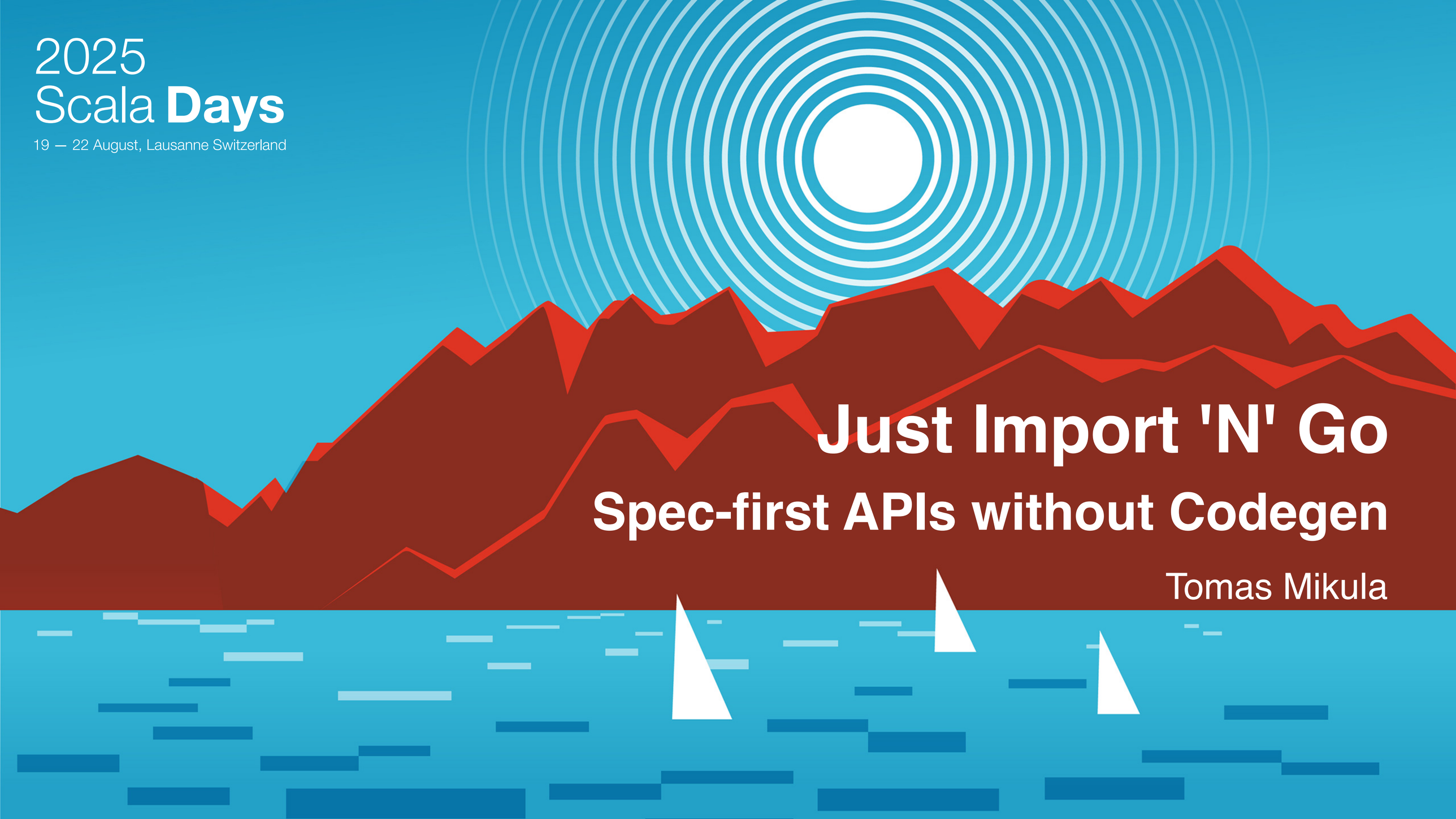
2025
Scala Days
19 — 22 August, Lausanne Switzerland
Just Import 'N' Go
Spec-first APIs without Codegen
Tomas Mikula

Just Import ’N’ Go (JING)

a *library* for programming against OpenAPI specification

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Most libraries are not worth *learning!*

Just Import ’N’ Go (JING)

a *library* for programming against OpenAPI specification

Most libraries are not worth *learning!*

including JING

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Most libraries are not worth *learning!*

including JING

I am not going to *teach* you JING.

Most libraries are not worth *learning!*

Most tools are not worth *learning!*

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Imagine your favorite app needing an *instruction manual*

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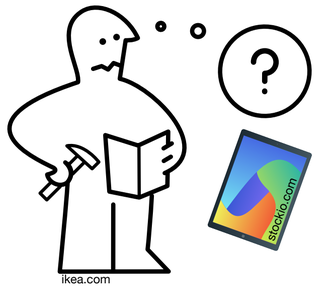

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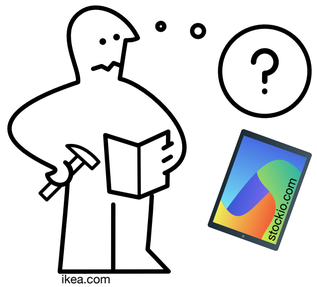

before

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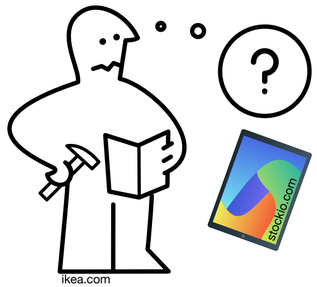

before playing a song

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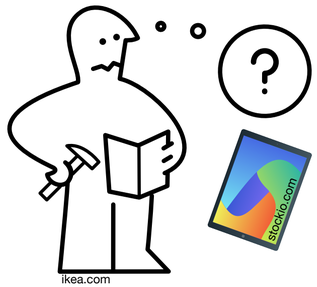

before ordering food

Most tools are not worth *learning!*

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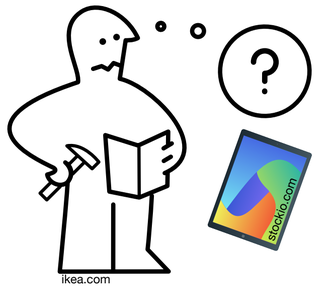
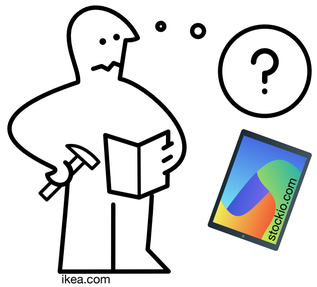


before booking a ride

Most tools are not worth *learning!*

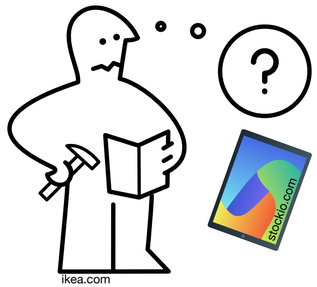
Imagine your favorite app needing an *instruction manual*



before making a payment

Most tools are not worth *learning!*

Imagine your favorite app needing an *instruction manual*

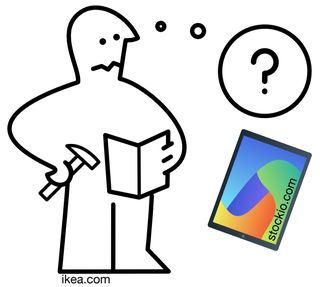


before making a payment

They should just get the job done!

Most tools are not worth *learning!*

Imagine your favorite app needing an *instruction manual*



before making a payment

They should just get the job done!

without the need to be *learnt*

Most tools are not worth *learning!*

Most remaining should not need *upfront* investment

Most remaining should not need *upfront* investment

Learn as you go!

Just Import ’N’ Go (JING)

a *library* for programming against OpenAPI specification

Just Import ’N’ Go (JING)

a set of *principles* for library design

Just Import ’N’ Go (JING)

a set of *principles* for library design

- Discoverability

Just Import ’N’ Go (JING)

a set of *principles* for library design

- Discoverability — Via **local** exploration from where I am now

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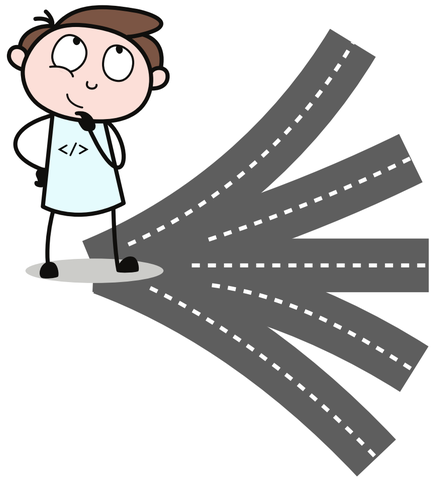

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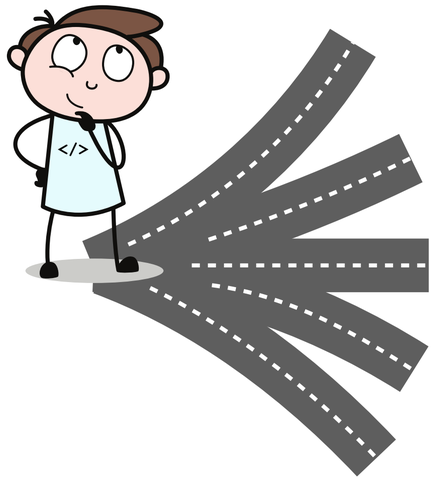

Type the dot

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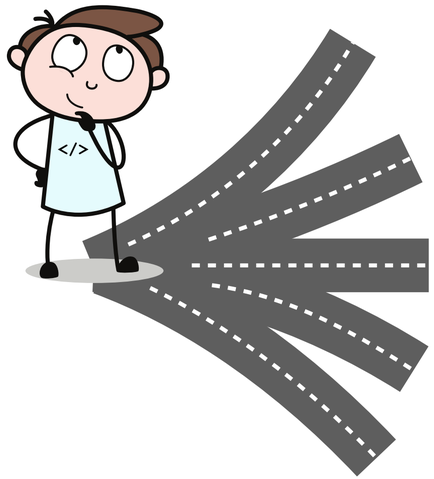

Type the dot

Look in the companion object

Just Import ’N’ Go (JING)

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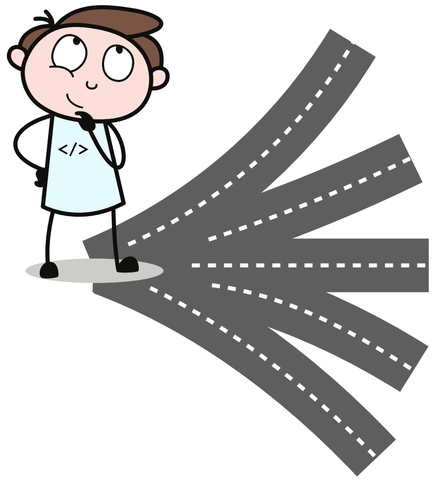
Via **local** exploration from where I am now



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Pattern match

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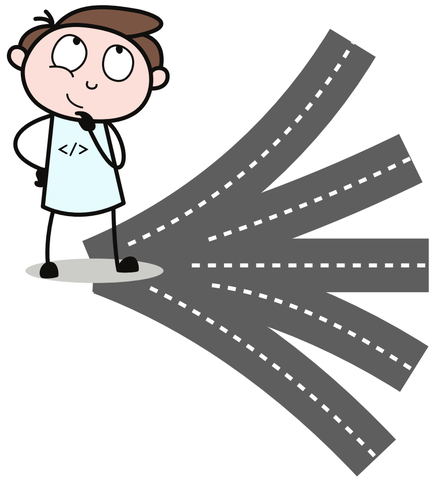

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Pattern match

Peek at Scaladoc

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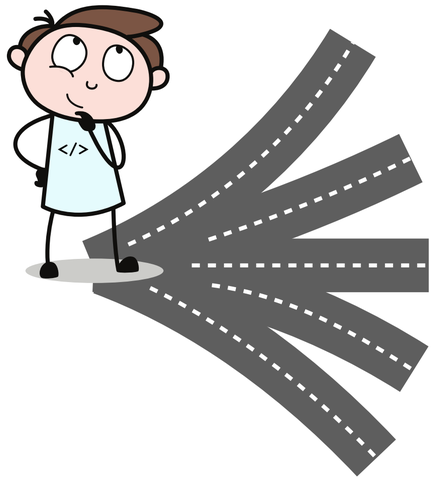

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Pattern match

Peek at Scaladoc

Compiler error message

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- Discoverability
- Guidance

Via **local** exploration from where I am now

Just Import ’N’ Go (JING)

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- Discoverability — Via **local** exploration from where I am now
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Just Import ’N’ Go (JING)

a set of *principles* for library design

- Discoverability — Via **local** exploration from where I am now
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- Ramp, but no ceiling

Just Import ’N’ Go (JING)

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• Discoverability	Via **local** exploration from where I am now
• Guidance	Facilitate introduction to the domain
• Ramp, but no ceiling	Simple things simple, complex things possible

Just Import 'N' Go (JING)

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- Discoverability — Via **local** exploration from where I am now
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- Ramp, but no ceiling — Simple things simple, complex things possible
- Safety

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• Hide unnecessary details	Operate at the right level of abstraction

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• Safety	Provide reasonable guardrails
• Hide unnecessary details	Operate at the right level of abstraction
• Zero setup	Just Import ’N’ Go!

Just Import ’N’ Go (JING)

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Good News!

Scala ecosystem already decent at JING principles

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Good News!

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In an ideal world

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Good News!

Scala ecosystem already decent at JING principles

In an ideal world

Knowing Scala is all you need.
Pick up the rest through JING.

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OpenAPI

Just Import 'N' Go (JING)

a *library* for programming against OpenAPI specification

OpenAPI

a specification language for HTTP APIs

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Let JING guide us through the rest!

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a *library* for programming against OpenAPI specification

i.e. specification first

OpenAPI

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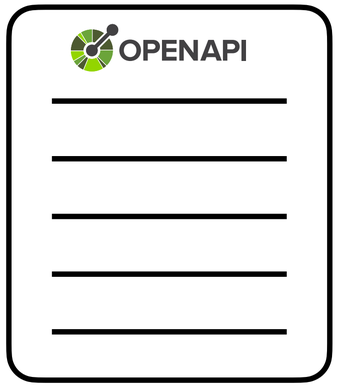
Spec-first APIs

Spec-first APIs

SotA:

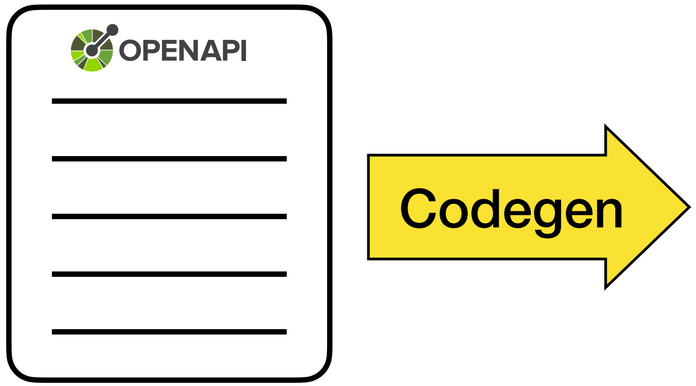
Spec-first APIs

SotA:



Spec-first APIs

SotA:



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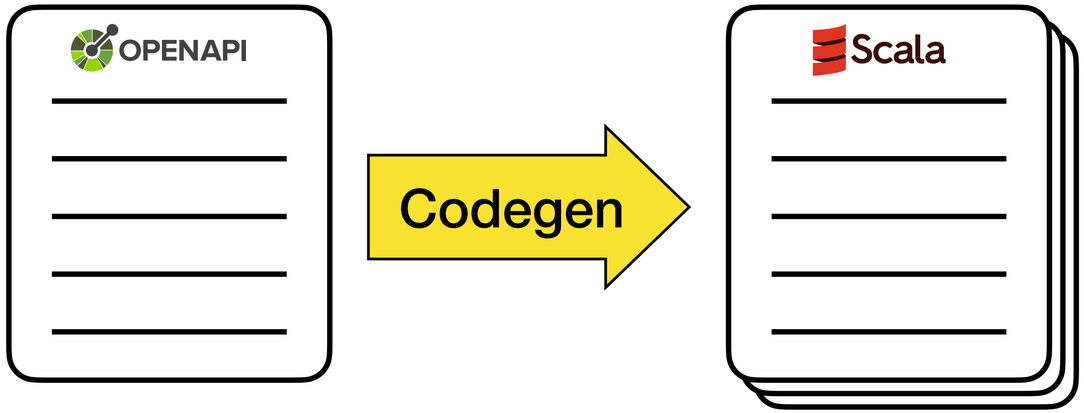

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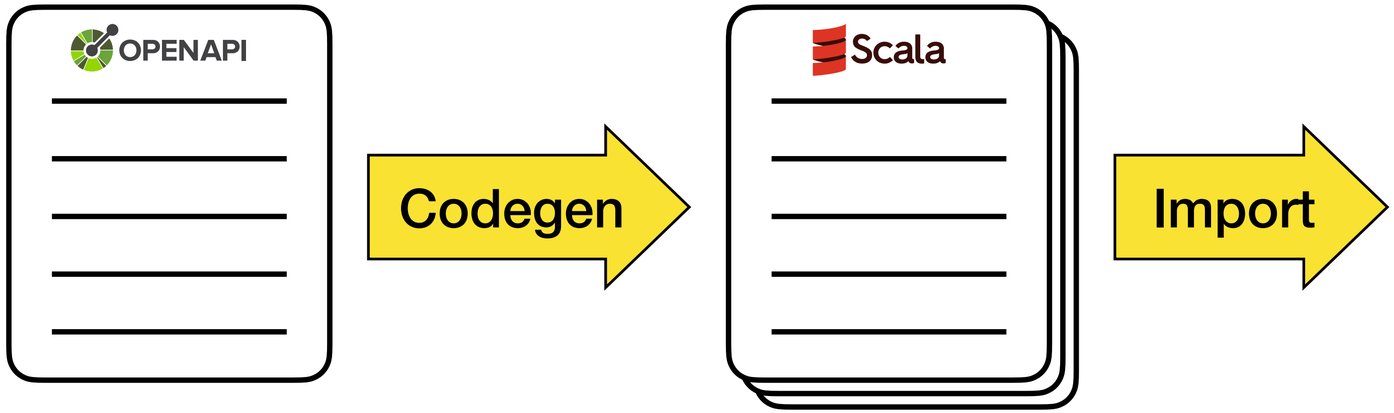

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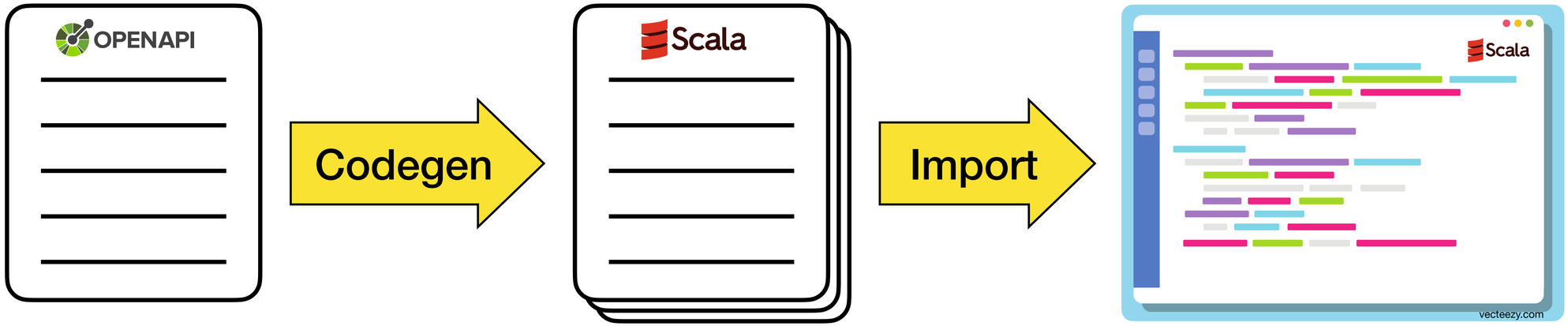

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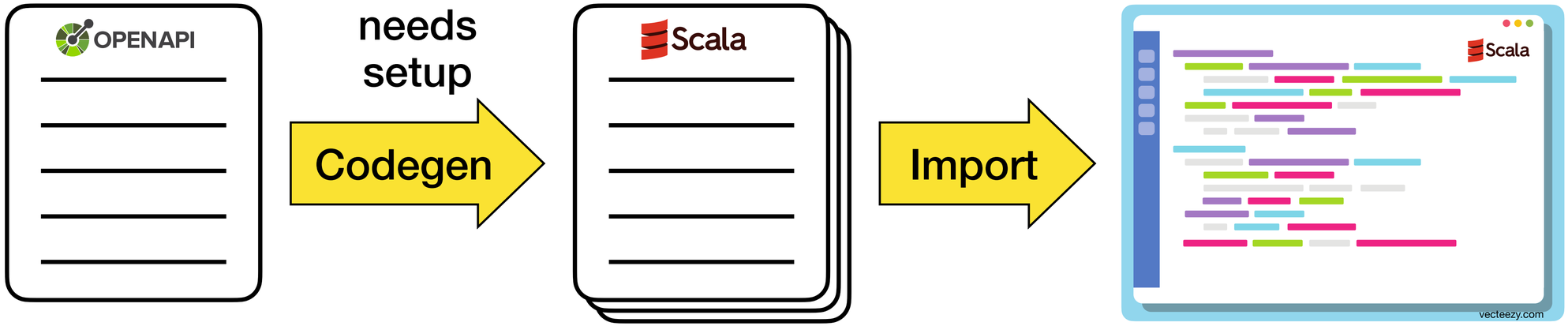

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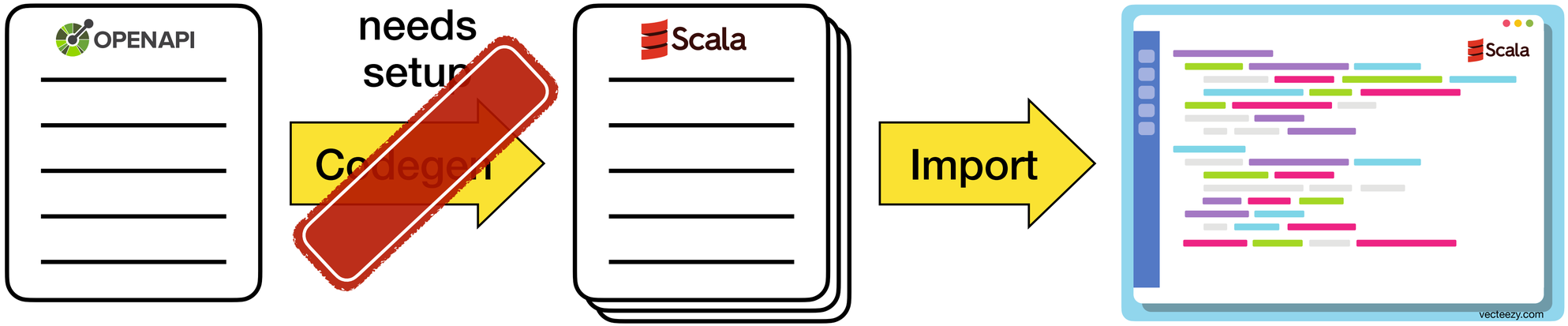

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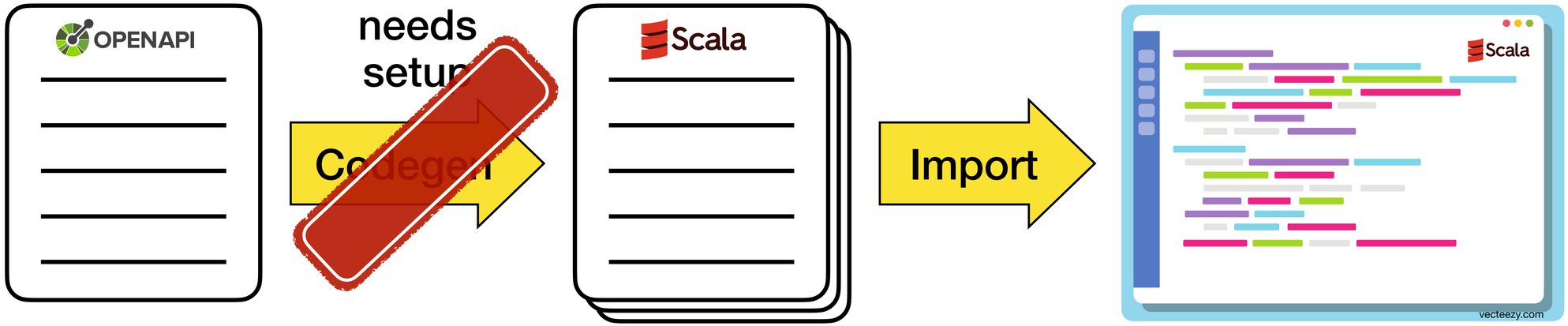

JING:

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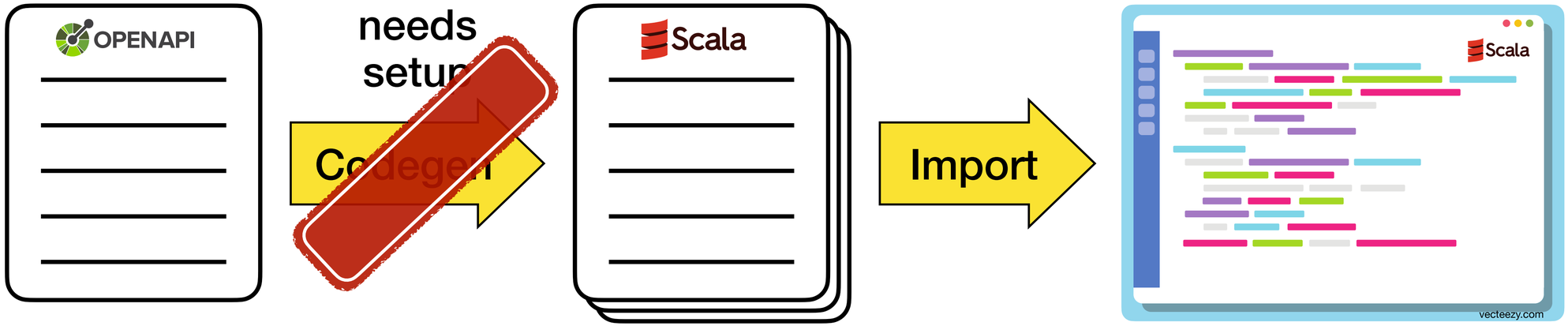

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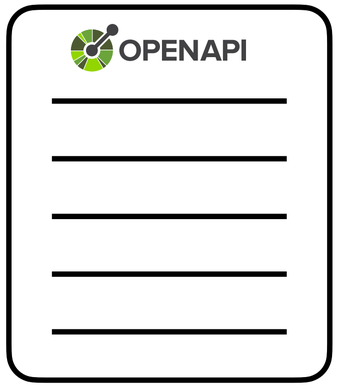

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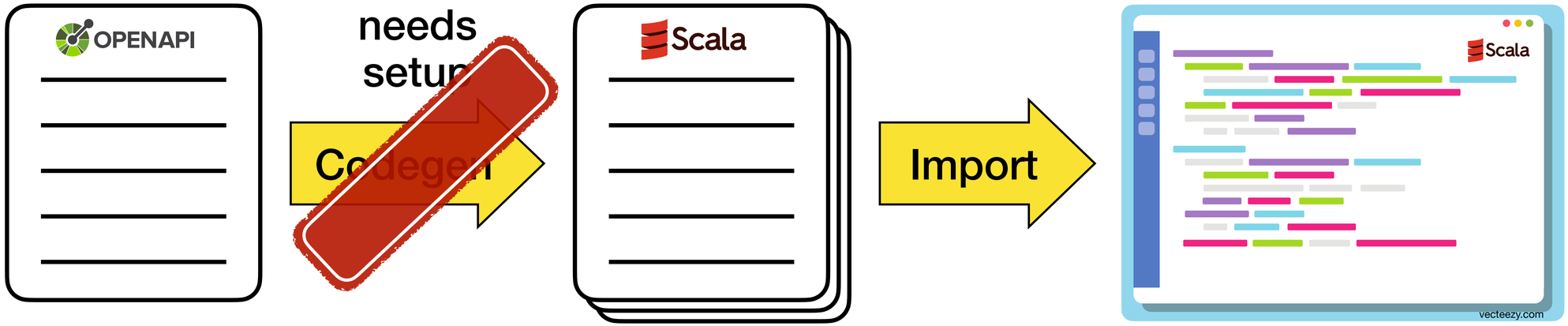

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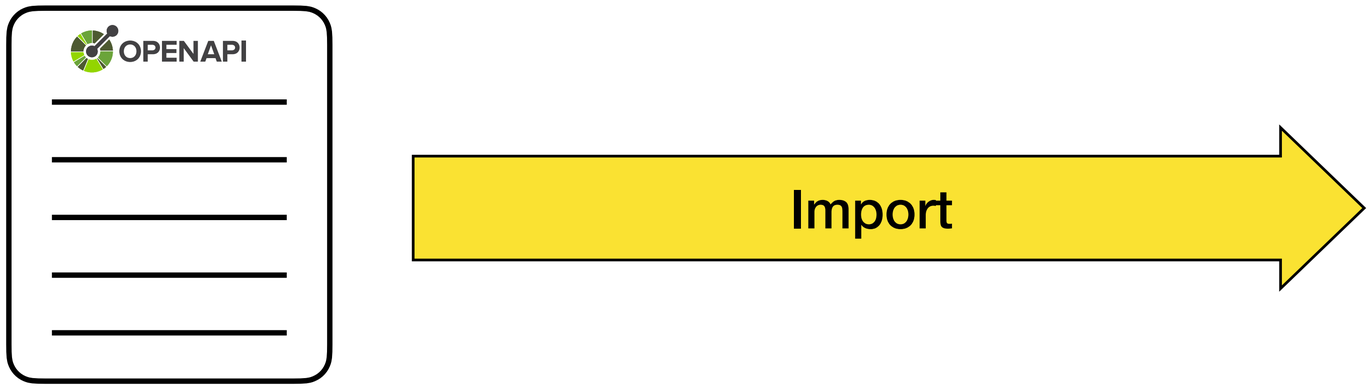

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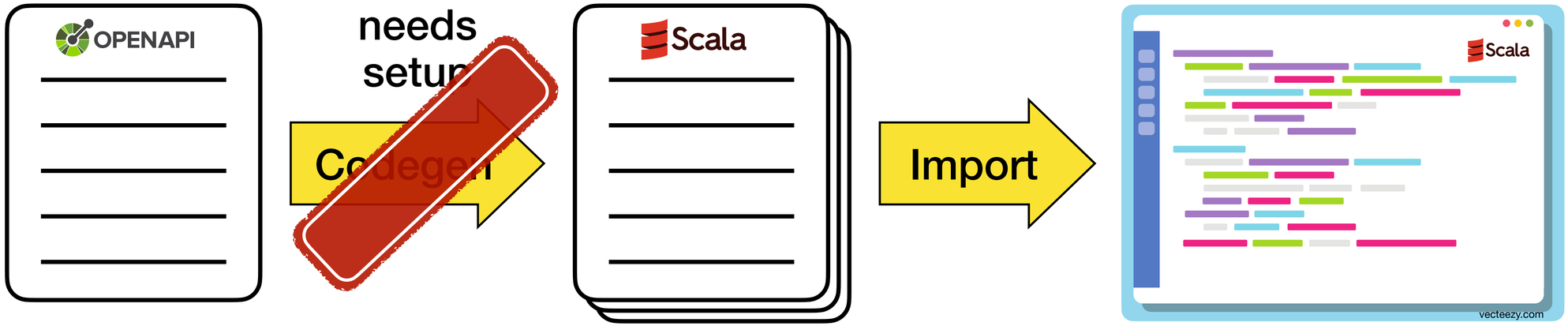

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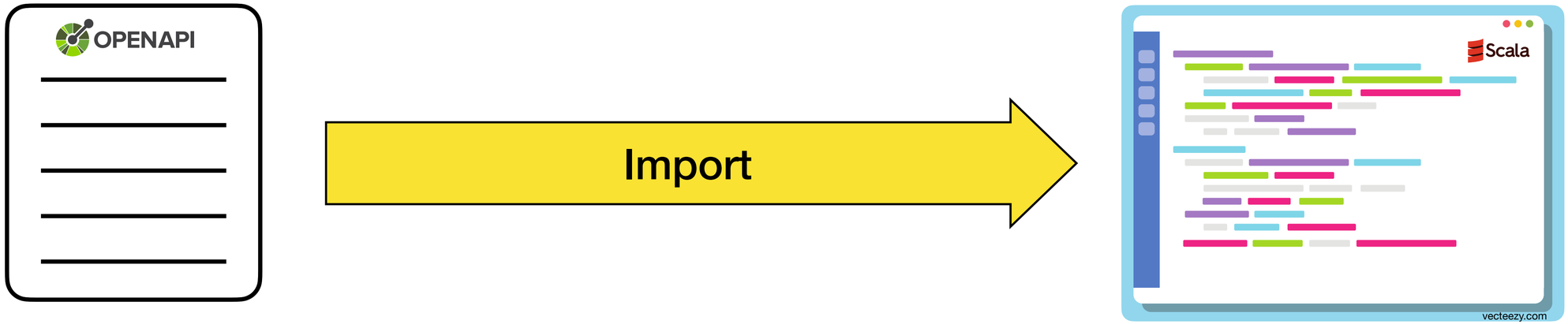

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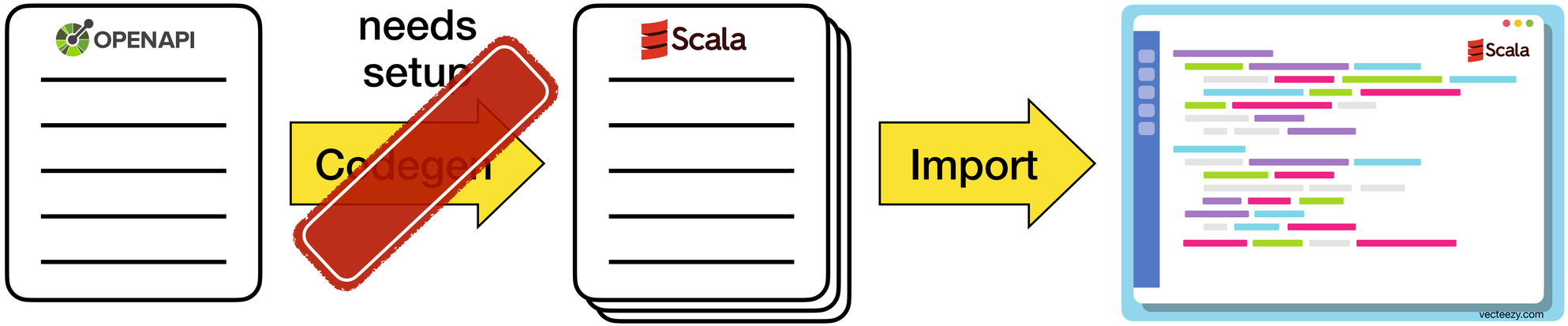

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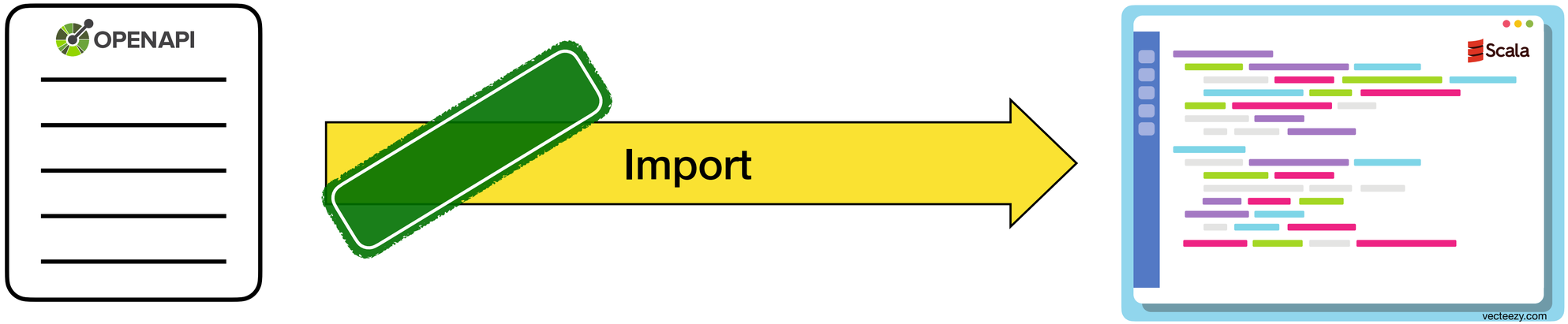

Demo Time!

Have I mentioned

Have I mentioned

- *Exhaustive* case and error handling

Have I mentioned

- *Exhaustive* case and error handling
  - not just the happy path

Have I mentioned

- *Exhaustive* case and error handling
  - not just the happy path
- *Type-safe*

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  - String literals *are* types

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- *Exhaustive* case and error handling
  - not just the happy path
- *Type-safe*
  - String literals *are* types
- *Servers* supported
  - Incl. exhaustive endpoint handling
- *Localized* disruption for unsupported OpenAPI features

JING Principles Review

- Discoverability
- Guidance
- Ramp, but no ceiling
- Safety
- Hide unnecessary details
- Zero setup

JING Principles Review

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☝ **Objection**

Applicable only to well-understood domains

JING Principles Review

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☝️ **Objection**

Applicable only to well-understood domains

🔨 **Dismissed**

Libraries, almost by definition, are for well-understood domains

Etiology

(the study of causes or origins)

Why does JING look the way it does?

Single, structurally typed value

Single, structurally typed value

```
val api = jing.openapi(“...”)
```

Single, structurally typed value

```
val api = jing.openapi("...") : OpenApiSpec {
                                  val schemas: {
                                    type Pet
                                    val Pet: ObjectSchemaCompanion[Pet, ..., ...]
                                    // ...
                                  }
                                  val paths: {
                                    val `/pet`: {
                                      val Post: HttpEndpoint[..., ...]
                                      val Put: HttpEndpoint[..., ...]
                                      // ...
                                    }
                                    // ...
                                  }
```

Single, structurally typed value

- No generated classes/objects

```
val api = jing.openapi("...") : OpenApiSpec {
  val schemas: {
    type Pet
    val Pet: ObjectSchemaCompanion[Pet, ..., ...]
    // ...
  }
  val paths: {
    val `/pet`: {
      val Post: HttpEndpoint[..., ...]
      val Put: HttpEndpoint[..., ...]
      // ...
    }
    // ...
  }
```

Single, structurally typed value

- No generated classes/objects
- Each type either:

```
val api = jing.openapi("...") : OpenApiSpec {
  val schemas: {
    type Pet
    val Pet: ObjectSchemaCompanion[Pet, ..., ...]
    // ...
  }
  val paths: {
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      val Put: HttpEndpoint[..., ...]
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Single, structurally typed value

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  pre-defined in the library

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    val Pet: ObjectSchemaCompanion[Pet, ..., ...]
    // ...
  }
  val paths: {
    val `/pet`: {
      val Post: HttpEndpoint[..., ...]
      val Put: HttpEndpoint[..., ...]
      // ...
    }
    // ...
  }
```

Single, structurally typed value

- No generated classes/objects
- Each type either:

  pre-defined in the library

  defined as type alias

```
val api = jing.openapi("...") : OpenApiSpec {
  val schemas: {
    type Pet
    val Pet: ObjectSchemaCompanion[Pet, ..., ...]
    // ...
  }
  val paths: {
    val `/pet`: {
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Single, structurally typed value

- No generated classes/objects
- Each type either:
  - pre-defined in the library
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The rest? **Just Import 'N' Go!**

📣 Call to Action 📣

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JING for

📣 Call to Action 📣

JING for

Avro

📣 Call to Action 📣

JING for

Avro

gRPC

📣 Call to Action 📣

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Thank you!

github.com/TomasMikula/jing