A web-based DSL for defining User Interfaces applied to Web Components

lowcomote

2019-12-02 Nantes, France, EU

Dr. Pedro J. Molina
Founder at Metadev
pjmolina@metadev.pro

Context

METADEV

HQ in Seville, Spain.

https://metadev.pro

Strong focus on building development tools using:

- Conceptual Models,
- DSLs on the Web &,
- code generation for different domains.

Problems found

- Lack of pure **Web modeling environments**
- Lack of tools for **Web Components**
- Lack of DSL oriented to prototype UI for Web Components

quid

Quid is a web-based tool for prototyping User Interfaces

- WYSIWYG style editing with **real time feedback**
- Web IDE: Text-based, indented language, colored syntax, code completion.
- Oriented to Web Components
- Provides an extensible catalog of components
- With direct code generation for popular frameworks
- Fully web-based (no local install is needed)

Demonstration Time

https://quid.metadev.pro

METADEV

Quid

Design

Import Export

```
1  component Filter
2    event searching(text: string)
3
4    layout = Horizontal
5    label
6      text = "Filter:"
7    textbox tSearch
8      value = "sample"
9    button bSearch
10     text = "Search"
11     click() => search()
12   button bClear
13     text = "Clear"
14     click() => clear()
15
```

Preview Catalog Dependencies Generate

view: v12

Filter: sample Search Clear

Last Month New Customers

Name	Lastname	Amount (YEN)
abc	abc	abc
abc	abc	abc
abc	abc	abc
abc	abc	abc

OK Cancel

METADEV

Quid

Preview | Catalog | Dependencies | Generate

Controls

type to filter

- button
- column
- component
- group
- label
- tab
- tabcontrol
- table
- textbox
- view

button

Properties

`class` : **string**
Class name for applying additional styles.

`text` : **string**

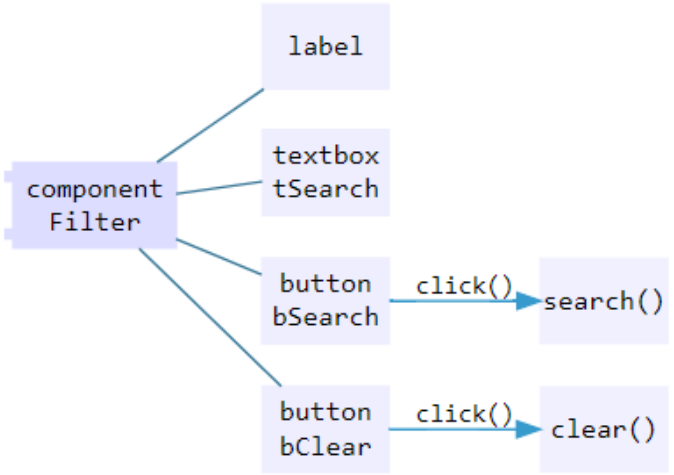
`visible` : **bool**
Is control visible.

Events

`click`

Preview | Catalog | Dependencies | Generate

Dependencies for component Filter



METADEV

Quid

Preview | Catalog | Generate

Target platform:

Native Web Components ▾ | Show me the code!

project

- css/style.css
- index.html
- js/filter.js
- js/listing.js
- js/actions.js
- js/v12.js

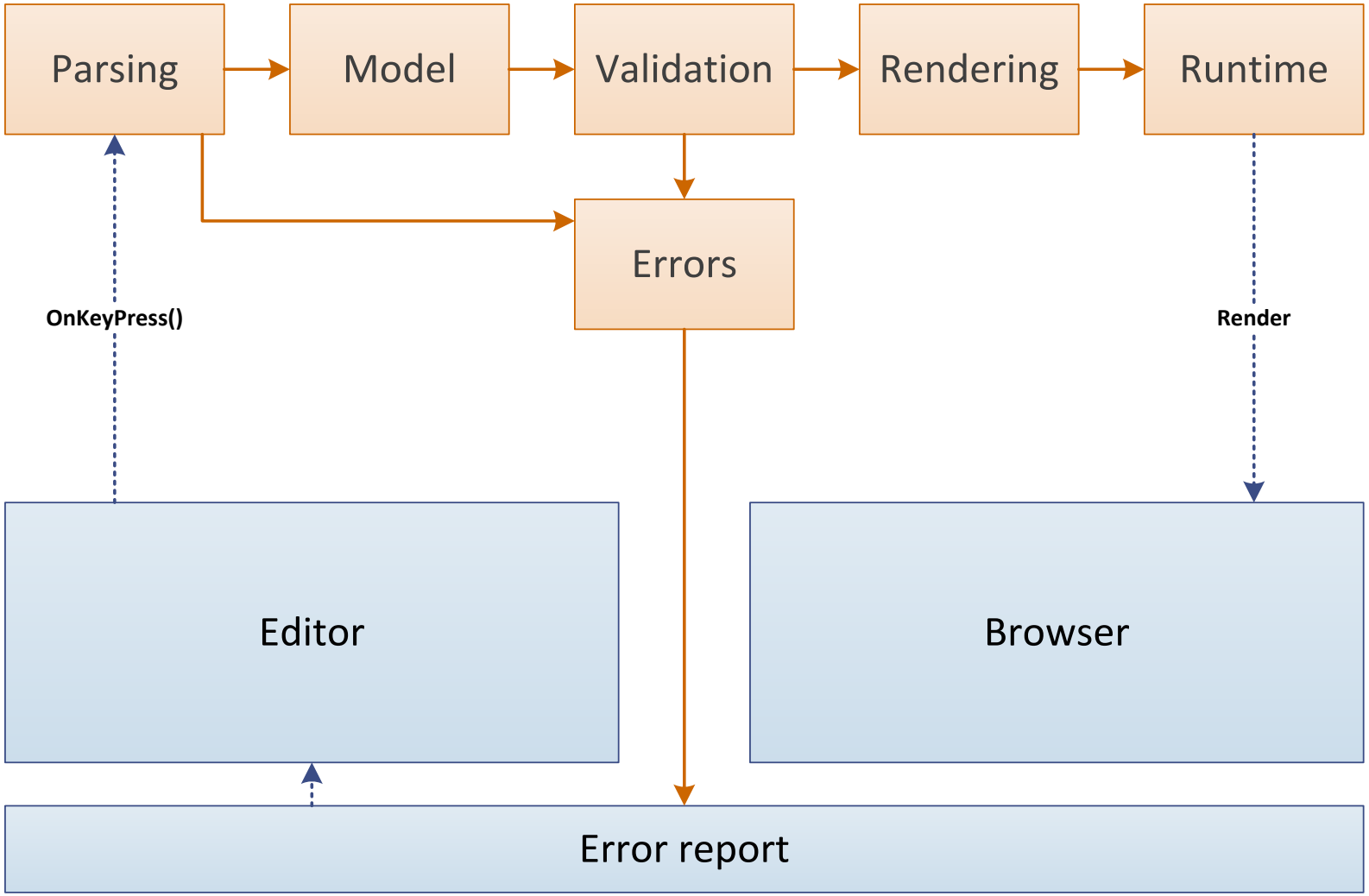
Dowload as Zip

index.html

```
1  <!DOCTYPE html>
2  <html dir="ltr" lang="en">
3      <head>
4          <meta charset="utf-8">
5          <title>V12</title>
6          <meta name="viewport" content="width=device-width,
   initial-scale=1.0, minimum-scale=1.0, maximum-scale=5.0">
7
8          <link rel="stylesheet" type="text/css"
   href="css/style.css">
9
10         <script src="./js/filter.js"></script>
11         <script src="./js/listing.js"></script>
12         <script src="./js/actions.js"></script>
13         <script src="./js/v12.js"></script>
14     </head>
15     <body>
16         <v12></v12>
17     </body>
18 </html>
```

METADEV

Quid Architecture



Technical Details

- Core metamodeling framework based on **Essential** (http://pjmolina.com/essential)
- Core technology able to create other DSLs in a fast & cheap way
- Fully implemented in **TypeScript & Angular**
- Able to transform models & generate code either browser or server-side
- Zero install required. SaaS model. Working in all major evergreen browsers

Use Cases

1. Define & compose components for fast prototyping of UI (*Atomic design*)
2. Form Design
3. Selection of a closed catalog of components (Company's own palette) to enforce common *look & feel* UI
4. Custom code generation for arbitrary architectures and language stack
5. Quid interpreter to render the UI on 3rd-party applications

Industrial Usage

everis
an NTT DATA Company

- Quid Technology is been used commercially at **Everis** for generating UI for an international Bank's applications.
  - DSL was extended to capture additional presentation logic in the domain
  - Control Palette was customized to the bank's set of components.
  - A full custom code generation was implemented to generate 80% of the code needed for the Bank's front-end technology stack.
- Metadev roadmap includes extending functionality based on customers feedback and apply the web-based DSL approach to other domains.

METADEV
https://metadev.pro
@metad3v