextAlignmentCenter;
79
80         _textNode_39.attributedText = [[NSAttributedString alloc] initWithString:str_41
81             attributes:@{ NSForegroundColorAttributeName : [UIColor
82                 colorWithHexString:@"#57727c"],NSFontAttributeName : [UIFont systemFontOfSize:
83                     12],NSParagraphStyleAttributeName: paragraphStyle_40}];
84         NSMutableString *str_28= [[NSMutableString alloc] init];
85         [str_28 appendString:@"Anybody else wondering when the Blade Runner and Westworld tie-in will be
released? #crossover"];
86         [str_28 appendString:@"#replicant"];
87
88         _textNode_27 = [[ASTextNode alloc] init];
```



Texture
AsyncDisplayKit

HTN BlueMap

HTML
5

CSS
3

DOM
Tree

Render
Tree

AutoLayout

Layout

State Machine

Frame

V
Vue.js

JavaScript

AST

Objective
C

Reactive Cocoa



Swift

FSM

Finite-state

鳥
大少

Mathematical mode

$$(\Sigma \ S \ s_0 \ \delta \ F)$$

$$\delta: S \times \Sigma \rightarrow S$$

HTNState Machine{

Operation<S:StateType, E:EventType>
current state routes [S: [E: Operation<S, E>]]

func listen
event
to
call back

func trigger

Event



from state

from state



to state



to state





HTML

Element : Node

startTagToken : HTMLToken

charToken : HTMLToken

propertyMap = [String : String]()

renderer : RenderObject

```
<div class="content">hi </div>
```

HTMLToken

type

data

Selfclosing

attributelist

Doctype

StartTag

EndTag

Comment

char

CSS



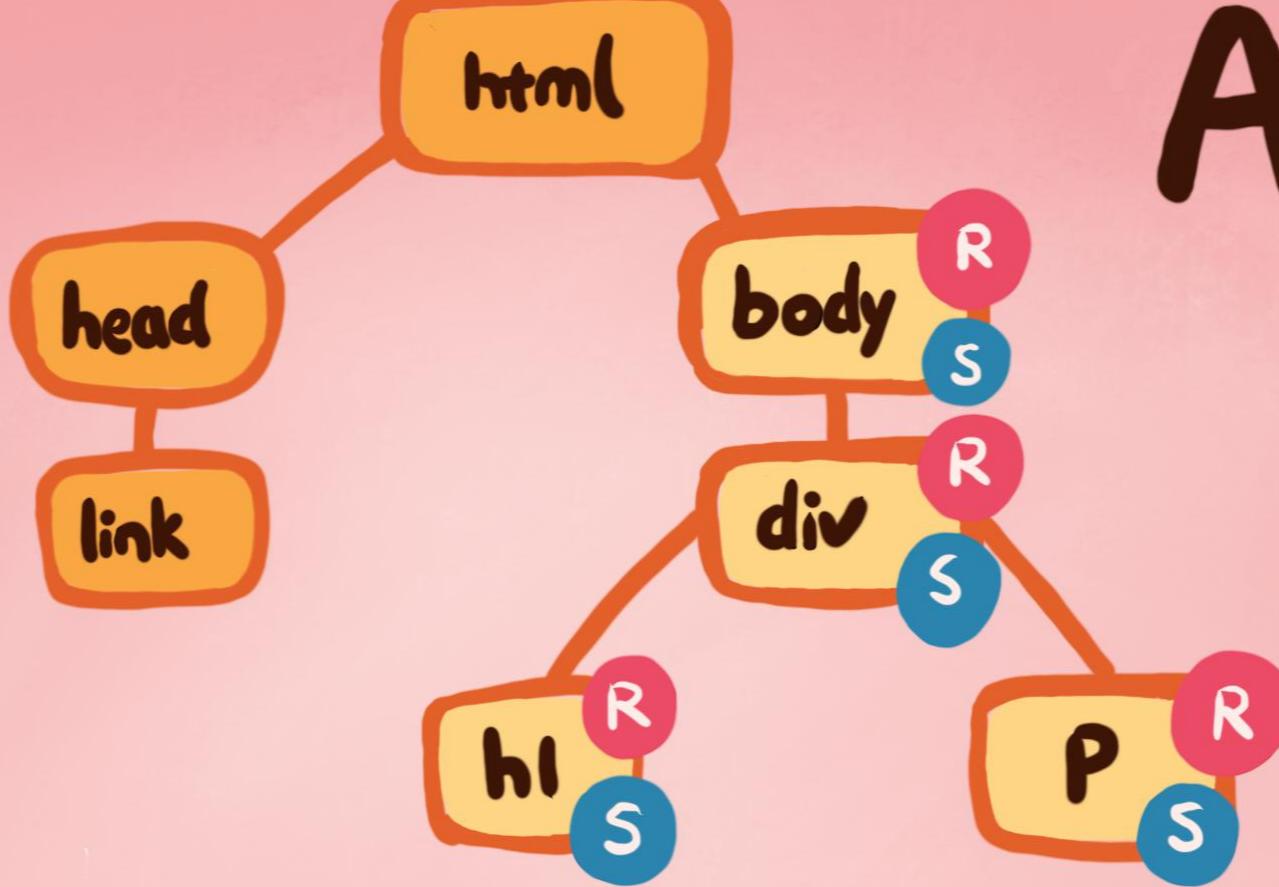
styleInheritedData

- font
- line-height
- color
- ...

Render Object

- box
- width
- height
- zIndex
- ...

- Surround
- padding
- margin
- border
- ...

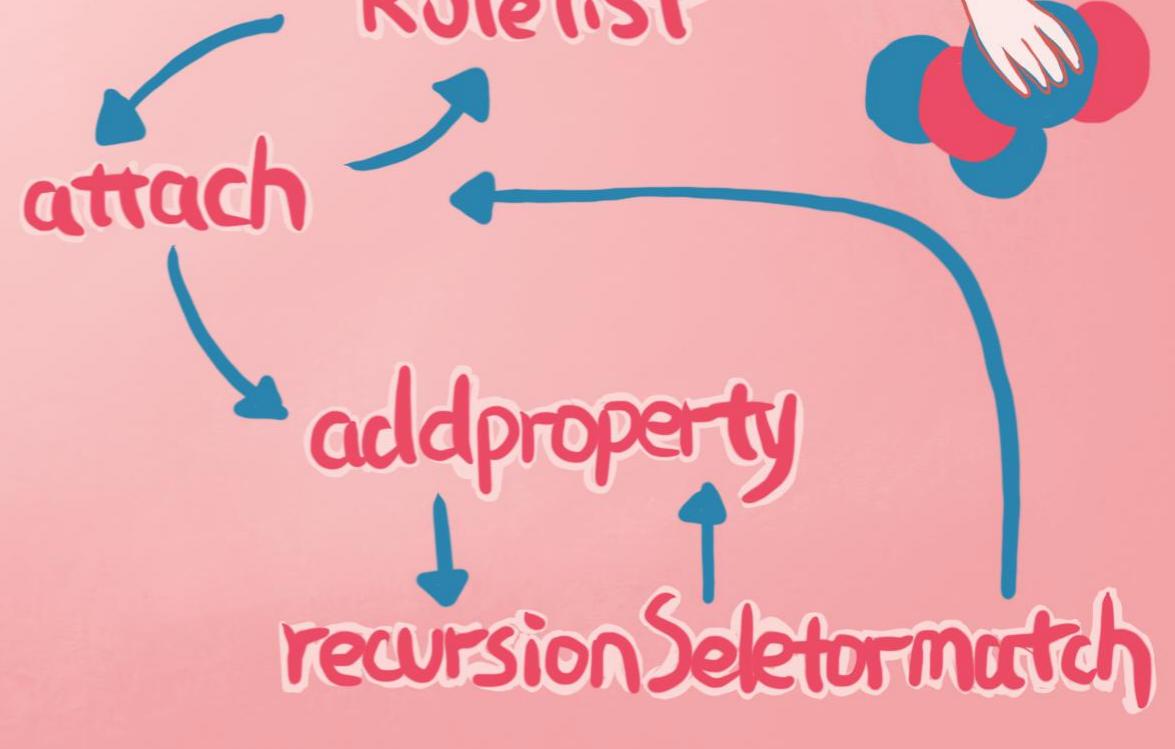


Attach

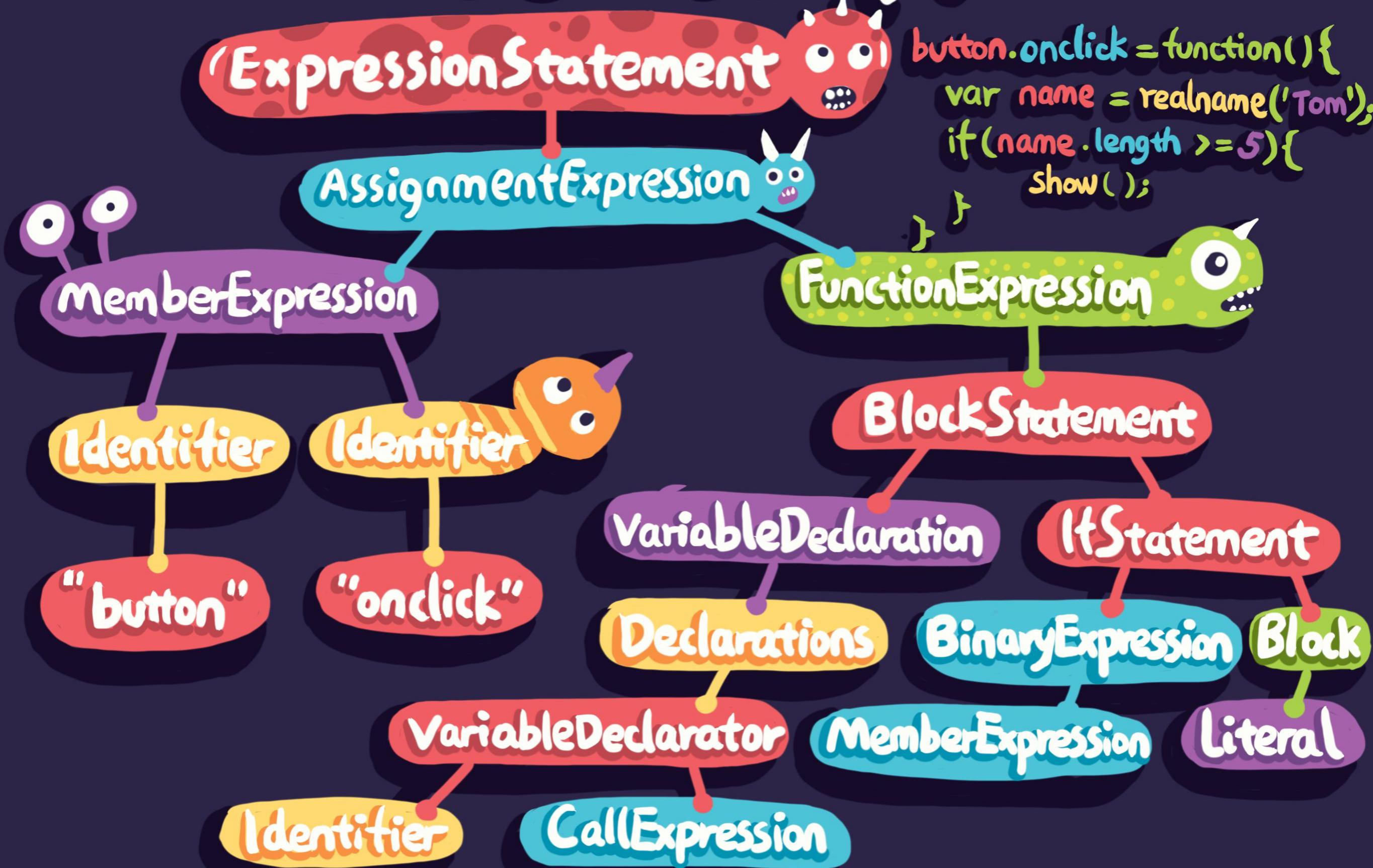


Style

Rulelist

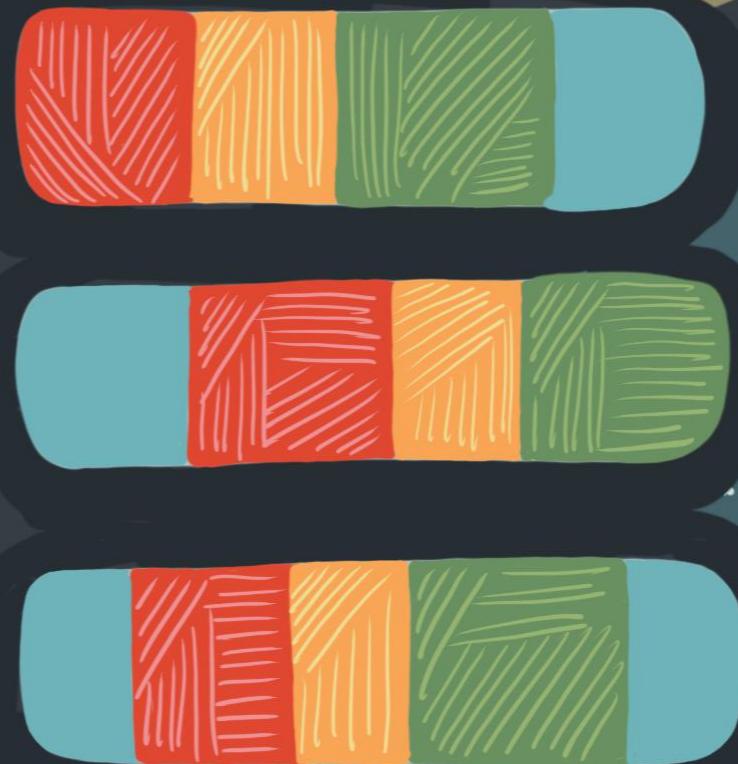


JavaScript



main axis size

Cross axis



flex-start

flex-end

center

space-between

Flexbox layout algorithm

Subviews

View

compute

margin

padding

border

final position size

width height

alignmentContent

alignmentItem

size size

flex-Basis

arrang

flexibleChild

web AST

Native AST

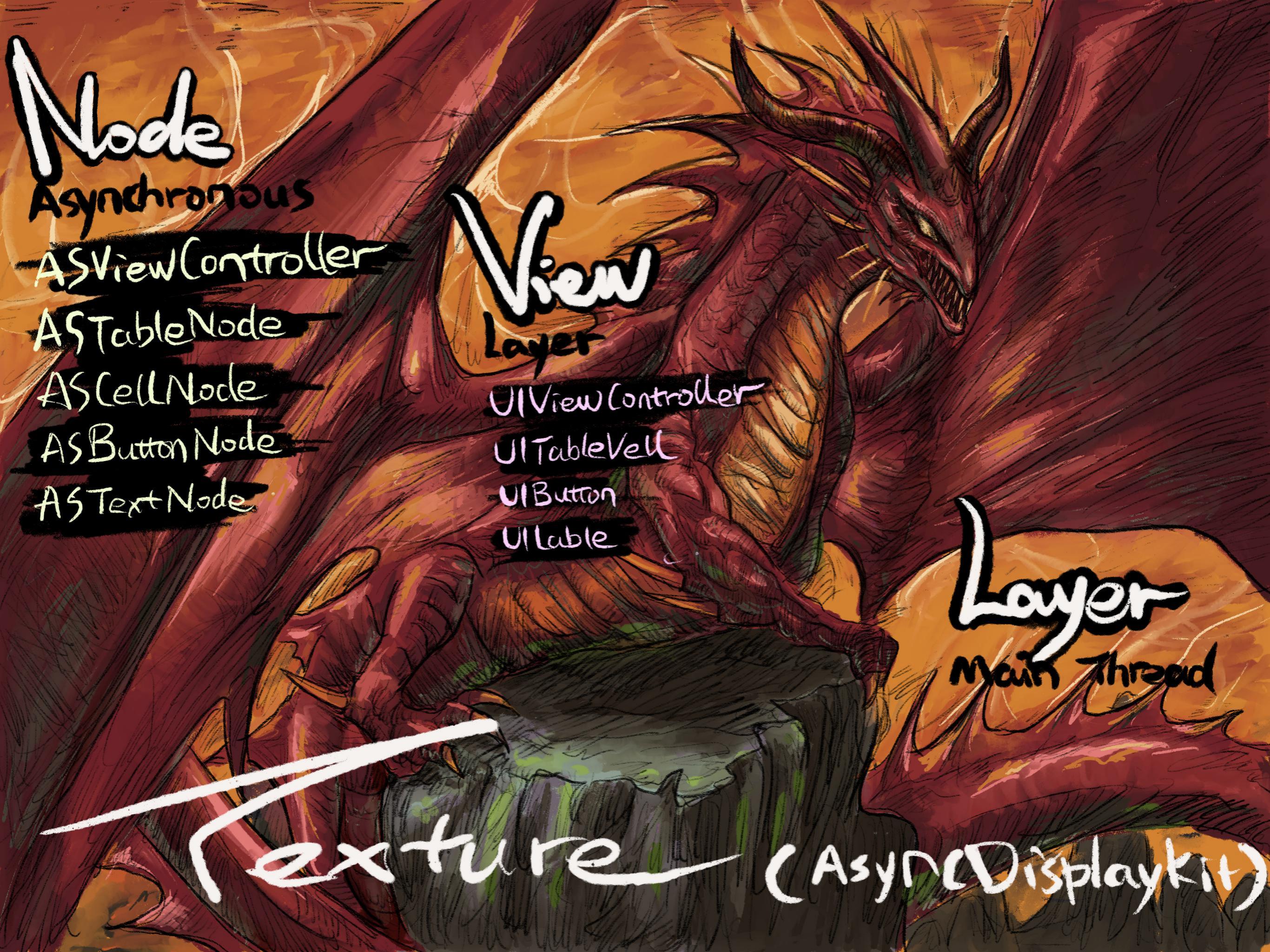
parse

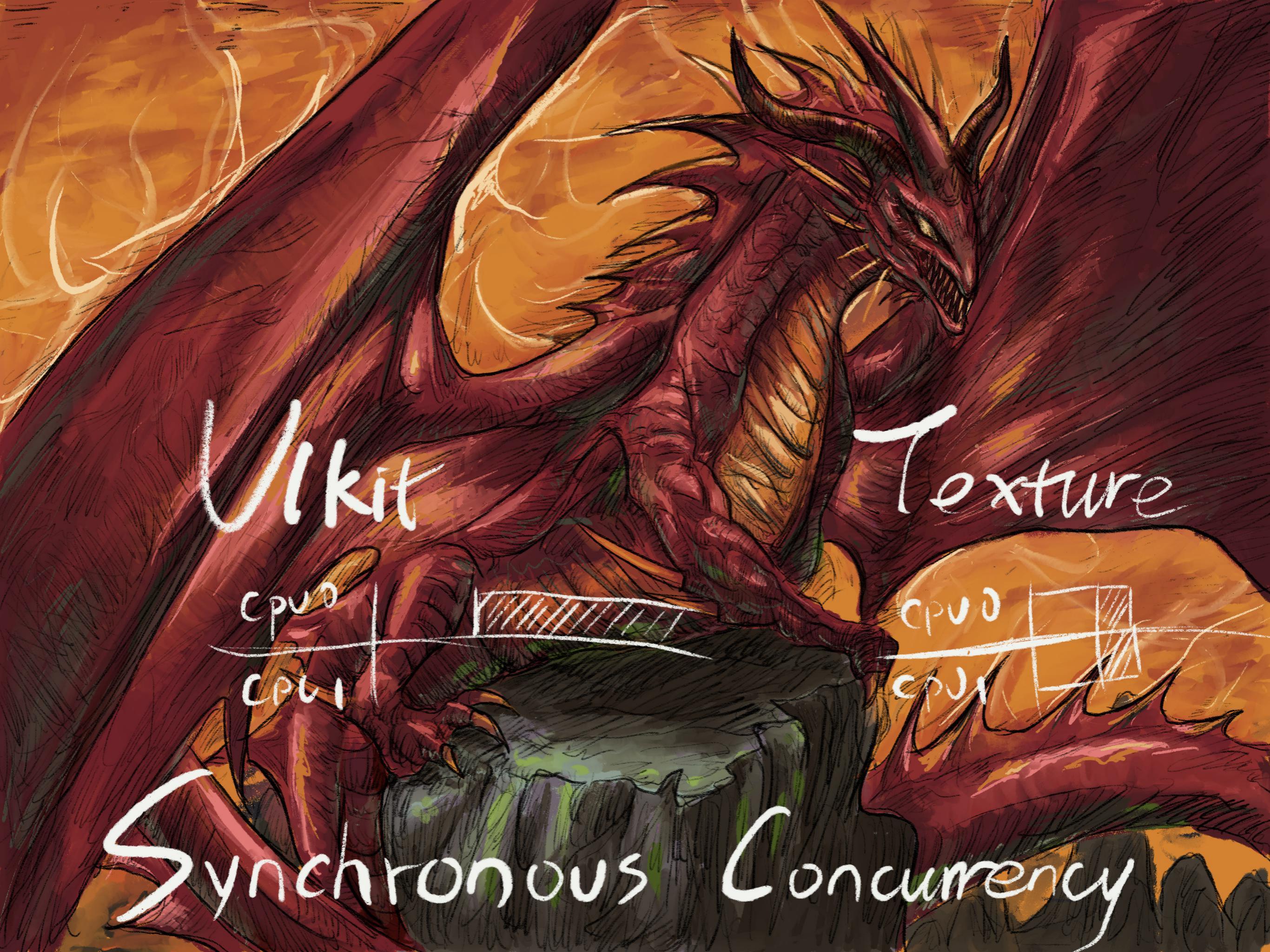
transform

generate

```
<div class="name"> [J</div>
<div class="content">
  go hiking wth me!
</div>
```

```
-textNode-56 = [ASTTextNode new];
NSMutableParagraphStyle *paragraphStyle-57 = [
  paragraphStyle-57.alignment = NSTextAlignmentCenter;
  -textNode-56.attributedText =
    _div-46-node = [ASDisplayNode new];
]
```





UIkit

Texture

CPU0

CPU1

CPU0

CPU1

Synchronous Concurrency

context

GUI

LSTM

CNN

LSTM

HTML



CSS



Vue.js

JavaScript

AST

HTN BlueMap

DOM

Tree

Render

Tree

Layout

State Machine

Auto Layout

Frame



Reactive Cocoa

Swift



Texture
AsyncDisplayKit

github.com/mingl016/HTN

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