# ANGULAR

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# Sobre o Munif

Pai

Primeiro curso de programação em 1984

Nerd aos 10 anos

Ciência da Computação (UEM) 1994-1997

Mestrado Robótica (UTFPR) 1998-2000

Professor Nível Superior e Especialização 2000

Arquiteto da Gumga S/A e Sócio da ImpactIt

# Agenda

Conceitos

ES5

Dependency Injection

Change Detection

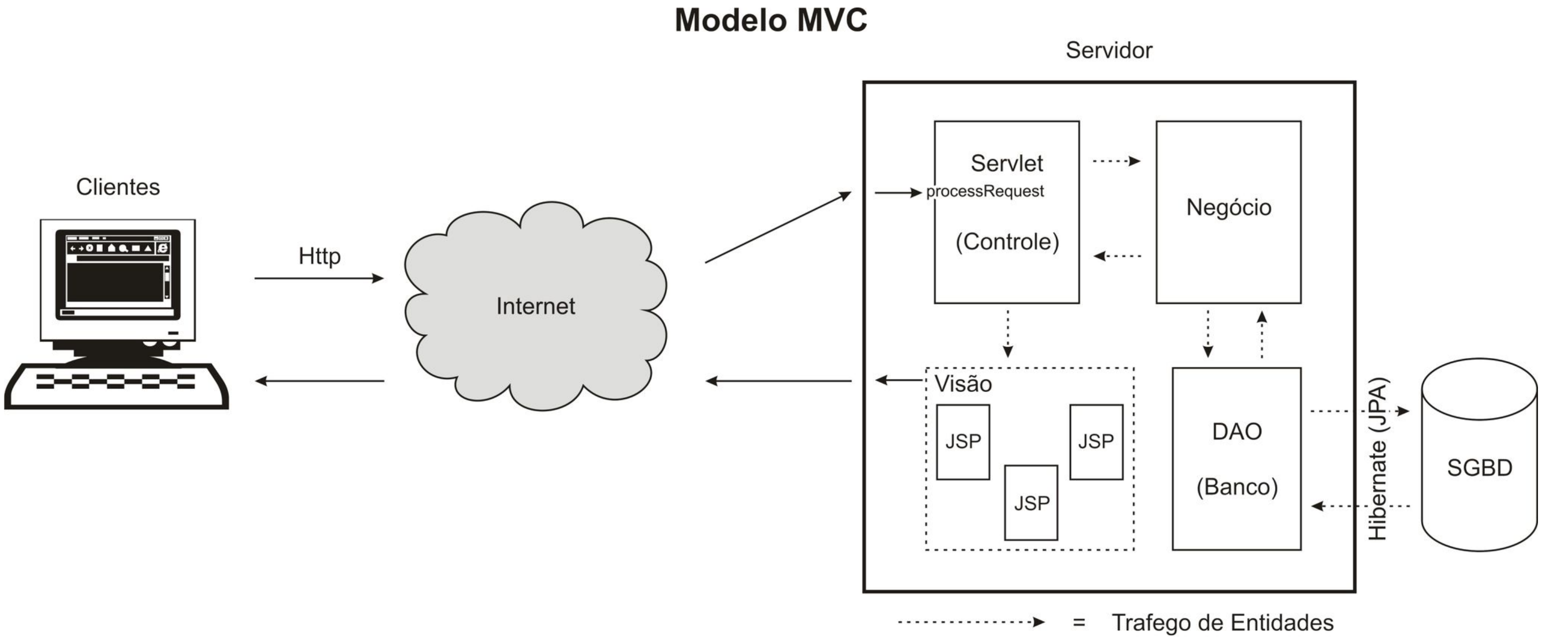
ES6

TypeScript

Biding

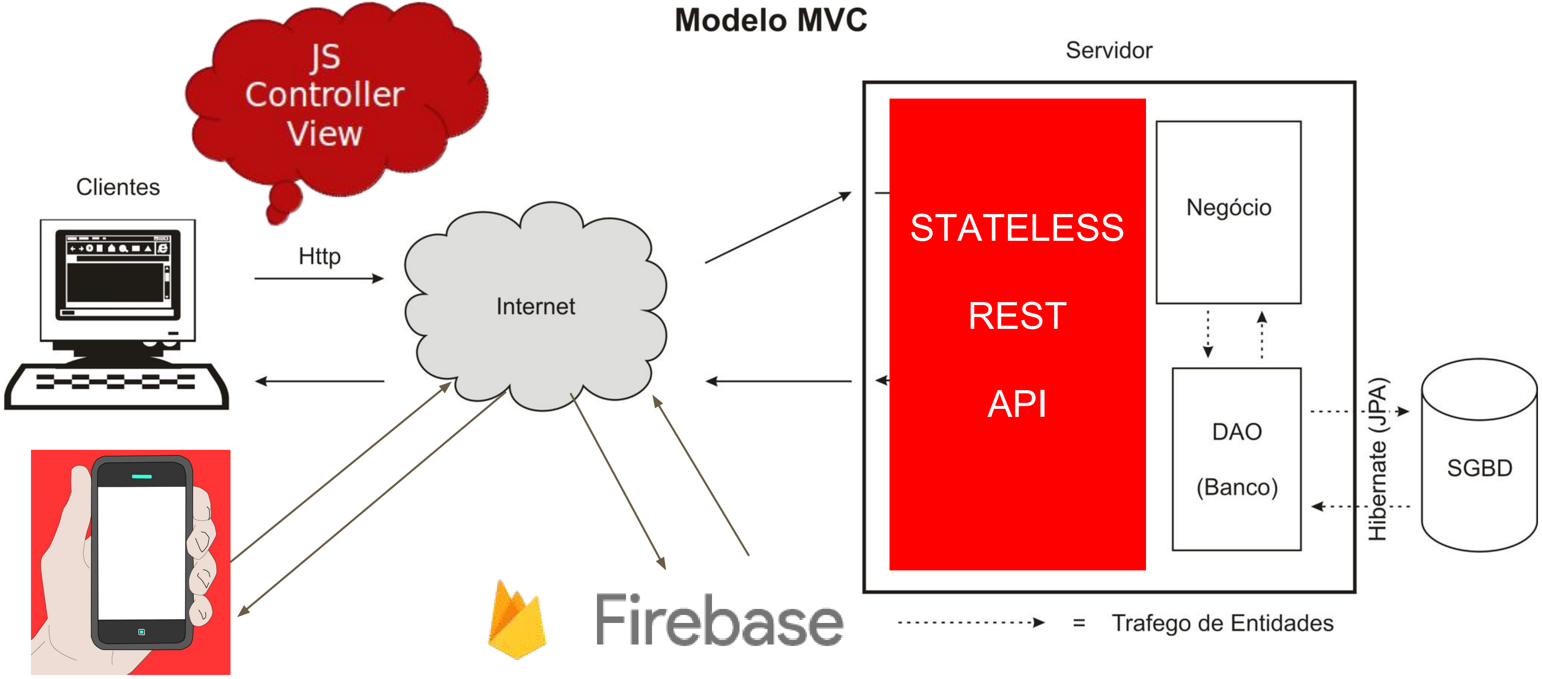
Pipes

# Motivação: Aplicações Desacopladas



Elaborado por Vinicius Sotti

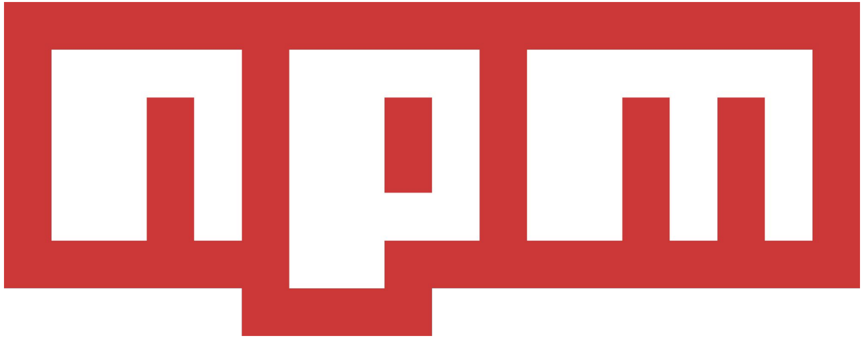
# Motivação: Aplicações Desacopladas



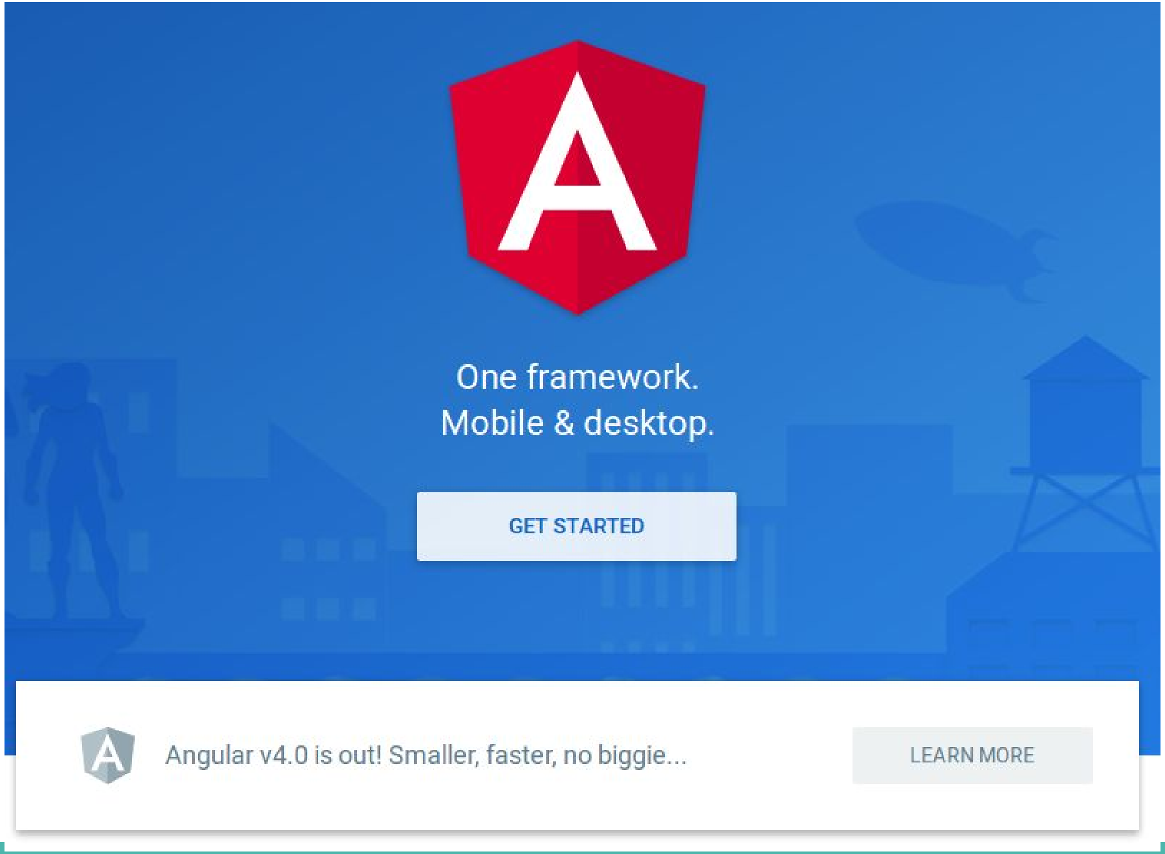
Elaborado por Vinicius Sotti

# Tecnologias

# Ferramentas



# Angular



One framework.
Mobile & desktop.

Angular v4.0 is out! Smaller, faster, no biggie...

# Conceitos - Componente

- **Encapsula:**
  - Template
  - Metadata
  - Data Binding
  - Comportamento da View

# Conceitos - Diretiva

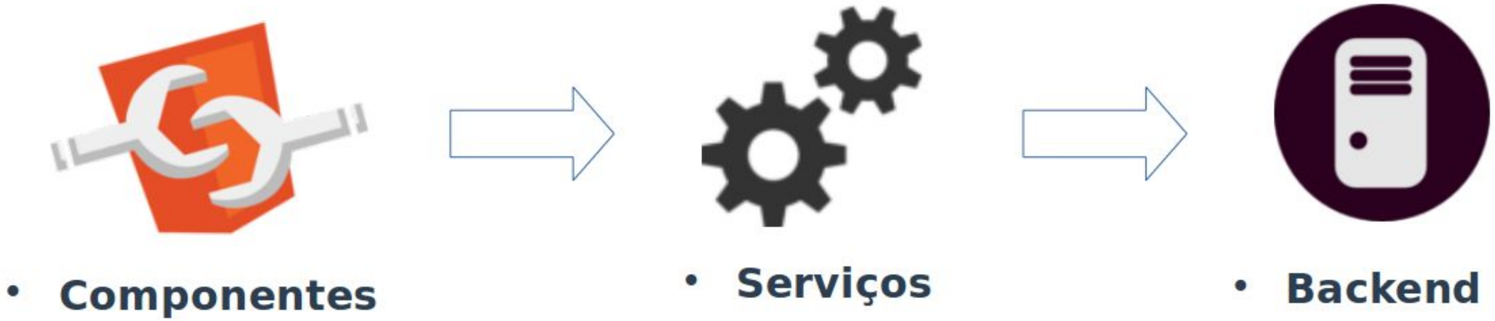
Responsável por manipular elementos DOM e seu comportamento

# Conceitos - Serviços

Comunicação com Backend

Reutilização

Métodos de Negócio (front) ????



- Componentes
- Serviços
- Backend

# Espiando

# github.com/munifgebara/angular4
# hello/index.html

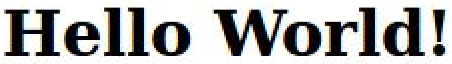
```
...
<script
src="https://unpkg.com/@angular/platform-browser-dynamic@2.
0.1/bundles/platform-browser-dynamic.umd.js"></script>
 </head>
<body>
<my-app>Loading…</my-app>
...
<script src="app.js"></script>
...
```

# github.com/munifgebara/angular4 hello/app.js

```
(function() {
 var AppComponent = ng.core.Component({    selector: 'my-app',
     template: '<h1>Hello World!</h1>'   })
.Class({     constructor: function() { }  });

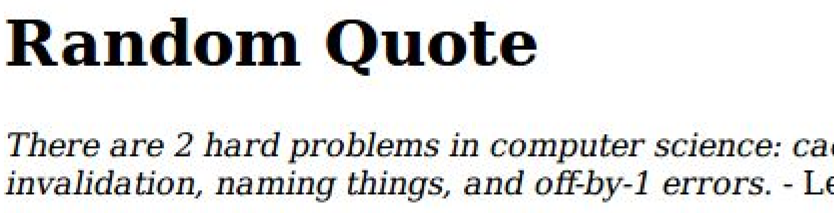
 var
AppModule=ng.core.NgModule({imports:[ng.platformBrowser.BrowserModule],
     declarations:[AppComponent],  bootstrap: [AppComponent]
    })
    .Class({  constructor:function() { }    });

   ng.platformBrowserDynamic.platformBrowserDynamic()
     .bootstrapModule(AppModule);
})();
```



Hello World!

# github.com/munifgebara/angular4 random-quote1/app.js



# Random Quote

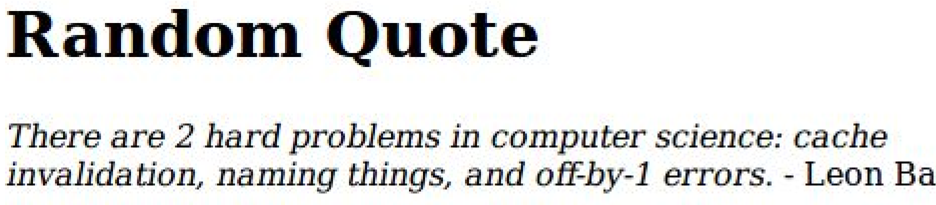
*There are 2 hard problems in computer science: ca*
*invalidation, naming things, and off-by-1 errors. - Le*

```
(function() {
  var Component = ng.core.Component;
  var NgModule = ng.core.NgModule;
  var BrowserModule = ng.platformBrowser.BrowserModule;
  var platformBrowserDynamic =
ng.platformBrowserDynamic.platformBrowserDynamic;

  var RandomQuoteComponent = Component({
    selector: 'random-quote',
    template: '<p><em>{{quote.line}}</em> - {{quote.author}}</p>'
  })
  .Class({
    constructor: function() {
    var randomIndex = Math.floor(Math.random() * quotes.length);
    this.quote = quotes[randomIndex];
    }
  });
...
```

# github.com/munifgebara/angular4 random-quote1/app.js

```
var AppComponent = Component({
  selector: 'my-app',
  template:
  '<h1>Random Quote</h1>' +
  '<random-quote></random-quote>'
})
.Class({
  constructor: function() { }
});
var AppModule = NgModule({
  imports: [BrowserModule],
  declarations: [AppComponent, RandomQuoteComponent],
  bootstrap: [AppComponent]
})
.Class({   constructor: function() { }   });
platformBrowserDynamic().bootstrapModule(AppModule);
...
```



# Random Quote

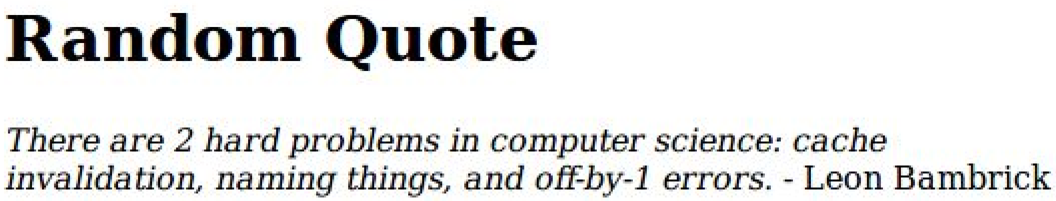
*There are 2 hard problems in computer science: cache invalidation, naming things, and off-by-1 errors.* - Leon Ba

# github.com/munifgebara/angular4 random-quote1/app.js

```
  platformBrowserDynamic().bootstrapModule(AppModule);

  var quotes = [
    {"line": "Debugging is twice ...",     "author": "Brian W. Kernighan"
    },
    {"line": "Walking on water ...",   "author": "Edward V Berard"},
   …];

})();
```



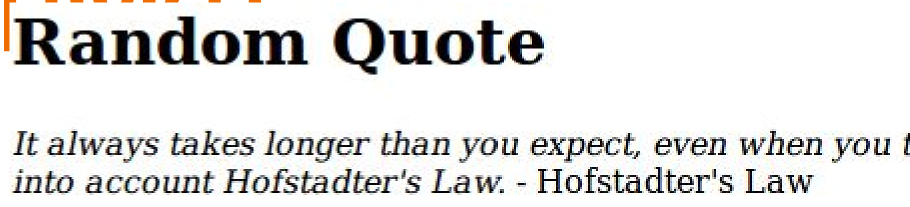
**Random Quote**

*There are 2 hard problems in computer science: cache invalidation, naming things, and off-by-1 errors.* - Leon Bambrick

# github.com/munifgebara/angular4 random-quote2/app.js SERVICES

```
(function() {
  var Class = ng.core.Class;
  var Component = ng.core.Component;
  var NgModule = ng.core.NgModule;
  var BrowserModule = ng.platformBrowser.BrowserModule;
  var platformBrowserDynamic =
ng.platformBrowserDynamic.platformBrowserDynamic;

  var QuoteService = Class({
    constructor: function QuoteService() {
    this.quotes = sampleQuotes;
    },
    getRandomQuote: function() {
    var randomIndex = Math.floor(Math.random() * this.quotes.length);
    return this.quotes[randomIndex];
    }
  });
```



**Random Quote**

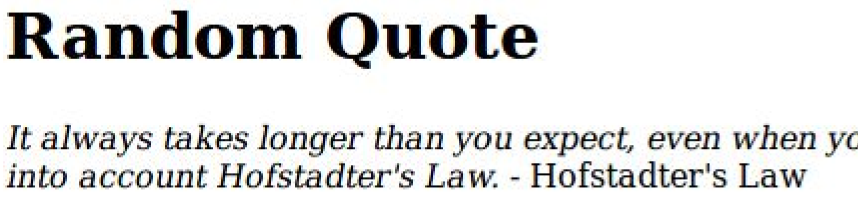
*It always takes longer than you expect, even when you t*
*into account Hofstadter's Law.* - Hofstadter's Law

# github.com/munifgebara/angular4
# random-quote2/app.js SERVICES

```
var RandomQuoteComponent = Component({
    selector: 'random-quote',
    template: '<p><em>{{quote.line}}</em> - {{quote.author}}</p>'
  })


  .Class({
    constructor: [QuoteService, function
RandomQuoteComponent(quoteService) {
    this.quote = quoteService.getRandomQuote();
    }]
  });

  var AppComponent = Component({...  })
  .Class({
    constructor: function AppComponent() { }
  });
```



**Random Quote**

*It always takes longer than you expect, even when yo*
*into account Hofstadter's Law.* - Hofstadter's Law

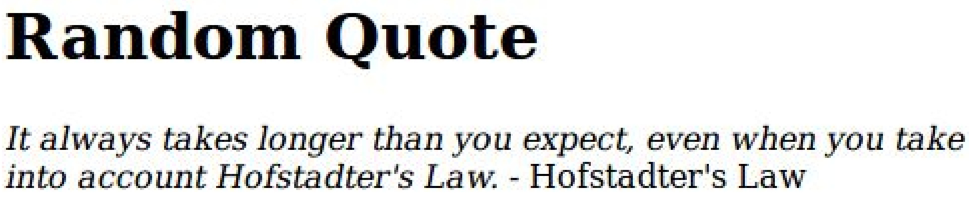
# github.com/munifgebara/angular4 random-quote2/app.js SERVICES

```
  var AppModule = NgModule({
    imports: [BrowserModule],
    declarations: [AppComponent, RandomQuoteComponent],
    providers: [QuoteService],
    bootstrap: [AppComponent]
  })
  .Class({
    constructor: function() { }
  });

  platformBrowserDynamic().bootstrapModule(AppModule);

  var sampleQuotes = [ ...  ];

})();
```



# Random Quote

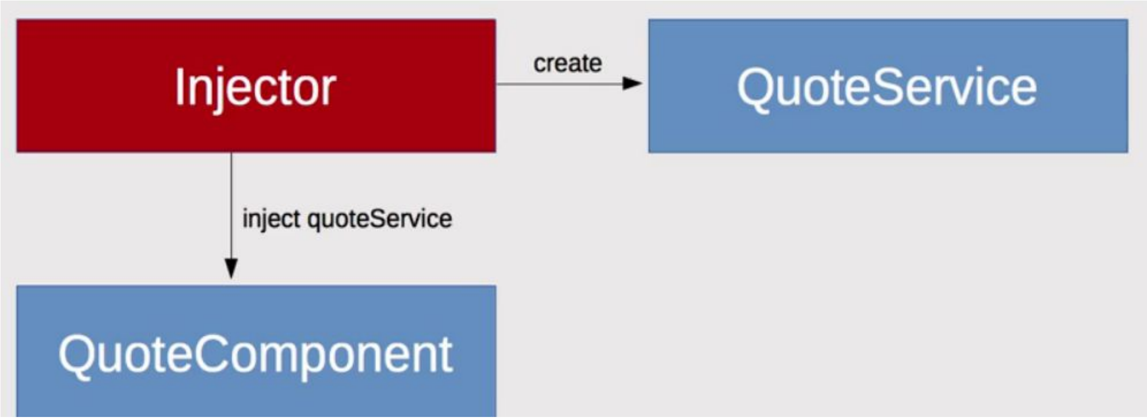
*It always takes longer than you expect, even when you take into account Hofstadter's Law.* - Hofstadter's Law

# Dependency Injection

Reutilização

Manutenção

Teste



Injector

create

QuoteService

inject quoteService

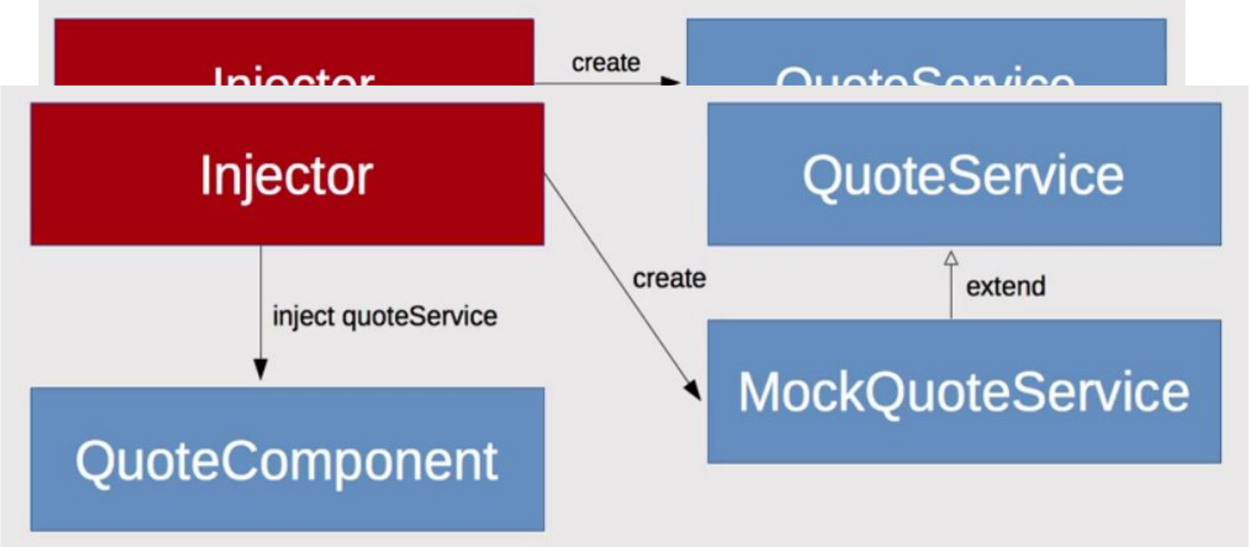
QuoteComponent

# Dependency Injection

Reutilização

Manutenção

Teste

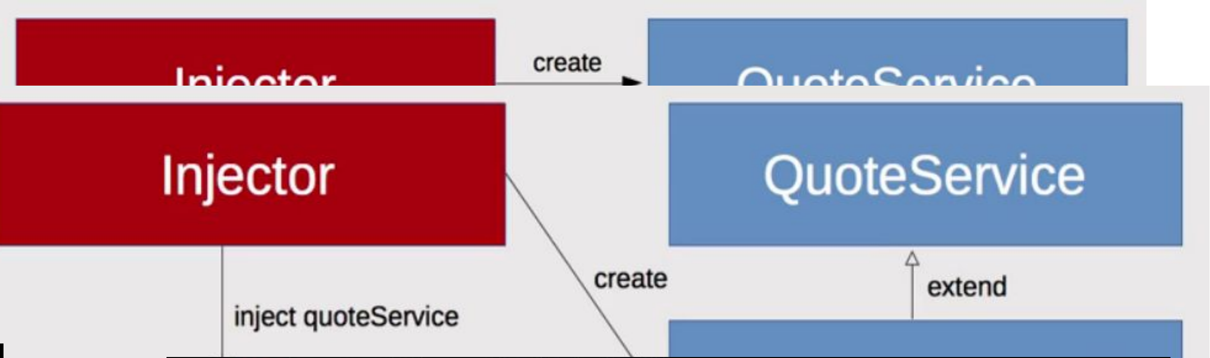


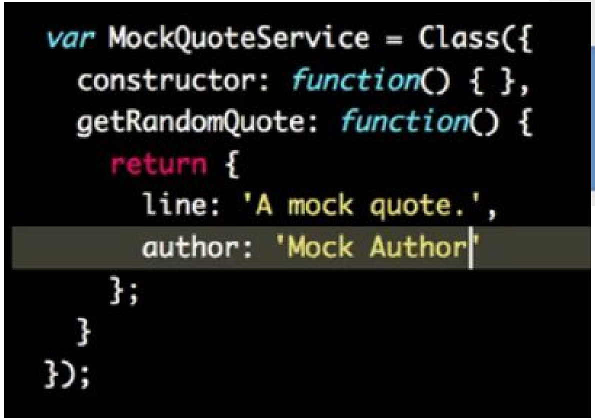
# Dependency Injection

Reutilização

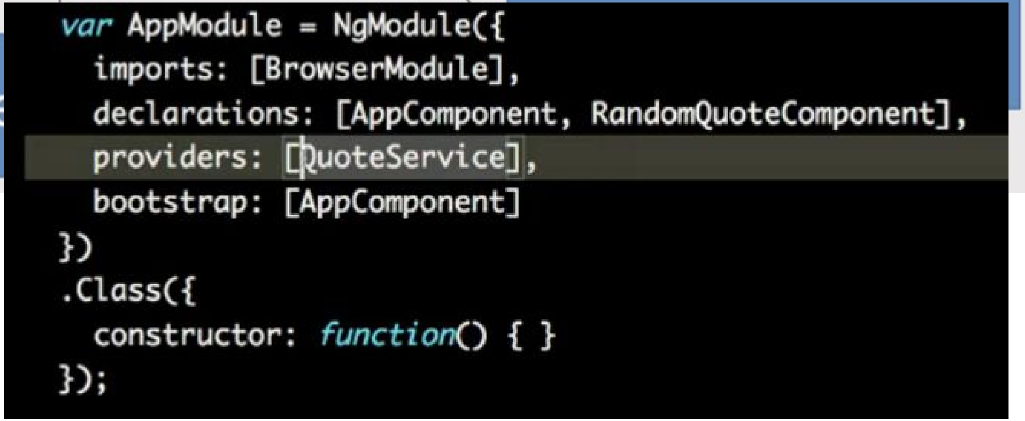
Manutenção

Teste





```
var MockQuoteService = Class({
  constructor: function() { },
  getRandomQuote: function() {
    return {
      line: 'A mock quote.',
      author: 'Mock Author'
    };
  }
});
```



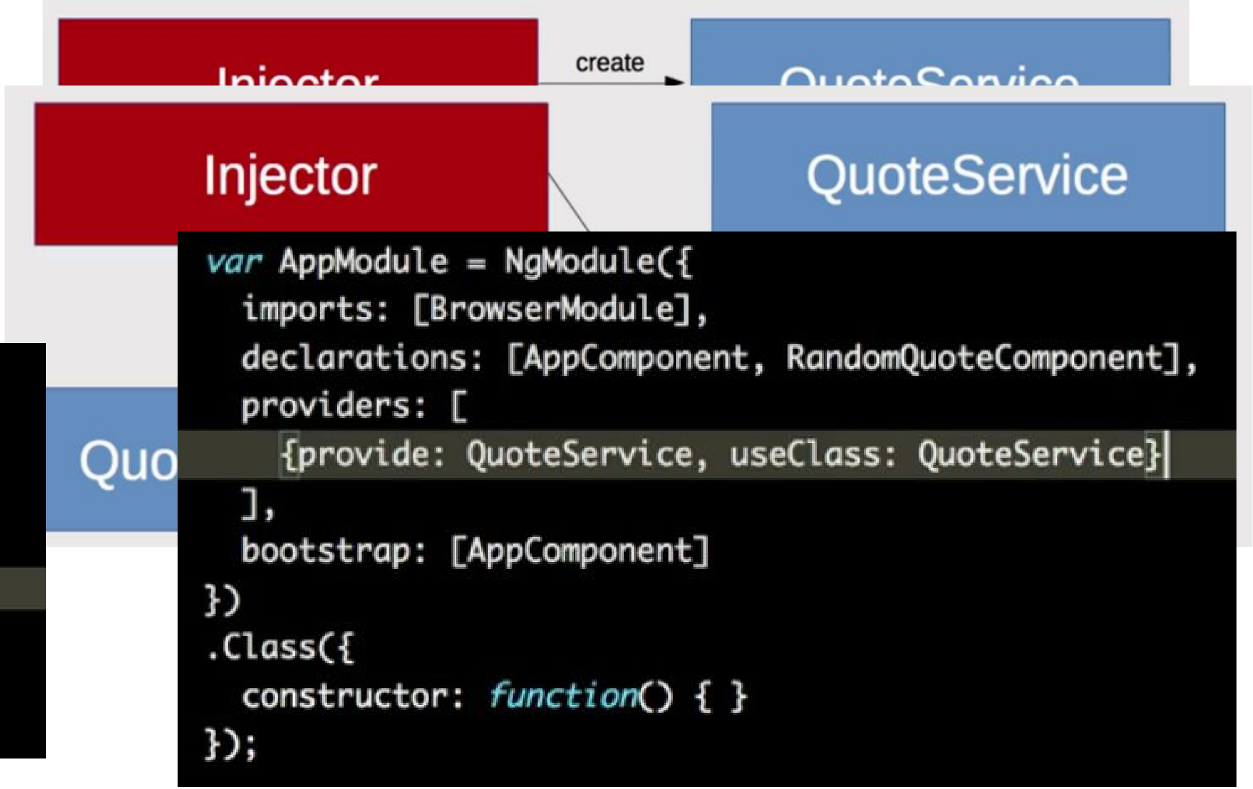
```
var AppModule = NgModule({
  imports: [BrowserModule],
  declarations: [AppComponent, RandomQuoteComponent],
  providers: [QuoteService],
  bootstrap: [AppComponent]
})
.Class({
  constructor: function() { }
});
```

# Dependency Injection

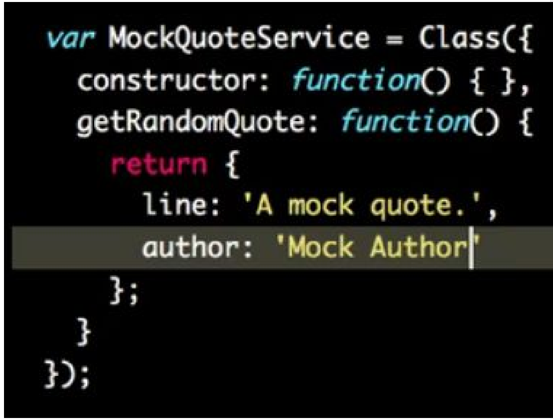
Reutilização

Manutenção

Teste



```
var AppModule = NgModule({
  imports: [BrowserModule],
  declarations: [AppComponent, RandomQuoteComponent],
  providers: [
    {provide: QuoteService, useClass: QuoteService}
  ],
  bootstrap: [AppComponent]
})
.Class({
  constructor: function() { }
});
```



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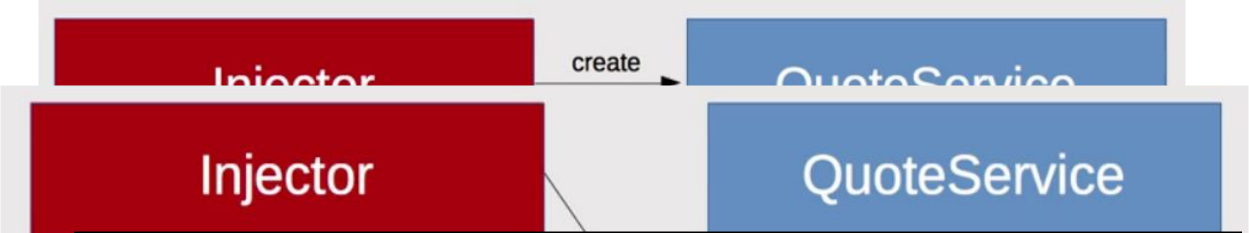
    };
  }
});
```

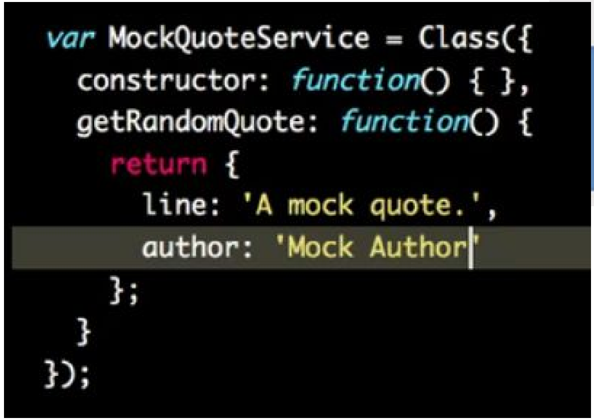
# Dependency Injection

Reutilização

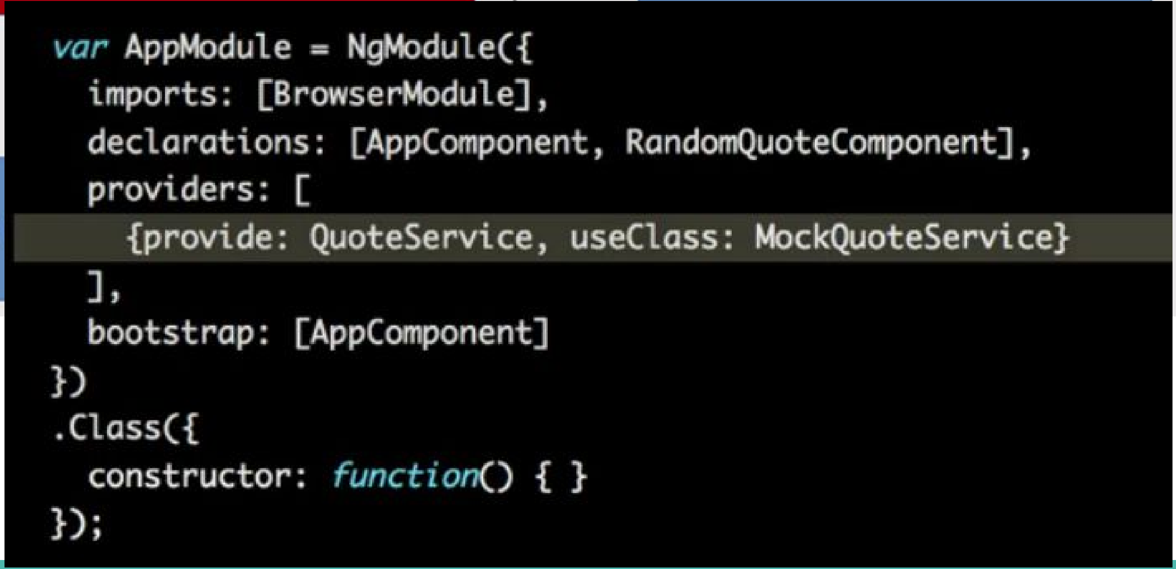
Manutenção

Teste





```
var MockQuoteService = Class({
  constructor: function() { },
  getRandomQuote: function() {
    return {
      line: 'A mock quote.',
      author: 'Mock Author'
    };
  }
});
```



```
var AppModule = NgModule({
  imports: [BrowserModule],
  declarations: [AppComponent, RandomQuoteComponent],
  providers: [
    {provide: QuoteService, useClass: MockQuoteService}
  ],
  bootstrap: [AppComponent]
})
.Class({
  constructor: function() { }
});
```

# Change Detection
# github random-quote3/app.js

```
var QuoteService = Class({
    constructor: function QuoteService() {
    this.quotes = sampleQuotes;
    },
    getRandomQuote: function() {
    var randomIndex = Math.floor(Math.random() * this.quotes.length);
    return this.quotes[randomIndex];
    },
    generateRandomQuotes: function(delay, callback) {
    var self = this;
    callback(this.getRandomQuote());
    setInterval(function() {
    callback(self.getRandomQuote());
    }, delay);
    }
  });
```

# Change Detection
# github random-quote3/app.js

```
  var RandomQuoteComponent = Component({
    selector: 'random-quote',
    template: '<p><em>{{quote.line}}</em> - {{quote.author}}</p>'
  })
  .Class({
    constructor: [QuoteService, function
RandomQuoteComponent(quoteService) {
    var self = this;
    quoteService.generateRandomQuotes(2000, function(quote) {
    self.quote = quote;
    });
    }]
  });
```

# File Modules random-quote4/app/quote.service.js

```
 (function(app) {
  var Class = ng.core.Class;
  app.QuoteService = Class({
    constructor: function QuoteService() {     this.quotes =
sampleQuotes;},
    getRandomQuote: function() {
    var randomIndex = Math.floor(Math.random() * this.quotes.length);
    return this.quotes[randomIndex];},
    generateRandomQuotes: function(delay, callback) {
    var self = this;     callback(this.getRandomQuote());
    setInterval(function() {  callback(self.getRandomQuote());}, delay);
    }  });
  var sampleQuotes = [...];

})(window.app || (window.app = {}));
```

# File Modules

# ...quote4/app/random-quote.component.js

```
(function(app) {
  var Component = ng.core.Component;
  var QuoteService = app.QuoteService;
  app.RandomQuoteComponent = Component({
    selector: 'random-quote',
    template: '<p><em>{{quote.line}}</em> - {{quote.author}}</p>'
  })
  .Class({constructor: [QuoteService, function
RandomQuoteComponent(quoteService) {       var self = this;
    quoteService.generateRandomQuotes(2000, function(quote) {
    self.quote = quote;
    });
    }]
  });

})(window.app || (window.app = {}));
```

# File Modules
# ...quote4/app/app.component.js

```
(function(app) {
  var Component = ng.core.Component;

  app.AppComponent = Component({
    selector: 'my-app',
    template:
    '<h1>Random Quote</h1>' +
    '<random-quote></random-quote>'
  })
  .Class({
    constructor: function AppComponent() { }
  });

})(window.app || (window.app = {}));
```

# File Modules
# ...quote4/app/app.module.js

```
(function(app) {
  var NgModule = ng.core.NgModule;
  var BrowserModule = ng.platformBrowser.BrowserModule;
  var QuoteService = app.QuoteService;
  var RandomQuoteComponent = app.RandomQuoteComponent;
  var AppComponent = app.AppComponent;
  app.AppModule = NgModule({  imports: [BrowserModule],
    declarations: [AppComponent, RandomQuoteComponent],
    providers: [QuoteService], bootstrap: [AppComponent]
  })
  .Class({
    constructor: function() { }
  });
})(window.app || (window.app = {}));
```

# File Modules ...quote4/app/main.js

```
 (function(app) {
   var platformBrowserDynamic =
ng.platformBrowserDynamic.platformBrowserDynamic;
   var AppModule = app.AppModule;

   platformBrowserDynamic().bootstrapModule(AppModule);

 })(window.app || (window.app = {}));
```

# File Modules
# ...quote4/index.html

```
  ....
  <body>
    <my-app>Loading...</my-app>
    <script src="app/quote.service.js"></script>
    <script src="app/random-quote.component.js"></script>
    <script src="app/app.component.js"></script>
    <script src="app/app.module.js"></script>
    <script src="app/main.js"></script>
  </body>
</html>
```

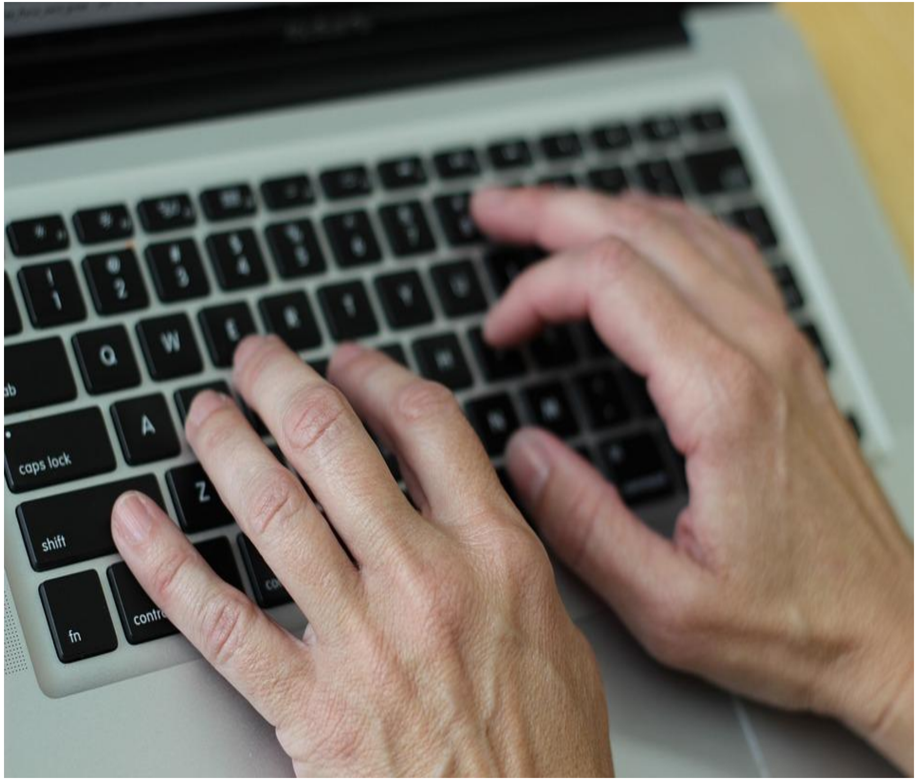
# Mãos à Obra!!

Exercício 1:

Crie um componente Angular ES5 para exibir a hora corrente de 1 em 1 segundo.

Observações:

1) Deve ser colocado em um repositório do GitHub;
2) Pode ser Feito em Duplas mas o nome dos integrantes deve constar no index.html
3) Crie uma aplicação completa para demonstrar seu componente



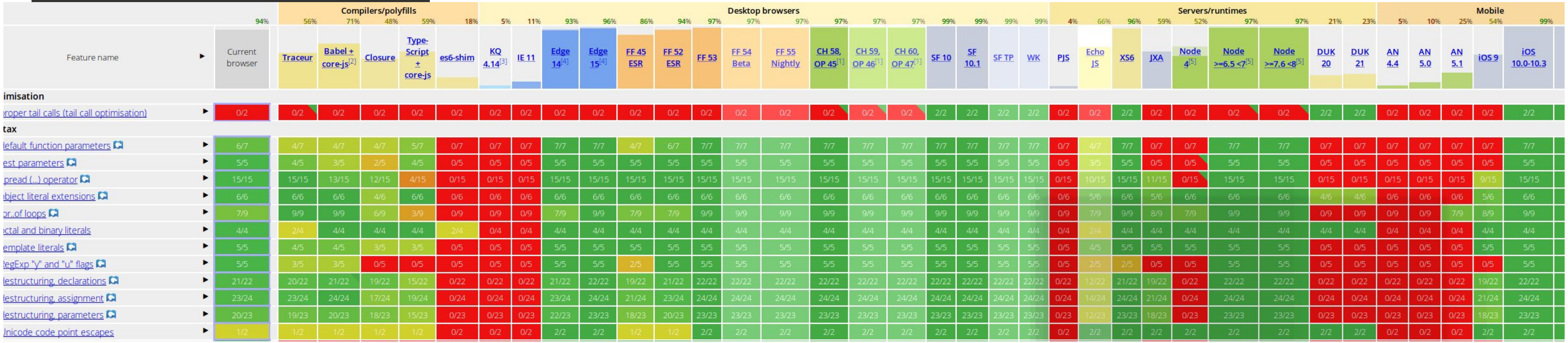
# Observação - Ferramentas

# ECMAScript 6

JS

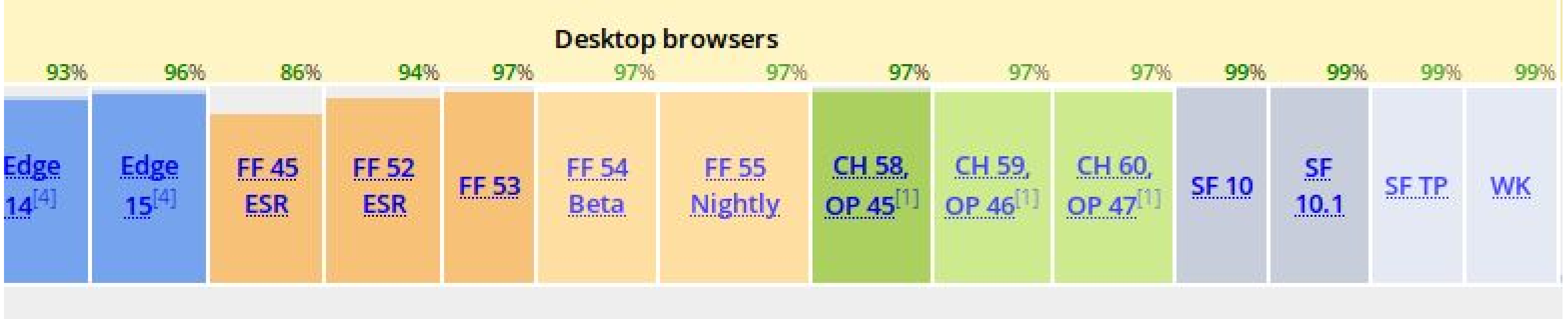
ECMAScript 6

JS



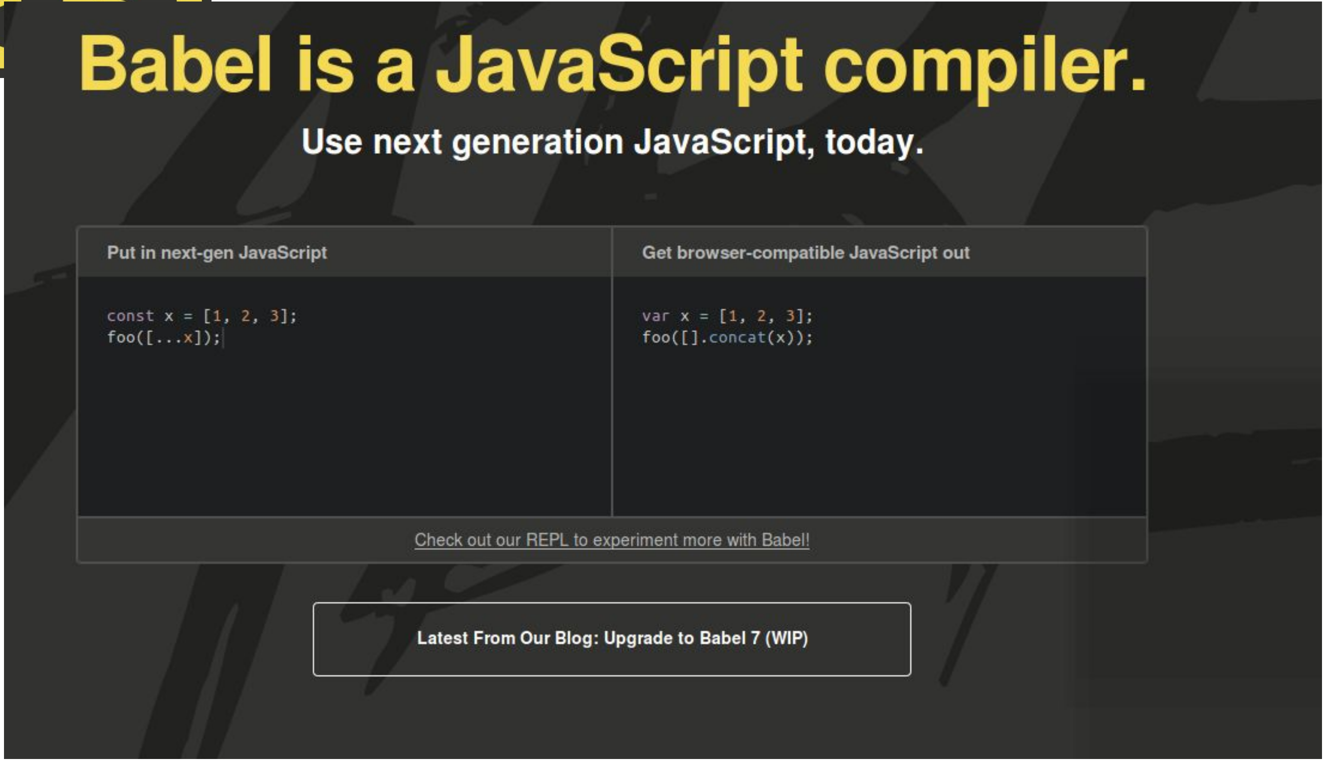
| Feature name ▶ | Current browser | Traceur | Babel + core-js[2] | Closure | Type-Script + core-js | es6-shim | KQ 4.14[3] | IE 11 | Edge 14[4] | Edge 15[4] | FF 45 ESR | FF 52 ESR | FF 53 | FF 54 Beta | FF 55 Nightly | CH 58, OP 45[1] | CH 59, OP 46[1] | CH 60, OP 47[1] | SF 10 | SF 10.1 | SF TP | WK |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Compilers/polyfills | | | | | Desktop browsers | | | | | | | | | | | | | | | |
| | 94% | 56% | 71% | 48% | 59% | 18% | 5% | 11% | 93% | 96% | 86% | 94% | 97% | 97% | 97% | 97% | 97% | 97% | 99% | 99% | 99% | 99% |
| imisation | | | | | | | | | | | | | | | | | | | | | | |
| roper tail calls (tail call optimisation) ▶ | 0/2 | 0/2 | 0/2 | 0/2 | 0/2 | 0/2 | 0/2 | 0/2 | 0/2 | 0/2 | 0/2 | 0/2 | 0/2 | 0/2 | 0/2 | 0/2 | 0/2 | 0/2 | 2/2 | 2/2 | 2/2 | 2/2 |
| tax | | | | | | | | | | | | | | | | | | | | | | |
| lefault function parameters ▶ | 6/7 | 4/7 | 4/7 | 4/7 | 5/7 | 0/7 | 0/7 | 0/7 | 7/7 | 7/7 | 4/7 | 6/7 | 7/7 | 7/7 | 7/7 | 7/7 | 7/7 | 7/7 | 7/7 | 7/7 | 7/7 | 7/7 |
| est parameters ▶ | 5/5 | 4/5 | 3/5 | 2/5 | 4/5 | 0/5 | 0/5 | 0/5 | 5/5 | 5/5 | 5/5 | 5/5 | 5/5 | 5/5 | 5/5 | 5/5 | 5/5 | 5/5 | 5/5 | 5/5 | 5/5 | 5/5 |
| pread (...) operator ▶ | 15/15 | 15/15 | 13/15 | 12/15 | 4/15 | 0/15 | 0/15 | 0/15 | 15/15 | 15/15 | 15/15 | 15/15 | 15/15 | 15/15 | 15/15 | 15/15 | 15/15 | 15/15 | 15/15 | 15/15 | 15/15 | 15/15 |
| bject literal extensions ▶ | 6/6 | 6/6 | 6/6 | 4/6 | 6/6 | 0/6 | 0/6 | 0/6 | 6/6 | 6/6 | 6/6 | 6/6 | 6/6 | 6/6 | 6/6 | 6/6 | 6/6 | 6/6 | 6/6 | 6/6 | 6/6 | 6/6 |
| or..of loops ▶ | 7/9 | 9/9 | 9/9 | 6/9 | 3/9 | 0/9 | 0/9 | 0/9 | 7/9 | 9/9 | 7/9 | 7/9 | 9/9 | 9/9 | 9/9 | 9/9 | 9/9 | 9/9 | 9/9 | 9/9 | 9/9 | 9/9 |
| ctal and binary literals ▶ | 4/4 | 2/4 | 4/4 | 4/4 | 4/4 | 2/4 | 0/4 | 0/4 | 4/4 | 4/4 | 4/4 | 4/4 | 4/4 | 4/4 | 4/4 | 4/4 | 4/4 | 4/4 | 4/4 | 4/4 | 4/4 | 4/4 |
| emplate literals ▶ | 5/5 | 4/5 | 4/5 | 3/5 | 3/5 | 0/5 | 0/5 | 0/5 | 5/5 | 5/5 | 5/5 | 5/5 | 5/5 | 5/5 | 5/5 | 5/5 | 5/5 | 5/5 | 5/5 | 5/5 | 5/5 | 5/5 |
| egExp "y" and "u" flags ▶ | 5/5 | 3/5 | 3/5 | 0/5 | 0/5 | 0/5 | 0/5 | 0/5 | 5/5 | 5/5 | 2/5 | 5/5 | 5/5 | 5/5 | 5/5 | 5/5 | 5/5 | 5/5 | 5/5 | 5/5 | 5/5 | 5/5 |
| lestructuring, declarations ▶ | 21/22 | 20/22 | 21/22 | 19/22 | 15/22 | 0/22 | 0/22 | 0/22 | 21/22 | 22/22 | 19/22 | 21/22 | 22/22 | 22/22 | 22/22 | 22/22 | 22/22 | 22/22 | 22/22 | 22/22 | 22/22 | 22/22 |
| lestructuring, assignment ▶ | 23/24 | 23/24 | 24/24 | 17/24 | 19/24 | 0/24 | 0/24 | 0/24 | 23/24 | 24/24 | 21/24 | 23/24 | 24/24 | 24/24 | 24/24 | 24/24 | 24/24 | 24/24 | 24/24 | 24/24 | 24/24 | 24/24 |
| lestructuring, parameters ▶ | 20/23 | 19/23 | 20/23 | 18/23 | 15/23 | 0/23 | 0/23 | 0/23 | 22/23 | 23/23 | 18/23 | 20/23 | 23/23 | 23/23 | 23/23 | 23/23 | 23/23 | 23/23 | 23/23 | 23/23 | 23/23 | 23/23 |
| Jnicode code point escapes ▶ | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 0/2 | 0/2 | 0/2 | 2/2 | 2/2 | 1/2 | 1/2 | 2/2 | 2/2 | 2/2 | 2/2 | 2/2 | 2/2 | 2/2 | 2/2 | 2/2 | 2/2 |

| Feature name ▶ | PJS | Echo JS | XS6 | JXA | Node 4[5] | Node >=6.5 <7[5] | Node >=7.6 <8[5] | DUK 20 | DUK 21 | AN 4.4 | AN 5.0 | AN 5.1 | iOS 9 | iOS 10.0-10.3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Servers/runtimes | | | | | | | | | Mobile | | | | |
| | 4% | 66% | 96% | 59% | 52% | 97% | 97% | 21% | 23% | 5% | 10% | 25% | 54% | 99% |
| imisation | | | | | | | | | | | | | | |
| roper tail calls (tail call optimisation) ▶ | 0/2 | 0/2 | 2/2 | 0/2 | 0/2 | 0/2 | 0/2 | 2/2 | 2/2 | 0/2 | 0/2 | 0/2 | 0/2 | 2/2 |
| tax | | | | | | | | | | | | | | |
| lefault function parameters ▶ | 0/7 | 4/7 | 7/7 | 0/7 | 0/7 | 7/7 | 7/7 | 0/7 | 0/7 | 0/7 | 0/7 | 0/7 | 0/7 | 7/7 |
| est parameters ▶ | 0/5 | 3/5 | 5/5 | 0/5 | 0/5 | 5/5 | 5/5 | 0/5 | 0/5 | 0/5 | 0/5 | 0/5 | 0/5 | 5/5 |
| pread (...) operator ▶ | 0/15 | 10/15 | 15/15 | 11/15 | 0/15 | 15/15 | 15/15 | 0/15 | 0/15 | 0/15 | 0/15 | 0/15 | 9/15 | 15/15 |
| bject literal extensions ▶ | 0/6 | 5/6 | 6/6 | 5/6 | 6/6 | 6/6 | 6/6 | 4/6 | 4/6 | 0/6 | 0/6 | 0/6 | 5/6 | 6/6 |
| or..of loops ▶ | 0/9 | 7/9 | 9/9 | 8/9 | 7/9 | 9/9 | 9/9 | 0/9 | 0/9 | 0/9 | 0/9 | 7/9 | 8/9 | 9/9 |
| ctal and binary literals ▶ | 0/4 | 2/4 | 4/4 | 4/4 | 4/4 | 4/4 | 4/4 | 4/4 | 4/4 | 0/4 | 0/4 | 0/4 | 4/4 | 4/4 |
| emplate literals ▶ | 0/5 | 4/5 | 5/5 | 5/5 | 5/5 | 5/5 | 5/5 | 0/5 | 0/5 | 0/5 | 0/5 | 0/5 | 5/5 | 5/5 |
| egExp "y" and "u" flags ▶ | 0/5 | 2/5 | 2/5 | 0/5 | 0/5 | 5/5 | 5/5 | 0/5 | 0/5 | 0/5 | 0/5 | 0/5 | 0/5 | 5/5 |
| lestructuring, declarations ▶ | 0/22 | 12/22 | 21/22 | 19/22 | 0/22 | 22/22 | 22/22 | 0/22 | 0/22 | 0/22 | 0/22 | 0/22 | 19/22 | 22/22 |
| lestructuring, assignment ▶ | 0/24 | 14/24 | 24/24 | 21/24 | 0/24 | 24/24 | 24/24 | 0/24 | 0/24 | 0/24 | 0/24 | 0/24 | 21/24 | 24/24 |
| lestructuring, parameters ▶ | 0/23 | 12/23 | 23/23 | 18/23 | 0/23 | 23/23 | 23/23 | 0/23 | 0/23 | 0/23 | 0/23 | 0/23 | 18/23 | 23/23 |
| Jnicode code point escapes ▶ | 0/2 | 2/2 | 2/2 | 2/2 | 2/2 | 2/2 | 2/2 | 2/2 | 2/2 | 0/2 | 0/2 | 0/2 | 2/2 | 2/2 |



| Desktop browsers | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 93% | 96% | 86% | 94% | 97% | 97% | 97% | 97% | 97% | 97% | 99% | 99% | 99% | 99% |
| Edge 14[4] | Edge 15[4] | FF 45 ESR | FF 52 ESR | FF 53 | FF 54 Beta | FF 55 Nightly | CH 58, OP 45[1] | CH 59, OP 46[1] | CH 60, OP 47[1] | SF 10 | SF 10.1 | SF TP | WK |

ECMAScript 6



# Babel is a JavaScript compiler.

Use next generation JavaScript, today.

Put in next-gen JavaScript

```
const x = [1, 2, 3];
foo([...x]);
```

Get browser-compatible JavaScript out

```
var x = [1, 2, 3];
foo([].concat(x));
```

Check out our REPL to experiment more with Babel!

# Babel e NPM

```
> npm install

> npm run build

> npm run serve
```

ECMAScript 6

JS

```
app.AppComponent = Component({
  selector: 'my-app',
  template: `
  <h1>Random Quote</h1>
  <random-quote></random-quote>
  `
})
```

ECMAScript 6

JS

```
  .Class({
    constructor: [QuoteService, function
RandomQuoteComponent(quoteService) {
    quoteService.generateRandomQuotes(2000,
                               quote => this.quote = quote);
    }]
  });


    generateRandomQuotes: function(delay, callback) {
    callback(this.getRandomQuote());
    setTimeout(
        () => callback(this.getRandomQuote()), delay);
    }
```

# CONST e LET

Mudança no escopo

Igual a outras linguagens

Recomenda-se CONST no lugar do VAR ao menos que a variável seja alterada

ECMAScript 6

JS

# Classes e Decorators

```
(function(app) {
  var Component = ng.core.Component;

  @Component({
    selector: 'my-app',
    template: `
    <h1>Random Quote</h1>
    <random-quote></random-quote>
    `
  })
  class AppComponent { }

  app.AppComponent = AppComponent;

})(window.app || (window.app = {}));
```

```
{
  "presets": ["es2015"],
  "plugins": [
      "angular2-annotations",
      "transform-decorators-legacy"
  ]
}
```

ECMAScript 6

JS

# Modules

```
import { Component, Inject } from '@angular/core';
import { QuoteService } from './quote.service';

@Component({
  selector: 'random-quote',
  template: '<p><em>{{quote.line}}</em> - {{quote.author}}</p>'
})
export class RandomQuoteComponent {

  constructor(@Inject(QuoteService) quoteService) {
    quoteService.generateRandomQuotes(2000, quote => this.quote =
quote);
  }

}
```

# SystemJS

```html
<html>
  <head>
    <title>Angular 2 - Random Quote</title>
    <meta name="viewport" content="width=device-width, initial-scale=1">

    <script src="node_modules/core-js/client/shim.min.js"></script>
    <script src="node_modules/zone.js/dist/zone.js"></script>
    <script src="node_modules/systemjs/dist/system.src.js"></script>
    <script src="systemjs.config.js"></script>
    <script>
    System.import('app').catch(function(err) { console.error(err);  });
    </script>
  </head>
  <body>
    <my-app>Loading...</my-app>
  </body>
</html>
```

# TypeScript

```
{
  "name": "random-quote",   "version": "1.1.1",
  "scripts": {
    "build": "tsc",
    "serve": "concurrently \"tsc -w\" lite-server"
  },
  "dependencies": {
     ...
  },
  "devDependencies": {
    "@types/core-js": "0.9.34",
    "concurrently": "3.0.0",
    "lite-server": "2.2.2",
    "typescript": "2.0.3"
  }
}
```

```
{
 "compilerOptions": {
      "rootDir": "src",
      "outDir": "app",
      "target": "es5",
      "module": "system",
      "moduleResolution": "node",
      "emitDecoratorMetadata": true,
      "experimentalDecorators": true,
      "types": [
      "core-js"
      ]
 },
 "exclude": [
      "node_modules"
 ],
 "compileOnSave": false
}
```

# TypeScript

```
export class QuoteService {

  quotes = sampleQuotes;  // <- Declarar atributos

  getRandomQuote() {
    const randomIndex = Math.floor(Math.random() * this.quotes.length);
    return this.quotes[randomIndex];
  }

  generateRandomQuotes(delay, callback) {
    callback(this.getRandomQuote());
    setTimeout(() => callback(this.getRandomQuote()), delay);
  }

}
```

# TypeScript

```
import { Component } from '@angular/core';
import { Quote } from './quote.model';
import { QuoteService } from './quote.service';

@Component({
  selector: 'random-quote',
  template: '<p><em>{{quote.line}}</em> - {{quote.author}}</p>'
})
export class RandomQuoteComponent {
  quote: Quote;
  constructor(quoteService: QuoteService) {
    quoteService.generateRandomQuotes(2000, quote => this.quote =
quote);
  }

}
```

# TypeScript

```
export interface Quote {
  line: string;
  author: string;
}
```

# TypeScript

```
import { Quote } from './quote.model';

export class QuoteService {

  quotes: Quote[] = sampleQuotes;

  getRandomQuote(): Quote {
    const randomIndex = Math.floor(Math.random() * this.quotes.length);
    return this.quotes[randomIndex];
  }

  generateRandomQuotes(delay: number, callback: (quote: Quote)
=> void) {
    callback(this.getRandomQuote());
    setTimeout(() => callback(this.getRandomQuote()), delay);
  }
```

# TypeScript

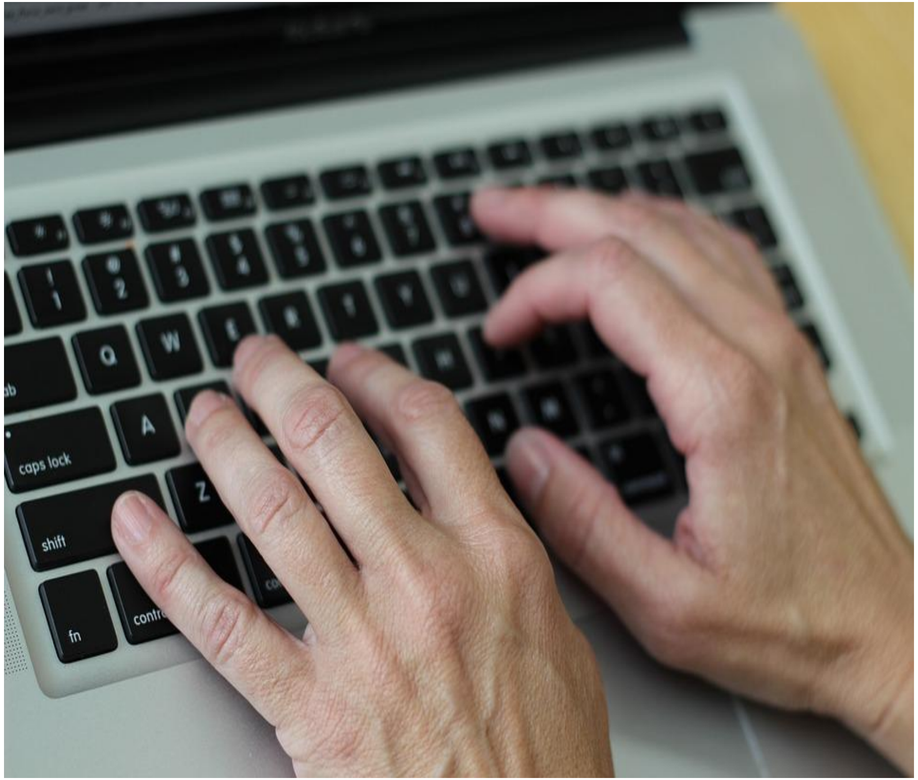
```
import { Quote } from './quote.model';
export class QuoteService {
  private quotes: Quote[] = sampleQuotes;
  private getRandomQuote(): Quote {
    const randomIndex = Math.floor(Math.random() *
this.quotes.length);
    return this.quotes[randomIndex];
  }
  generateRandomQuotes(delay: number, callback: (quote:
Quote) => void) {
    callback(this.getRandomQuote());
    setTimeout(() => callback(this.getRandomQuote()),
delay);  }
```

# Mãos à Obra!!

Exercício 2:
 Altere o projeto do Exercío 1 para TypeScript

Observações:

1) Deve ser colocado em um repositório do GitHub;
2) Pode ser Feito em Duplas mas o nome dos integrantes deve constar no index.html



# Two-way Binding (CurrencyC.)

```
@Component({
  selector: 'currency-converter',
  template: `
    Convert: <input type="number" [(ngModel)]="baseAmount"> USD
    <p><strong>{{baseAmount}}</strong> USD =
    <strong>{{targetAmount}}</strong> GBP</p>`,
  styles: [`...`]
})
export class AppComponent {
  exchangeRate = 0.70;
  baseAmount = 1;
  get targetAmount() {
    return this.baseAmount * this.exchangeRate;
  }
}
```

# Class Binding

```
@Component({
  selector: 'currency-converter',
  template: `
    <input type="number" [(ngModel)]="baseAmount"
    [class.error]="isInvalid(baseAmount)"> USD
    = <strong>{{targetAmount}}</strong> GBP
  `,
  styles: [`
    input[type=number] {
    width: 10ex;
    text-align: right;
    }
    .error {
    background-color: #ff6666;
    }
  `]
})
```

```
isInvalid(value) {
  return !Number.isFinite(value);
}
```

# Service

```
export class ExchangeService {
  supportedCurrencies = ['EUR', 'GBP', 'USD'];
  private exchangeRates = {
    "EUR/GBP": 0.8007,
    "EUR/USD": 1.1397,
    "GBP/EUR": 1.2478,
    "GBP/USD": 1.4225,
    "USD/EUR": 0.8778,
    "USD/GBP": 0.7029
  };
  getExchangeRate(baseCurrency: string, targetCurrency: string) {
    if (baseCurrency === targetCurrency) {
    return 1;
    }
    return this.exchangeRates[baseCurrency +'/'+ targetCurrency];
  }
}
```

# Currency Select - template

```
import { Component, EventEmitter, Input, Output } from '@angular/core';
import { ExchangeService } from './exchange.service';

@Component({
  selector: 'currency-select',
  template: `
    <select [ngModel]="selected"
(ngModelChange)="onSelectedChange($event)">
    <option *ngFor="let currency of supportedCurrencies"
[value]="currency">
    {{currency}}
    </option>
    </select>
  `
})
```

# Currency Select -class

```
export class CurrencySelectComponent {

  @Input() selected: string;
  @Output() selectedChange = new EventEmitter<string>();

  supportedCurrencies: string[];

  constructor(exchangeService: ExchangeService) {
    this.supportedCurrencies = exchangeService.supportedCurrencies;
  }

  onSelectedChange(selected: string) {
    this.selected = selected;
    this.selectedChange.emit(selected);
  }
}
```

# Pipes

Formatam templates

Transformam uma entrada em uma saída

Exemplos de pipes fornecidos com Angular:

```
{{'Teste'| uppercase}}
```

```
{{now | date: 'short'}}
```

# Pipes Customizados

```
import { Pipe, PipeTransform } from '@angular/core';

@Pipe({name: 'fixed'})
export class FixedPipe implements PipeTransform {

  transform(value: number, digits=2) {
    return value.toFixed(digits);
  }
}
```

# Pipes Customizados

```
import { Pipe, PipeTransform } from '@angular/core';

@Pipe({name: 'fixed'})
export class FixedPipe implements PipeTransform {

  transform(value: number, digits=2) {
    return value.toFixed(digits);
  }
}
```

# Pipes Customizados

```
import { Pipe, PipeTransform } from '@angular/core';

@Pipe({name: 'fixed'})
export class FixedPipe implements PipeTransform {

  transform(value: number, digits=2) {
    return value.toFixed(digits);
  }
}
```

# AppComponet - template

```
@Component({
  selector: 'currency-converter',
  template: `
    <input type="number" [(ngModel)]="baseAmount"
    [class.error]="isInvalid(baseAmount)">
    <currency-select [(selected)]="baseCurrency"></currency-select>
    = <strong>{{targetAmount | fixed:2}}</strong>
    <currency-select [(selected)]="targetCurrency"></currency-select>
    <p *ngIf="isInvalid(baseAmount)">Please enter a valid amount</p>
  `,
  styles: [`
    input[type=number] {
    width: 10ex;
    text-align: right;    }
    .error {
    background-color: #ff6666;
    }
  `] })
```

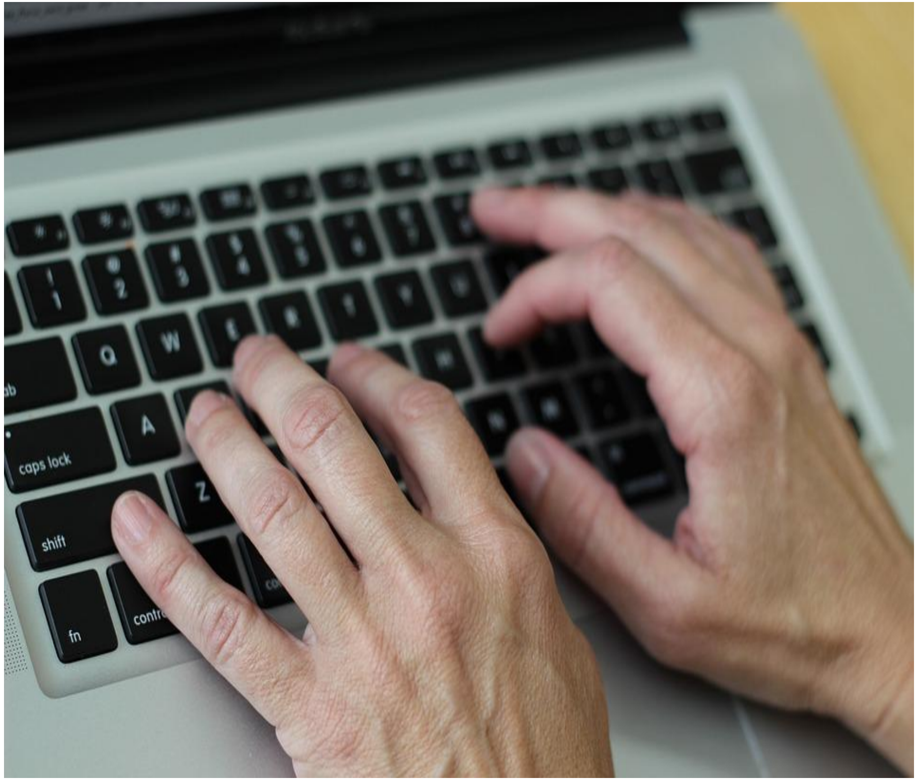
# AppComponet - class

```
export class AppComponent {

  baseCurrency = 'USD';
  targetCurrency = 'GBP';
  baseAmount = 1;

  constructor(private exchangeService: ExchangeService) { }

  get targetAmount() {
    const exchangeRate = this.exchangeService
    .getExchangeRate(this.baseCurrency, this.targetCurrency);
    return this.baseAmount * exchangeRate;
  }

  isInvalid(value) {
    return !Number.isFinite(value);
  }
}
```

# Mãos à Obra!!

Exercício 3:
Crie um projeto com pelo menos 3 componentes, 1 serviço, colocando em prática os conceitos de hoje
Observações:

1) Deve ser colocado em um repositório do GitHub;
2) Pode ser Feito em Duplas mas o nome dos integrantes deve constar no index.html



# FormValidation - signup-form

```
  template: `
    <form (ngSubmit)="onSubmit(form)"  novalidate #form="ngForm">
     ...
    <input type="email" class="form-control"  #emailField="ngModel"
         [(ngModel)]="email" name="email" required pattern=".+@.+">
    <p *ngIf="emailField.touched && emailField.invalid"
         class="alert alert-danger">Please enter a valid email</p>
     ...
    <button type="submit" class="btn btn-primary"
    [disabled]="form.invalid">Sign Up</button>
    </form>
  `,
  styles: [`
    input.ng-dirty.ng-invalid { border: solid red 2px; }
    input.ng-dirty.ng-valid { border: solid green 2px; }
  `]
})
```

# Http - quote-of-the-day

main.ts

```
import 'rxjs/add/operator/toPromise';
import { platformBrowserDynamic } from
'@angular/platform-browser-dynamic';
import { AppModule } from './app.module';

platformBrowserDynamic().bootstrapModule(AppModule);
```

# Http - quote-of-the-day

app.module.ts

```
import { NgModule } from '@angular/core';
import { BrowserModule } from '@angular/platform-browser';
import { HttpModule } from '@angular/http';
import { QuoteService } from './quote.service';
import { AppComponent } from './app.component';

@NgModule({
  imports: [BrowserModule, HttpModule],
  declarations: [AppComponent],
  providers: [QuoteService],
  bootstrap: [AppComponent]
})
export class AppModule { }
```

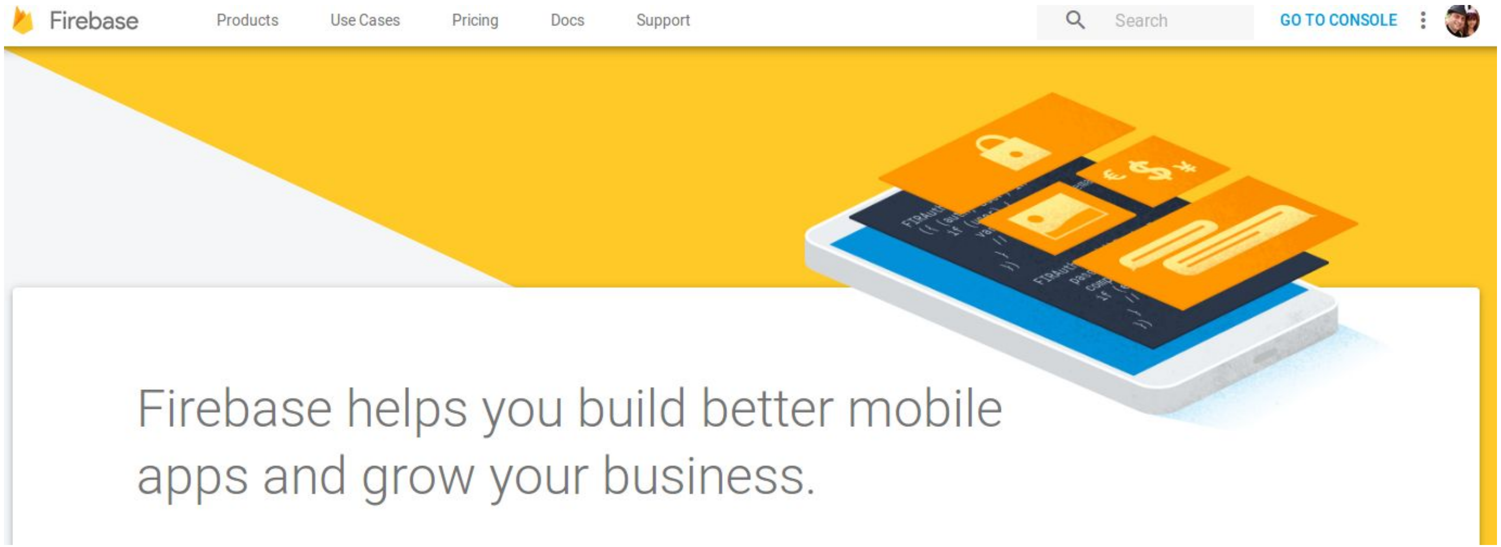
# Http - quote-of-the-day

```
import { Injectable } from '@angular/core';
import { Http } from '@angular/http';
import { Quote } from './quote.model';

@Injectable()
export class QuoteService {

  constructor(private http: Http) { }

  getQuoteOfTheDay(): Promise<Quote> {
    return this.http.get('/quote.json').toPromise()
    .then(response => response.json());
  }
}
```

# Http - quote-of-the-day

```
@Component({
  selector: 'my-app',
  template: `
    <h1>Quote Of The Day</h1>
    <p><em>{{quote?.line}}</em> - {{quote?.author}}</p>
  `
})
export class AppComponent {
  quote: Quote;
  constructor(quoteService: QuoteService) {
    quoteService.getQuoteOfTheDay()
    .then(quote => this.quote = quote);
  }
}
```

# Firebase



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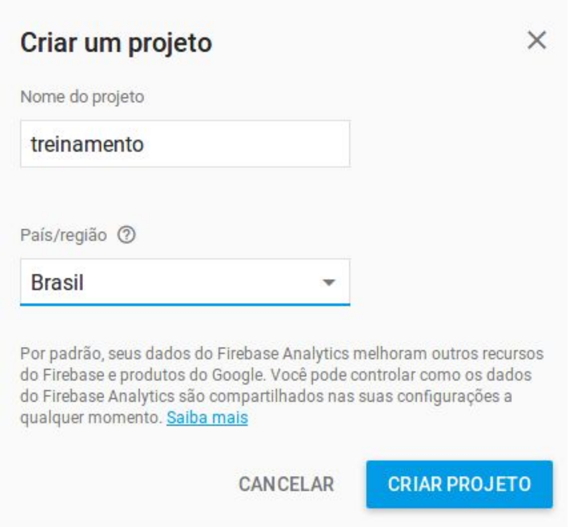
Firebase helps you build better mobile apps and grow your business.

# Firebase



## Criar um projeto

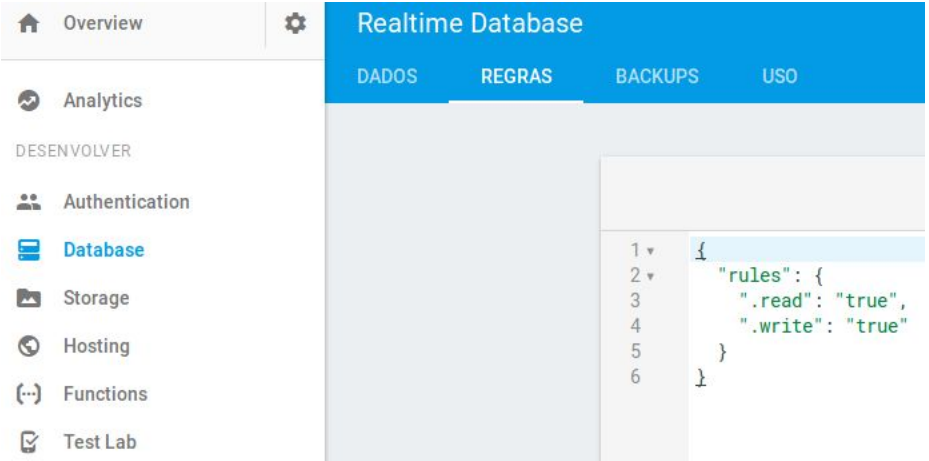
Nome do projeto

treinamento

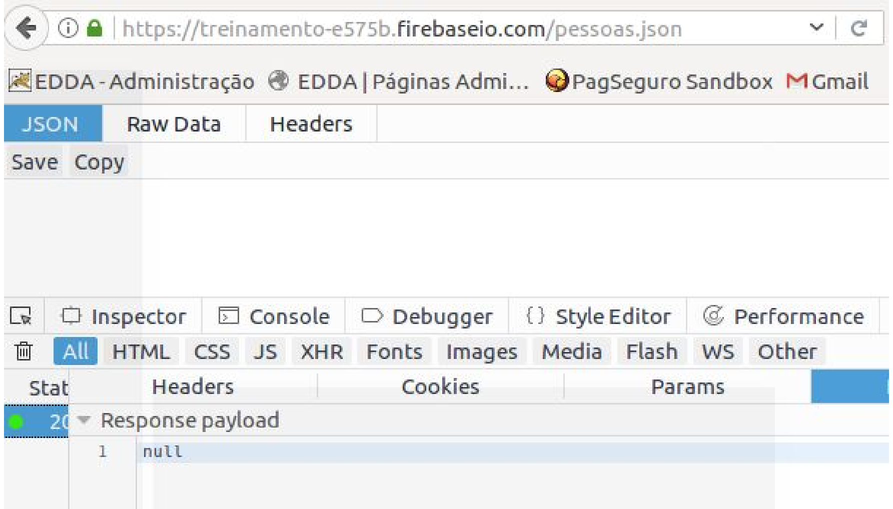
País/região

Brasil

Por padrão, seus dados do Firebase Analytics melhoram outros recursos do Firebase e produtos do Google. Você pode controlar como os dados do Firebase Analytics são compartilhados nas suas configurações a qualquer momento. Saiba mais



```
{
  "rules": {
    ".read": "true",
    ".write": "true"
  }
}
```

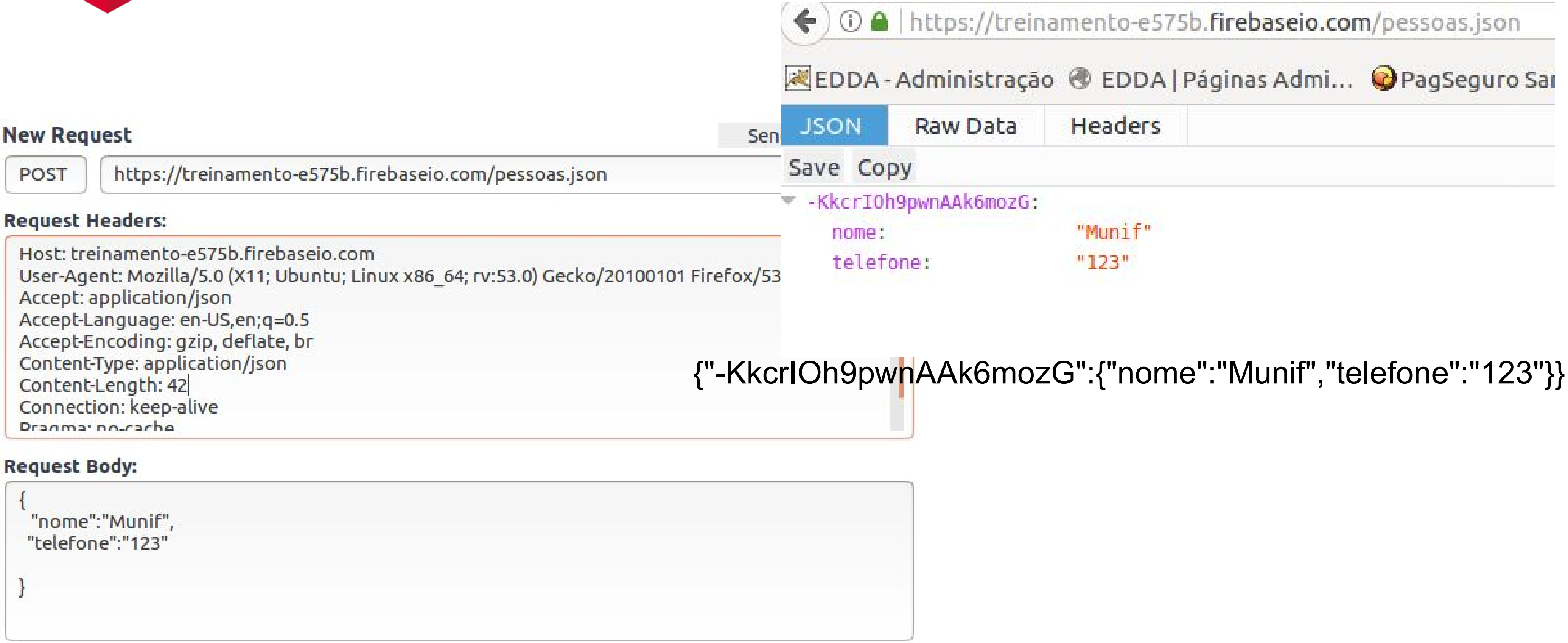


https://treinamento-e575b.firebaseio.com/pessoas.json

Response payload

```
null
```

# Firebase Testes



New Request

POST https://treinamento-e575b.firebaseio.com/pessoas.json

Request Headers:

```
Host: treinamento-e575b.firebaseio.com
User-Agent: Mozilla/5.0 (X11; Ubuntu; Linux x86_64; rv:53.0) Gecko/20100101 Firefox/53
Accept: application/json
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate, br
Content-Type: application/json
Content-Length: 42
Connection: keep-alive
Pragma: no-cache
```

Request Body:

```
{
  "nome":"Munif",
 "telefone":"123"

}
```

https://treinamento-e575b.firebaseio.com/pessoas.json

```
-KkcrIOh9pwnAAk6mozG:
  nome:        "Munif"
  telefone:    "123"
```

{"-KkcrIOh9pwnAAk6mozG":{"nome":"Munif","telefone":"123"}}

# Crud - shared-bookmarks

main.ts

```
import 'rxjs/add/operator/toPromise';
import { platformBrowserDynamic } from
'@angular/platform-browser-dynamic';
import { AppModule } from './app.module';

platformBrowserDynamic().bootstrapModule(AppModule);
```

# Crud - shared-bookmarks

```
app.module.ts
import { NgModule } from '@angular/core';
import { BrowserModule } from '@angular/platform-browser';
import { FormsModule } from '@angular/forms';
import { HttpModule } from '@angular/http';
import { BookmarkService } from './bookmark.service';
import { AppComponent } from './app.component';
import { BookmarkEditComponent } from './bookmark-edit.component';
import { BookmarkListComponent } from './bookmark-list.component';
@NgModule({
  imports: [BrowserModule, FormsModule, HttpModule],
  declarations: [AppComponent, BookmarkEditComponent,
BookmarkListComponent],
  providers: [BookmarkService],
  bootstrap: [AppComponent]
})
export class AppModule { }
```

# Crud - shared-bookmarks

```
@Injectable()
export class BookmarkService {
  errorHandler = error => console.error('BookmarkService error', error);
  private baseUrl = 'https://treinamento-e575b.firebaseio.com/';
  private collection = 'bookmarks';
  constructor(private http: Http) { }

  addBookmark(bookmark) {
    const json = JSON.stringify(bookmark);
    return this.http.post(`${this.baseUrl}/${this.collection}.json`, json)
    .toPromise()
    .catch(this.errorHandler);
  }
```

# Crud - shared-bookmarks

```
  getBookmarks() {
    return this.http.get(`${this.baseUrl}/${this.collection}.json`)
    .toPromise()
    .then(response => this.convert(response.json()))
    .catch(this.errorHandler);
  }

  removeBookmark(bookmark) {
    return
this.http.delete(`${this.baseUrl}/${this.collection}/${bookmark.id}.json`)
    .toPromise()
    .catch(this.errorHandler);
  }
```

# Crud - shared-bookmarks

```
  updateBookmark(bookmark) {
    const json = JSON.stringify({
    title: bookmark.title,
    url: bookmark.url
    });
    return
this.http.patch(`${this.baseUrl}/${this.collection}/${bookmark.id}.json`,
json)
    .toPromise()
    .catch(this.errorHandler);
  }
```

# Crud - shared-bookmarks

```
  private convert(parsedResponse) {
    return Object.keys(parsedResponse)
    .map(id => ({
    id: id,
    title: parsedResponse[id].title,
    url: parsedResponse[id].url
    }))
    .sort((a, b) => a.title.localeCompare(b.title));
  }

}
```

# Crud - shared-bookmarks

```
import { Component } from '@angular/core';
import { BookmarkService } from './bookmark.service';

@Component({
  selector: 'bookmark-app',
  template: `
    <bookmark-edit [bookmark]="editableBookmark"
    (save)="save($event)" (clear)="clear()"></bookmark-edit>
    <bookmark-list [bookmarks]="bookmarks"
    (edit)="edit($event)" (remove)="remove($event)"></bookmark-list>
  `,
})
```

# Crud - shared-bookmarks

```
export class AppComponent {

  bookmarks = [];
  editableBookmark = {};

  constructor(private bookmarkService: BookmarkService) {
    bookmarkService.errorHandler = error =>
    window.alert('Oops! The server request failed.');
    this.reload();
  }

  clear() {
    this.editableBookmark = {};
  }
```

# Crud - shared-bookmarks

```
edit(bookmark) {
  this.editableBookmark = Object.assign({}, bookmark);
}
remove(bookmark) {
  this.bookmarkService.removeBookmark(bookmark)
  .then(() => this.reload());
}

private reload() {
  return this.bookmarkService.getBookmarks()
  .then(bookmarks => this.bookmarks = bookmarks);
}
```

# Crud - shared-bookmarks

```
  save(bookmark) {
    if (bookmark.id) {
    this.bookmarkService.updateBookmark(bookmark)
    .then(() => this.reload());
    } else {
    this.bookmarkService.addBookmark(bookmark)
    .then(() => this.reload());
    }
    this.clear();
  }

}
```

# Crud - shared-bookmarks

```
@Component({
  selector: 'bookmark-list',
  template: `
    <div class="panel panel-default">
    <table class="table table-striped">
    <tr *ngFor="let bookmark of bookmarks">
    <td> <a
[href]="bookmark.url"target="_blank">{{bookmark.title}}</a></td>
    <td><button (click)="onEdit(bookmark)" class="btn btn-primary">
             <span class="glyphicon glyphicon-pencil"></span>
             <span class="hidden-xs">Edit</span></button>
         <button (click)="onRemove(bookmark)" class="btn btn-danger">
             <span class="glyphicon glyphicon-trash"></span>
             <span class="hidden-xs">Delete</span></button>
     </td></tr></table></div>`,})
```

# Crud - shared-bookmarks

```
export class BookmarkListComponent {
  @Input() bookmarks = [];
  @Output() edit = new EventEmitter();
  @Output() remove = new EventEmitter();
  onEdit(bookmark) {
    this.edit.emit(bookmark);
  }
  onRemove(bookmark) {
    this.remove.emit(bookmark);
  }
}
```

# Crud - shared-bookmarks

```
@Component({selector: 'bookmark-edit',
  template: `
    <div class="panel panel-primary">
    <div class="panel-body">
    <input type="text" [(ngModel)]="bookmark.title"
        placeholder="Title" style="width: 25%;">
    <input type="text" [(ngModel)]="bookmark.url"
        placeholder="URL" style="width: 50%;">
    <button (click)="onSave()" class="btn btn-primary">
        <span class="glyphicon glyphicon-ok"></span>
        <span class="hidden-xs">Save</span>
    </button>
    <button (click)="onClear()" class="btn btn-warning">
        <span class="glyphicon glyphicon-remove"></span>
        <span class="hidden-xs">Clear</span>
    </button></div></div>`,})
```

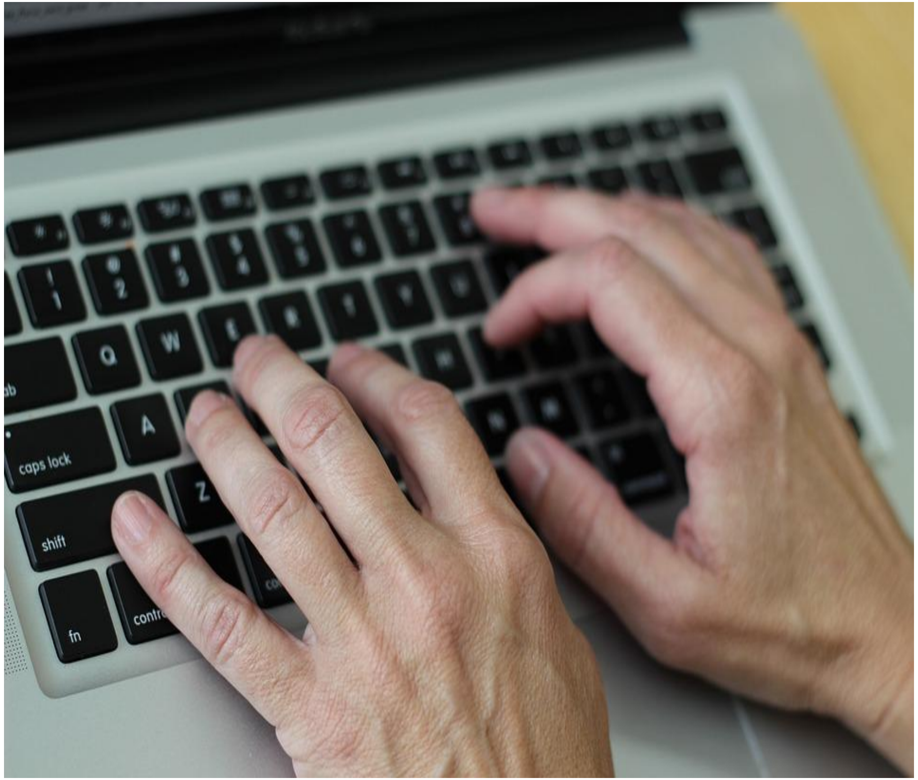
# Crud - shared-bookmarks

```
export class BookmarkEditComponent {
  @Input() bookmark = {};
  @Output() clear = new EventEmitter();
  @Output() save = new EventEmitter();
  onClear() {
    this.clear.emit();
  }
  onSave() {
    this.save.emit(this.bookmark);
  }
}
```

# Mãos à Obra!!

Exercício 4:
Crie um projeto com CRUD simples de contatos
Observações:

1) Deve ser colocado em um repositório do GitHub;
2) Pode ser Feito em Duplas mas o nome dos integrantes deve constar no index.html



# Angular CLI

https://cli.angular.io/

```
npm install -g @angular/cli
ng new exemplo-app
cd exemplo-app
ng serve
```

# Angular Fire - EXEMPLO FIRE

https://github.com/angular/angularfire2/blob/master/docs/1-install-and-setup.md

```
npm uninstall -g angular-cli
npm uninstall -g @angular/cli
npm cache clean
npm install -g @angular/cli@latest
```

```
npm install -g typings
npm install -g typescrip
```

# Angular - CLI

```
ng new compras
ng g module produtos
ng g module listas
ng generate component listas/crud
ng generate component produtos/crud

ng generate service produtos/produtos
ng generate component produtos/edita
ng generate component produtos/lista

ng generate service listas/listas
ng generate component listas/lista
ng generate component listas/edita
```

# Angular - Submodules

```
import { ProdutosModule } from './produtos/produtos.module';
import { ListasModule } from './listas/listas.module';

@NgModule({
  declarations: [    AppComponent],
  imports: [BrowserModule,FormsModule,     HttpModule,
    ProdutosModule,  ListasModule ],
  providers: [],
  bootstrap: [AppComponent]
})
export class AppModule { }
```

# Angular - Submodules

```
import { ListasService } from './listas.service';
import { EditaComponent } from './edita/edita.component';
import { ListaComponent } from './lista/lista.component';

@NgModule({
  imports: [CommonModule,FormsModule],
  declarations: [CrudComponent, EditaComponent, ListaComponent],
  exports: [CrudComponent],
  providers: [ListasService]
})
export class ListasModule { }
```

# Angular - Submodules

```
import { Component, OnInit } from '@angular/core';
import { ListasService } from '../listas.service';

@Component({
  selector: 'app-crud-listas',
  templateUrl: './crud.component.html',
  styleUrls: ['./crud.component.css']
})
```

# Angular - Submodules

```
<h1>
  {{title}}

  <app-crud-produtos></app-crud-produtos>

  <app-crud-listas></app-crud-listas>
</h1>
```

# Angular - Rotas

```
const appRoutes: Routes = [
  { path: 'rota1', component: Rota1Component },
  { path: 'rota2', component: Rota2Component },
  { path: 'rota3/:id', component: Rota3Component },
  { path: '',
    redirectTo: '/rota1',
    pathMatch: 'full'
  },
  { path: '**', component: NaoExisteComponent }
];
```

# Angular - Rotas

```
@NgModule({
  declarations: [
    AppComponent,     Rota1Component,  Rota2Component,
    Rota3Component,   NaoExisteComponent
  ],
  imports: [ RouterModule.forRoot(appRoutes),
    BrowserModule,    FormsModule,
    HttpModule  ],
  providers: [],
  bootstrap: [AppComponent]
})
export class AppModule { }
```

# Angular - Rotas -AppRoutingModule

```
ng new rotas1 --routing

ng g module produtos --routing
ng g component produtos/crud
ng g component produtos/lista
ng g component produtos/detalhes

ng g module pessoas --routing
ng g component pessoas/crud
ng g component pessoas/lista
ng g component pessoas/detalhes
```

# Angular - Rotas -AppRoutingModule

```
import { NgModule } from '@angular/core';
import { Routes, RouterModule } from '@angular/router';
const routes: Routes = [
  {
    path: '',
    children: []
  }
];
@NgModule({
  imports: [RouterModule.forRoot(routes)],
  exports: [RouterModule]
})
export class AppRoutingModule { }
```

# Angular - Rotas -AppRoutingModule

```
import { NgModule } from '@angular/core';
import { Routes, RouterModule } from '@angular/router';
const routes: Routes = [



];

@NgModule({
  imports: [RouterModule.forChild(routes)],
  exports: [RouterModule]
})
export class PessoasRoutingModule { }
```

# Angular - Rotas -AppRoutingModule

```
import { NgModule } from '@angular/core';
import { Routes, RouterModule } from '@angular/router';
const routes: Routes = [



];

@NgModule({
  imports: [RouterModule.forChild(routes)],
  exports: [RouterModule]
})
export class PessoasRoutingModule { }
```

# Angular - Sub Rotas

```
const routes: Routes = [

  { path: 'principal', component: PrincipalComponent },
  { path: '',   redirectTo: '/principal',  pathMatch: 'full'  },
  { path: '**', component: NaoexisteComponent },
];

@NgModule({
  imports: [RouterModule.forRoot(routes)],
  exports: [RouterModule]
})
export class AppRoutingModule { }
```

Não tem nada de subrotas aqui!!

# Angular - Sub Rotas

```
@NgModule({
  declarations: [     AppComponent,PrincipalComponent,  NaoexisteComponent,
],
  imports: [
    BrowserModule,    FormsModule, HttpModule,
    PessoasModule,
    AppRoutingModule,

  ],
  providers: [],
  bootstrap: [AppComponent]
})
export class AppModule { }
```

AppRoutingModule TEM QUE SER o ÚLTIMO

# Angular - Sub Rotas

```
@NgModule({
  imports: [
    CommonModule,
    PessoasRoutingModule
  ],
  declarations: [CrudComponent, ListaComponent, DetalhesComponent]

})
export class PessoasModule { }
```

Não precisa exportar nada!

# Angular - Sub Rotas

```
const routes: Routes = [
  {
    path:'pessoas',
    component:CrudComponent,
    children:[
    { path:'',component:ListaComponent },
    { path:'detalhes',component:DetalhesComponent}
    ]
  }
];
@NgModule({
  imports: [RouterModule.forChild(routes)],  exports: [RouterModule]
})
export class PessoasRoutingModule { }
```

Adicionado ao Router Principal de maneira transparente

# Angular - Parâmetros em Rotas

```
<p>
  lista works!
</p>

<a [routerLink]="['./detalhes',1]">Produto 1</a>
<a [routerLink]="['./detalhes',2]">Produto 2</a>
<a [routerLink]="['./detalhes',3]">Produto 3</a>
```

# Angular - Parâmetros em Rotas

```
const routes: Routes = [
  {
    path:'produtos',
    component:CrudComponent,
    children:[
    { path:'',component:ListaComponent },
    { path:'detalhes/:id',component:DetalhesComponent}
    ]
  }
];
@NgModule({
  imports: [RouterModule.forChild(routes)],
  exports: [RouterModule]
})
export class ProdutosRoutingModule { }
```

# Angular - Parâmetros em Rotas

```
import 'rxjs/add/operator/switchMap';
import { Component, OnInit } from '@angular/core';
import { ActivatedRoute, Params }   from '@angular/router';
import { Location }               from '@angular/common';
@Component({
  selector: 'app-detalhes',
  templateUrl: './detalhes.component.html',
  styleUrls: ['./detalhes.component.css']
})
export class DetalhesComponent implements OnInit {
  private id:String="NADA";
  constructor(private route: ActivatedRoute,  private location: Location) {
  }
```

# Angular - Parâmetros em Rotas

```
ngOnInit() {
    this.route.params
    .switchMap((params: Params) => this.carrega(params['id']))
    .subscribe(id =>this.id = id);
  }

  carrega(id: String): Promise<String> { //trocar por chamada ao service
    console.log("carrando",id);
    return new Promise(resolve => {
    setTimeout(() => resolve(id), 200); // Simula atraso do server
    });
  }
```

# Angular - Guards

```
ng g guard atenticador
@Injectable()
export class AtenticadorGuard implements CanActivate {
 constructor(private autenticacaoService:AutenticacaoService,private
router:Router){   }
  canActivate(next: ActivatedRouteSnapshot, state: RouterStateSnapshot):
Observable<boolean> | Promise<boolean> | boolean {
    console.log("Chamando Guard para ",state.url);
    this.autenticacaoService.url=state.url;
    if (!this.autenticacaoService.estaLogado){
        this.router.navigate(['/login']);
    }
    return this.autenticacaoService.estaLogado;
  }
}
```

# Angular - Guards

```
import { Injectable } from '@angular/core';
@Injectable()
export class AutenticacaoService {
  url:String;
  estaLogado:boolean=false;
  constructor() { }
  login(){
    this.estaLogado=true;
  }
  logout(){
    this.estaLogado=false;
  }
}
```

# Angular - Guards

```
const routes: Routes = [
{ path: 'login', component: LoginComponent },
{ path: 'principal', component: PrincipalComponent },
{path: 'admin', component: AdminComponent,canActivate:[ AtenticadorGuard]
},
  { path: '',   redirectTo: '/principal',  pathMatch: 'full'  },
  { path: '**', component: NaoexisteComponent },
];
@NgModule({
  imports: [RouterModule.forRoot(routes)],
  exports: [RouterModule]
})
export class AppRoutingModule {
    constructor(r:Router){
    this.logaRotas("/",r.config);
    }
```

# Angular - Guards

```
logaRotas(pai:String,rotas:Routes){
 for (let i=0;i<rotas.length;i++){
    if (rotas[i].children){
        rotas[i].canActivate=[AtenticadorGuard];
        this.logaRotas(rotas[i].path+"/",rotas[i].children);
    }
  }
}
```

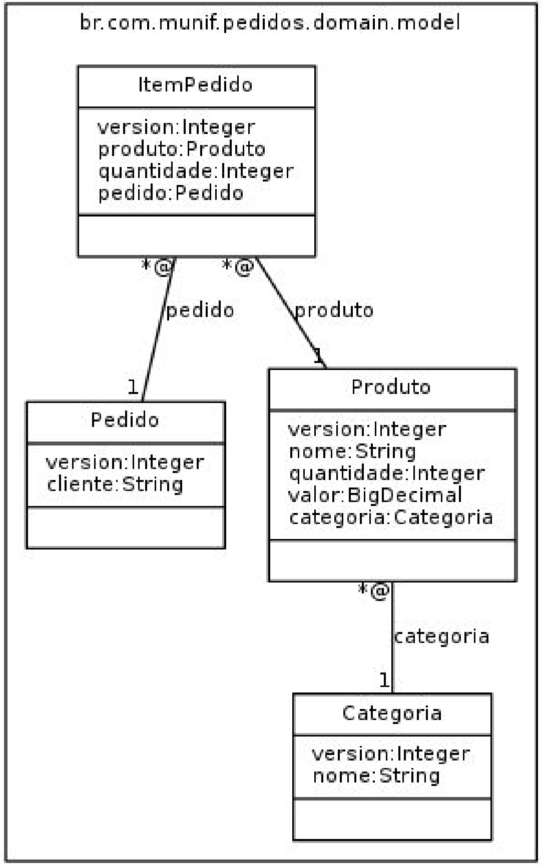
# Angular - Guards

```
export class LoginComponent implements OnInit {
 constructor(private autenticacaoService:AutenticacaoService, private
router:Router ) { }
  ngOnInit() {}
  login(){
    this.autenticacaoService.login();
    if (this.autenticacaoService.url){
    this.router.navigate([this.autenticacaoService.url]);
    }
  }
  logout(){
    console.log("logout");
    this.autenticacaoService.logout();
    this.router.navigate(["/"])
  }
```

# Exemplo Sistema - Pedidos

Backend Java + Spring

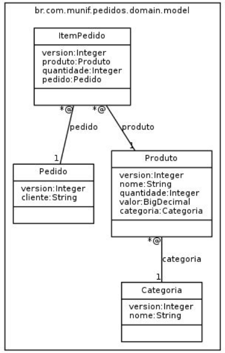
Gerador de código GUMGA



# Framework da Gumga - BackEnd

https://github.com/gumga/frameworkbackend

```
mvn archetype:generate -DinteractiveMode=false -DarchetypeGroupId=io.gumga
-DarchetypeArtifactId=gumga-archetype -DarchetypeVersion=LATEST
-DgroupId=br.com.munif  -DartifactId=pedidos -Dversion=0.1-SNAPSHOT
cd pedidos
mvn clean install
cd pedidos-domain
mvn io.gumga:gumgag:entidade
-Dentidade=br.com.munif.pedidos.domain.model.Categoria
-Datributos="nome:String"
mvn io.gumga:gumgag:entidade
-Dentidade=br.com.munif.pedidos.domain.model.Produto
-Datributos="nome:String,quantidade:Integer,valor:BigDecimal.categoria:Cat
egoria:@ManyToOne"
```

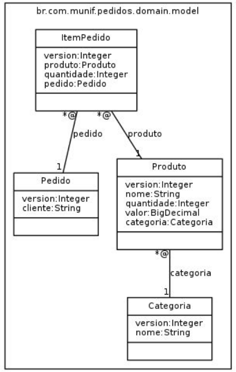


# Framework da Gumga - BackEnd

```
mvn io.gumga:gumgag:entidade
-Dentidade=br.com.munif.pedidos.domain.model.Pedido
-Datributos="cliente:String"

mvn io.gumga:gumgag:entidade
-Dentidade=br.com.munif.pedidos.domain.model.ItemPedido
-Datributos="produto:Produto:@ManyToOne,quantidade:Integer,pedido:Pedido:@
ManyToOne"

mvn clean install
```



br.com.munif.pedidos.domain.model

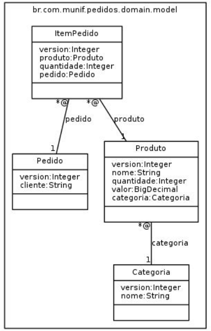
ItemPedido
version:Integer
produto:Produto
quantidade:Integer
pedido:Pedido

Pedido
version:Integer
cliente:String

Produto
version:Integer
nome:String
quantidade:Integer
valor:BigDecimal
categoria:Categoria

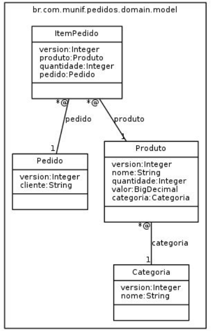
Categoria
version:Integer
nome:String

# Framework da Gumga - BackEnd



```
cd ..
cd pedidos-application
mvn io.gumga:gumgag:aplicacao-Dentidade=br.com.munif.pedidos.domain.model.Categoria
mvn io.gumga:gumgag:aplicacao -Dentidade=br.com.munif.pedidos.domain.model.Produto
mvn io.gumga:gumgag:aplicacao -Dentidade=br.com.munif.pedidos.domain.model.Pedido
mvn …:aplicacao -Dentidade=br.com.munif.pedidos.domain.model.ItemPedido
mvn clean install
cd ../pedidos-api/
mvn io.gumga:gumgag:api -Dentidade=br.com.munif.pedidos.domain.model.Categoria
mvn io.gumga:gumgag:api -Dentidade=br.com.munif.pedidos.domain.model.Produto
mvn io.gumga:gumgag:api -Dentidade=br.com.munif.pedidos.domain.model.Pedido
mvn io.gumga:gumgag:api -Dentidade=br.com.munif.pedidos.domain.model.ItemPedido
mvn clean install
```

# Framework da Gumga - BackEnd



br.com.munif.pedidos.domain.model

ItemPedido

version:Integer
produto:Produto
quantidade:Integer
pedido:Pedido

Pedido

version:Integer
cliente:String

Produto

version:Integer
nome:String
quantidade:Integer
valor:BigDecimal
categoria:Categoria

Categoria

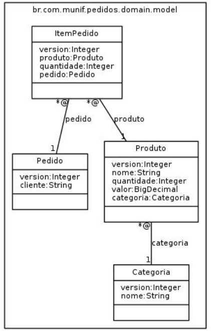
version:Integer
nome:String

```
public class Pedido extends GumgaModel<Long> {

  @Version
  @Column(name = "version")
  private Integer version;
  @Column(name = "cliente")
  private String cliente;
  @JsonIgnoreProperties({"pedido"})
  @OneToMany(mappedBy = "pedido",cascade = CascadeType.ALL,
                                                      orphanRemoval = true)
  private List<ItemPedido> itens;

...
}
```

# Framework da Gumga - BackEnd



br.com.munif.pedidos.domain.model

ItemPedido
version:Integer
produto:Produto
quantidade:Integer
pedido:Pedido

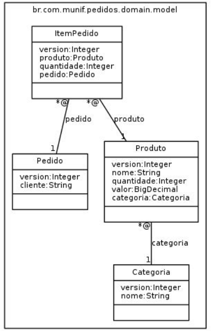
Pedido
version:Integer
cliente:String

Produto
version:Integer
nome:String
quantidade:Integer
valor:BigDecimal
categoria:Categoria

Categoria
version:Integer
nome:String

```
public class PedidoService extends GumgaService<Pedido, Long> {
    @Autowired
    private ProdutoRepository produtoRepository;
    @Transactional public Pedido loadPedidoFat(Long id) {
      Pedido obj = view(id);
      Hibernate.initialize(obj.getItens());
      return obj;}
    @Override
    public void beforeSave(Pedido entity) {
    for (ItemPedido item:entity.getItens()){
        item.setPedido(entity);
        Produto p=produtoRepository.findOne(item.getProduto().getId());
        p.setQuantidade(item.getQuantidade()+p.getQuantidade());
        }
    }
}
```

# Criando projeto com primeNG



br.com.munif.pedidos.domain.model

ItemPedido
version:Integer
produto:Produto
quantidade:Integer
pedido:Pedido

Pedido
version:Integer
cliente:String

Produto
version:Integer
nome:String
quantidade:Integer
valor:BigDecimal
categoria:Categoria

Categoria
version:Integer
nome:String

```
ng new alunos --routing
cd alunos
npm install primeng --save
npm install --save @angular/animations
npm install --save font-awesome
```

```
.angular-cli.json
    "prefix": "app",
    "styles": [
    "../node_modules/primeng/resources/primeng.min.css",
    "../node_modules/primeng/resources/themes/bootstrap/theme.css",
    "../node_modules/font-awesome/css/font-awesome.min.css",
    "styles.css"
],
```