

JAVASCRIPTER WRITING XQUERY: FORMATTING XQUERY CODE

MARTIN MIDDEL

DECLARATIVE AMSTERDAM, 7 NOVEMBER 2025

[XQUERY.ELLIAT.NL](https://xquery.elliat.nl)

A BRIEF HISTORY OF ME

exist**solutions**

jinn**tec**

**STARTED (PROFESSIONALLY) WRITING
JAVASCRIPT CODE AROUND 2012**

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FONTOXML

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STARTED (PROFESSIONALLY) WRITING JAVASCRIPT CODE AROUND 2012

```
console.log('Here!')
```

STARTED (PROFESSIONALLY) WRITING JAVASCRIPT CODE AROUND 2012

```
document.querySelector('div').?????
```

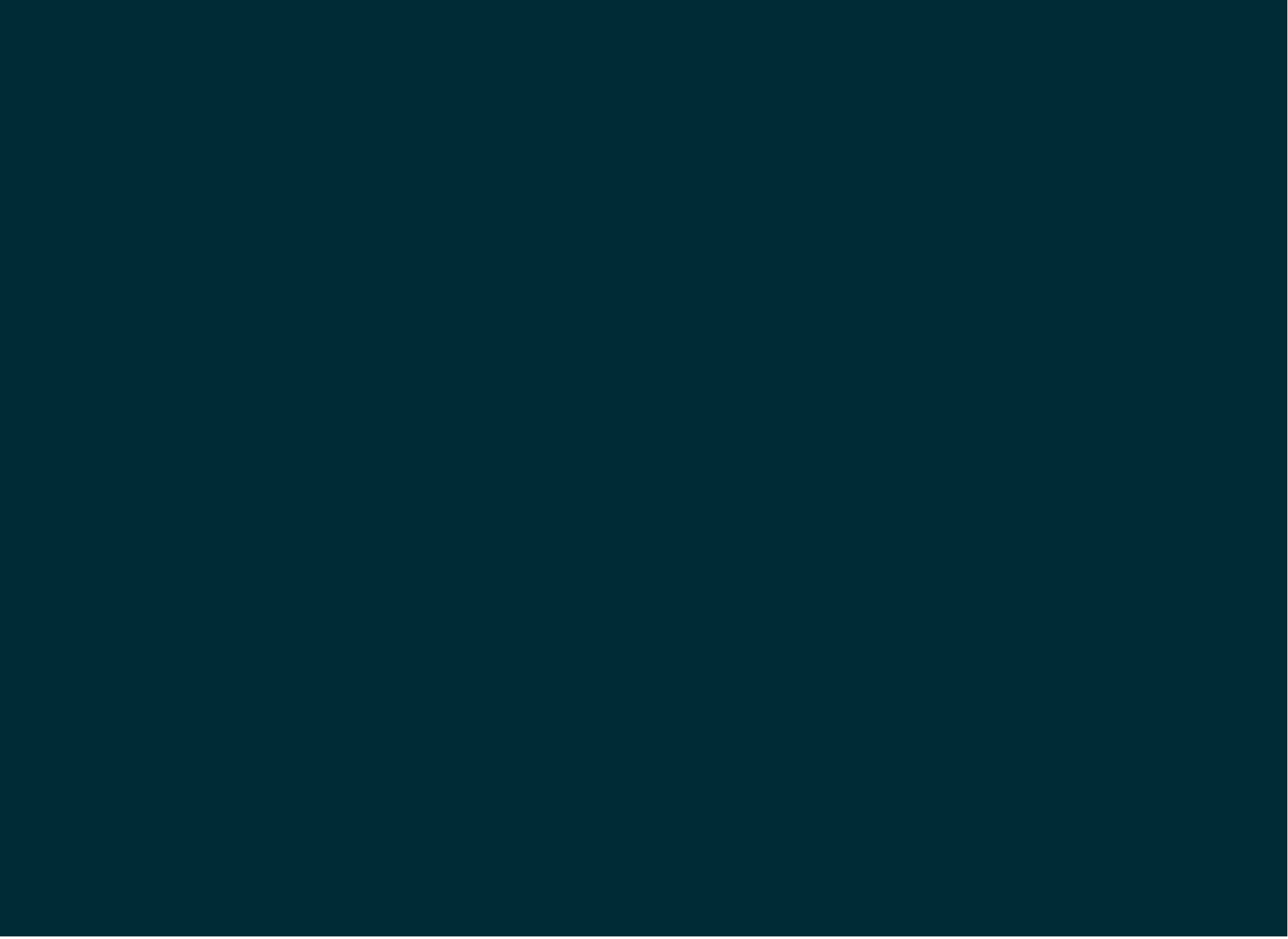

STARTED (PROFESSIONALLY) WRITING JAVASCRIPT CODE AROUND 2012

```
node.apendChild(newChildNode);
```

STARTED (PROFESSIONALLY) WRITING JAVASCRIPT CODE AROUND 2012

```
if(something) {doSomething(); console.log('Did something!')}  
    else {  
        doNothing()  
    }
```

BUT THAT IMPROVED!



BUT THAT IMPROVED!

2013: TYPECHECKING WITH TYPESCRIPT!

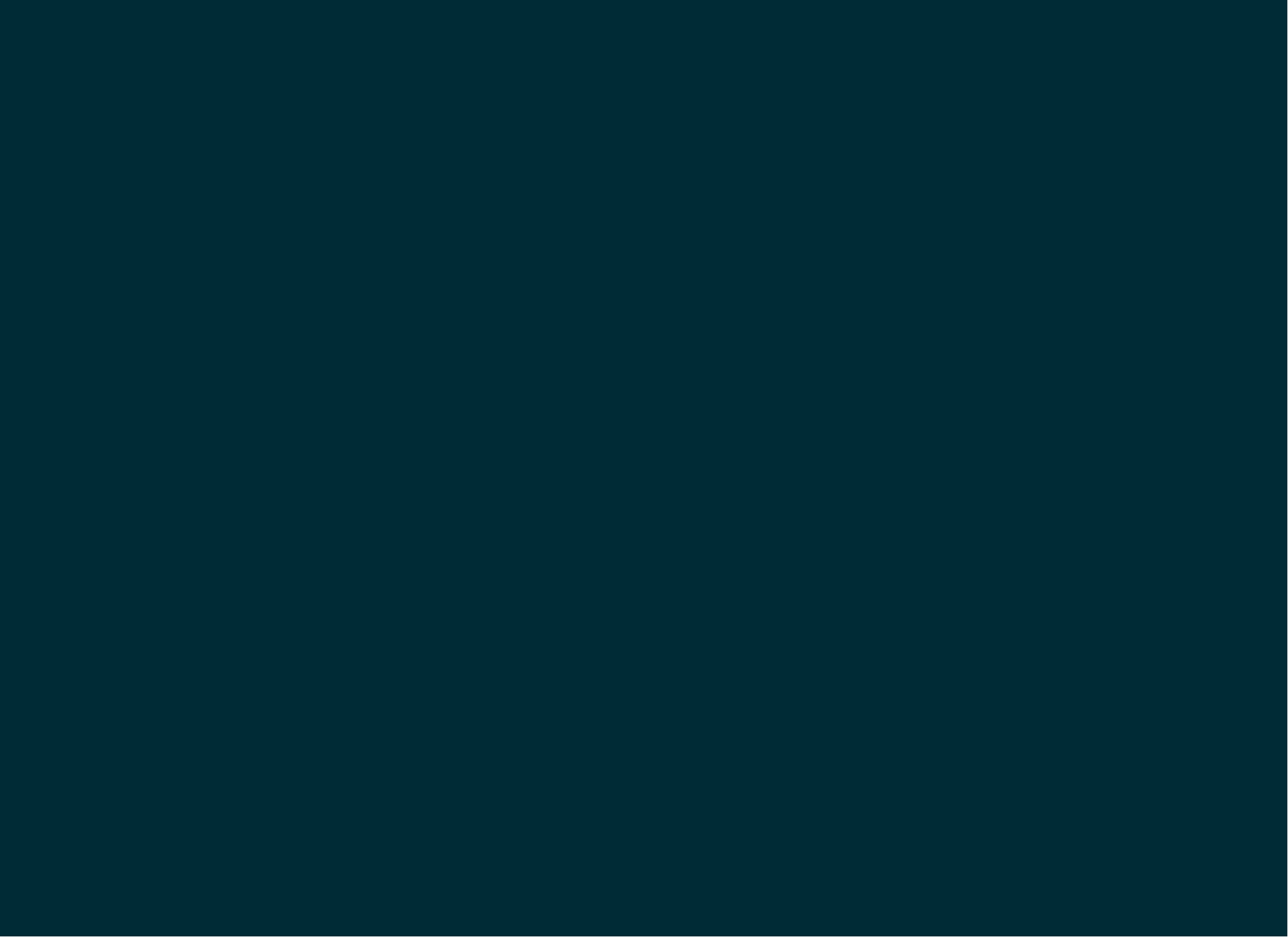
```
// Property 'appendChild' does  
// not exist on type 'Node'.  
// Did you mean 'log'?(2551)  
node.appendChild(newChildNode);
```


BUT THAT IMPROVED!

2016: AUTOCOMPLETE WITH LANGUAGE SERVER PROTOCOL

```
document.querySelector('div').
```

 TEXT_NODE	(Field)
 accessKey	(Field)
 accessKeyLabel	(Field)
 addEventListener	(Method)
 after	(Method)
 animate	(Method)
 append	(Method)
 appendChild	(Method)
 ariaAtomic	(Field)
 ariaAutoComplete	(Field)



BUT THAT IMPROVED!

**STEP THROUGH DEBUGGING WITH CHROME (2017) AND
FIREFOX (2018)**

DevTools - www.google.com/

SourcesElementsPerformanceRecorderConsoleMemoryNetwork

targetrefinline-eval x

1function values() {
2 let string = 'I\'m a string'; string = "I'm a string"
3 const number = 42; number = 42
4 let bool = 42 > 0; bool = true
5 let player = { player = {name: 'Parzival', number: 1, state: 'ready'}
6 "name": "Parzival",
7 "number": 1,
8 "state": "ready",
9 };
10 let array = [1,2,3]; array = (3) [1, 2, 3]
11 debugger;
12}
13
14 values();

Paused on breakpoint

Watch

Breakpoints

☒ inline-eval:11
 debugger;

Scope

Local

this: Window

array: (3) [1, 2, 3]

bool: true

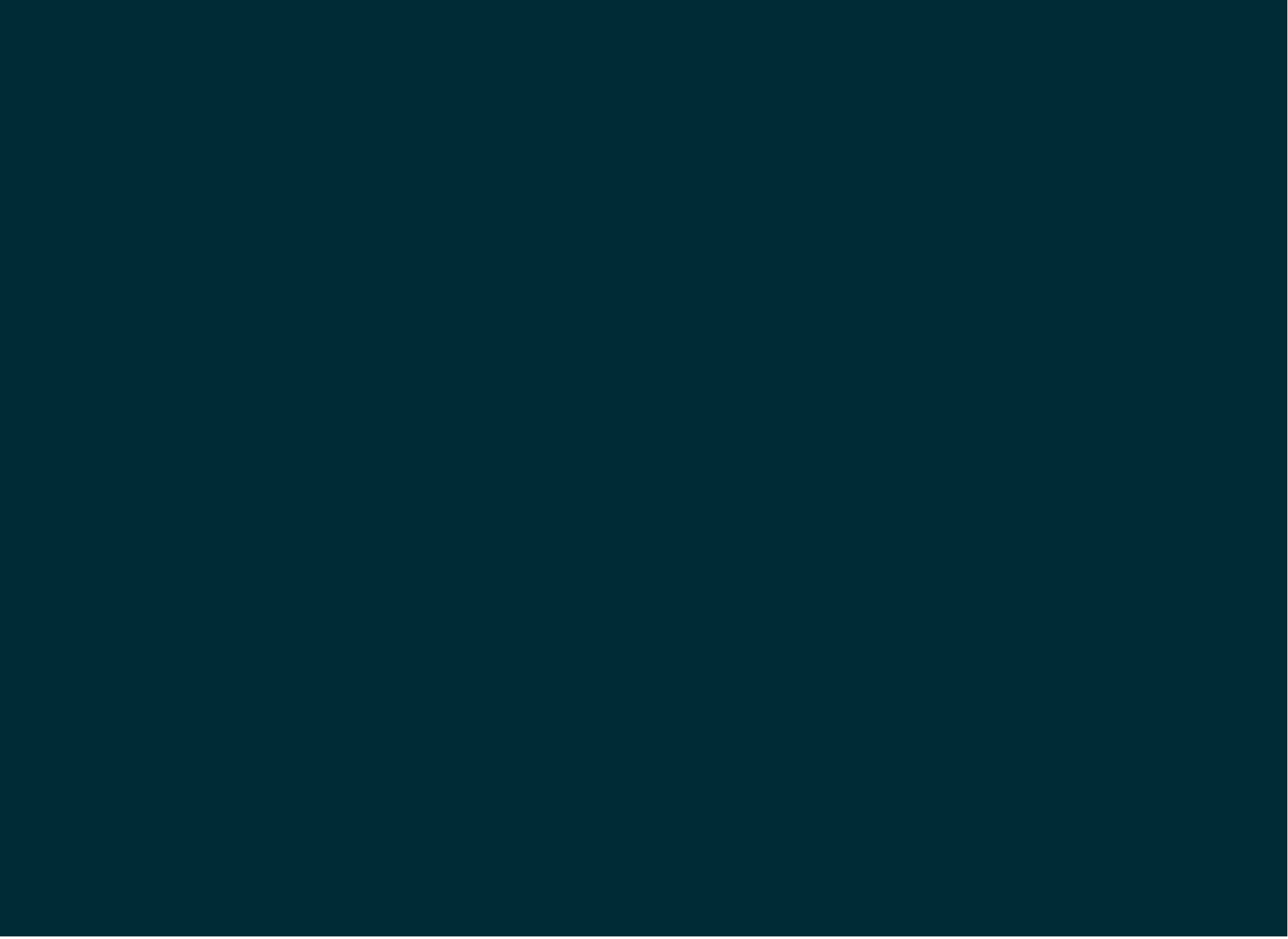
number: 42

{ } Line 11, Column 3 ▶ ⌘+Enter Coverage: n/a

BUT THAT IMPROVED!

2017: AUTOMATED FORMATTING WITH PRETTIER

```
if (something) {  
  doSomething();  
  console.log("Did something!");  
} else {  
  doNothing();  
}
```



IT WAS STARTING TO GET GOOD!

AND THEN: XQUERY

FELT LIKE GOING BACK IN TIME A BIT...

FELT LIKE GOING BACK IN TIME A BIT...

```
child:p
```


FELT LIKE GOING BACK IN TIME A BIT...

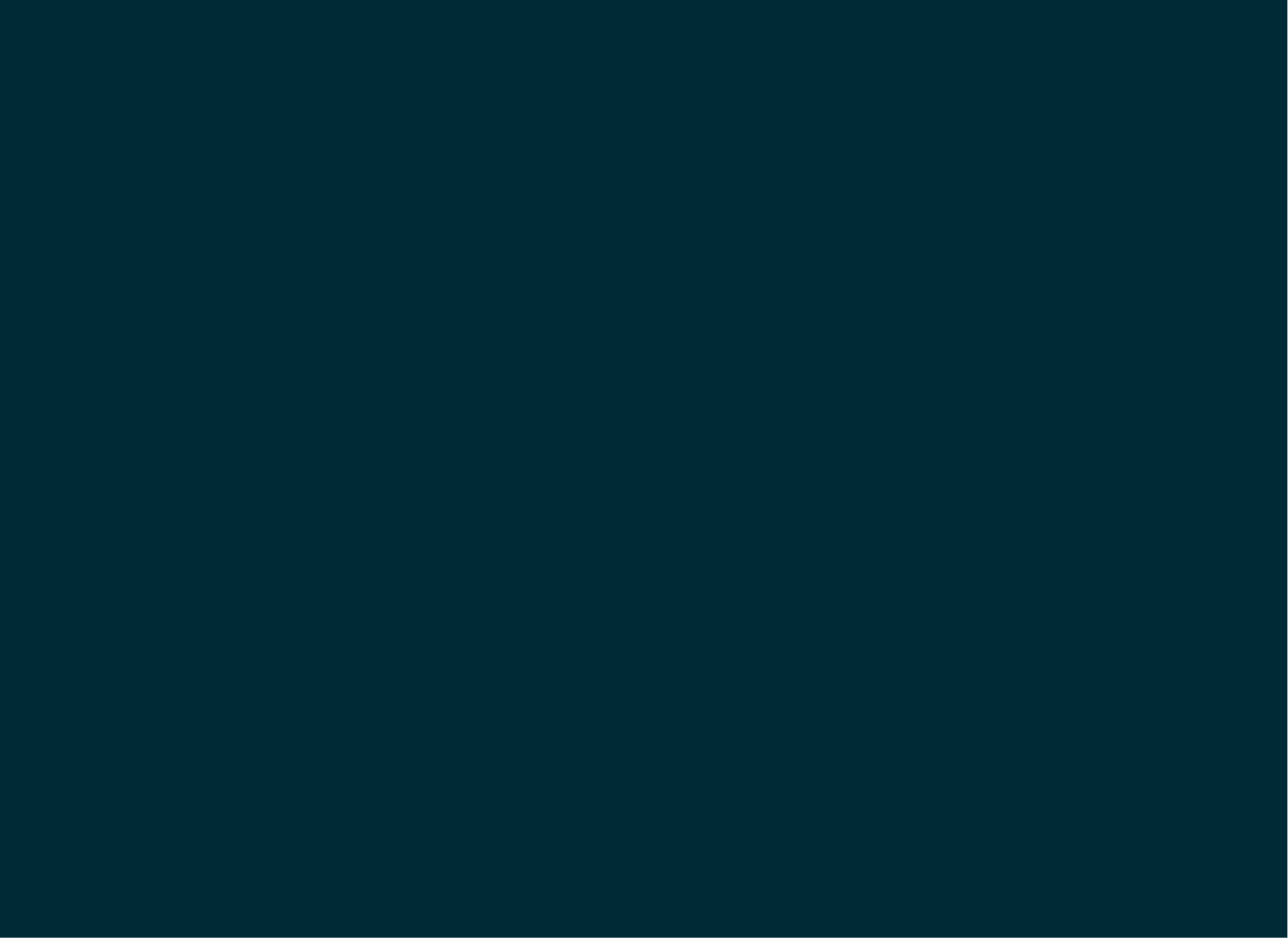
```
idnex-of(('a', 'b'), 'a')
```

FELT LIKE GOING BACK IN TIME A BIT...

```
trace($var, 'I am here!')
```

FELT LIKE GOING BACK IN TIME A BIT...

```
if ($something) then (util:log('info', 'Did something!'), local:d  
    local:do-nothing())
```





I MISSED JS

INTRODUCING!

INTRODUCING!

PRETTIER-PLUGIN- XQUERY



```
if ($something) then (util:log('info', 'Did something!'), local:d  
local:do-nothing())
```




```
<table>{  
  for $i in 1 to xs:int($data?rows)  
    return <tr>{for $j in 1 to xs:int($data?cols) return  
<td>  
<p>cell at {$i},{j}</p></td>  
  }</tr>  
}</table>
```



DIALECTS?

DIALECTS?



EXIST-DB'S UPDATE NODE SYNTAX



```
let $node := <root><a/></root>  
return  
  update insert <b/> into $node/a
```



XSLT?



```
<xsl:template match="Author">  
  - <xsl:value-of select="1+2+3+4+5+6+7+8+9+10+11+12+13+14+15+16+  
</xsl:template>
```



SPEED?

Filesize	line count after formatting	Prettify in ms
183B	4	~10ms
6KB	161	~34ms
24KB	641	170ms
94KB	2663	~600ms

XQUERY 4?

```
let $a :=  
    ancestor-or-self::(div|section) otherwise  
    descendant-or-self::(div|section)  
return $a => exists()
```



HOW?

- Plugin for Prettier
- Gunther Rademacher's REx parser generator
- Some JS to 'amend' grammars for 'dialects'
- Verifies correctness using QT3 / QT4 test set plus additional tests

PRETTIER

PRETTIER

Makes code Prettier. Plugin available in about every IDE.

PRETTIER

PARSE CODE

BUILD TREE, ADDING BREAKPOINTS

OUTPUT, BREAKING WHERE NEEDED

PRETTIER

```
'A very very very long string' || ' That is sure to go over the l
```

PRETTIER

```
const stringConcatExpression = join([  
  leftHandSide,  
  space,  
  '||',  
  break(indent(rightHandSide))  
])
```

PRETTIER

```
'A very very very long string' || ' That is sure to go over the l
      ^      ^
      /      '- if break: newline+indent,
space         otherwise space
```

PRETTIER

```
'A very very very long string' ||  
  ' That is sure to go over the limit'
```



EXPERIMENTAL. NOT FULLY IMPLEMENTED YET

AMENDING GRAMMARS

1. Take the XQ4 grammar
2. Parse it
3. Add new Rule to ExprSingle (for example)
4. Add definition for that Rule
5. Serialize to string
6. Decide on formatting


```
const existDBMutations = [  
  {  
    where: 'ExprSingle',  
    name: 'ExistDB_UpdateExpr',  
    additionalRule: `ExistDB_UpdateExpr ::= 'update' (  
      ExistDB_UpdateInsertExpr |  
      ExistDB_UpdateReplaceExpr |  
      ExistDB_UpdateDeleteExpr |  
      ExistDB_UpdateRenameExpr |  
      ExistDB_UpdateValueExpr  
    )`,  
  },  
]
```

```
ExprSingle ::= ExistDB_UpdateExpr | ( FLWORExpr | QuantifiedExpr
ExistDB_UpdateExpr ::= 'update' ( ExistDB_UpdateInsertExpr | ExistDB_UpdateReplaceExpr | ExistDB_UpdateValueExpr | ExistDB_UpdateDeleteExpr | ExistDB_UpdateRenameExpr
ExistDB_UpdateInsertExpr ::= 'insert' Expr (
    'into' | 'following' | 'preceding'
) ExprSingle
ExistDB_UpdateReplaceExpr ::= 'replace' Expr 'with' ExprSingle
ExistDB_UpdateValueExpr ::= 'value' Expr 'with' ExprSingle
ExistDB_UpdateDeleteExpr ::= 'delete' Expr
ExistDB_UpdateRenameExpr ::= 'rename' Expr 'as' ExprSingle
```

STATUS

✓ XQUERY 3.1

 XQUERY 4.0

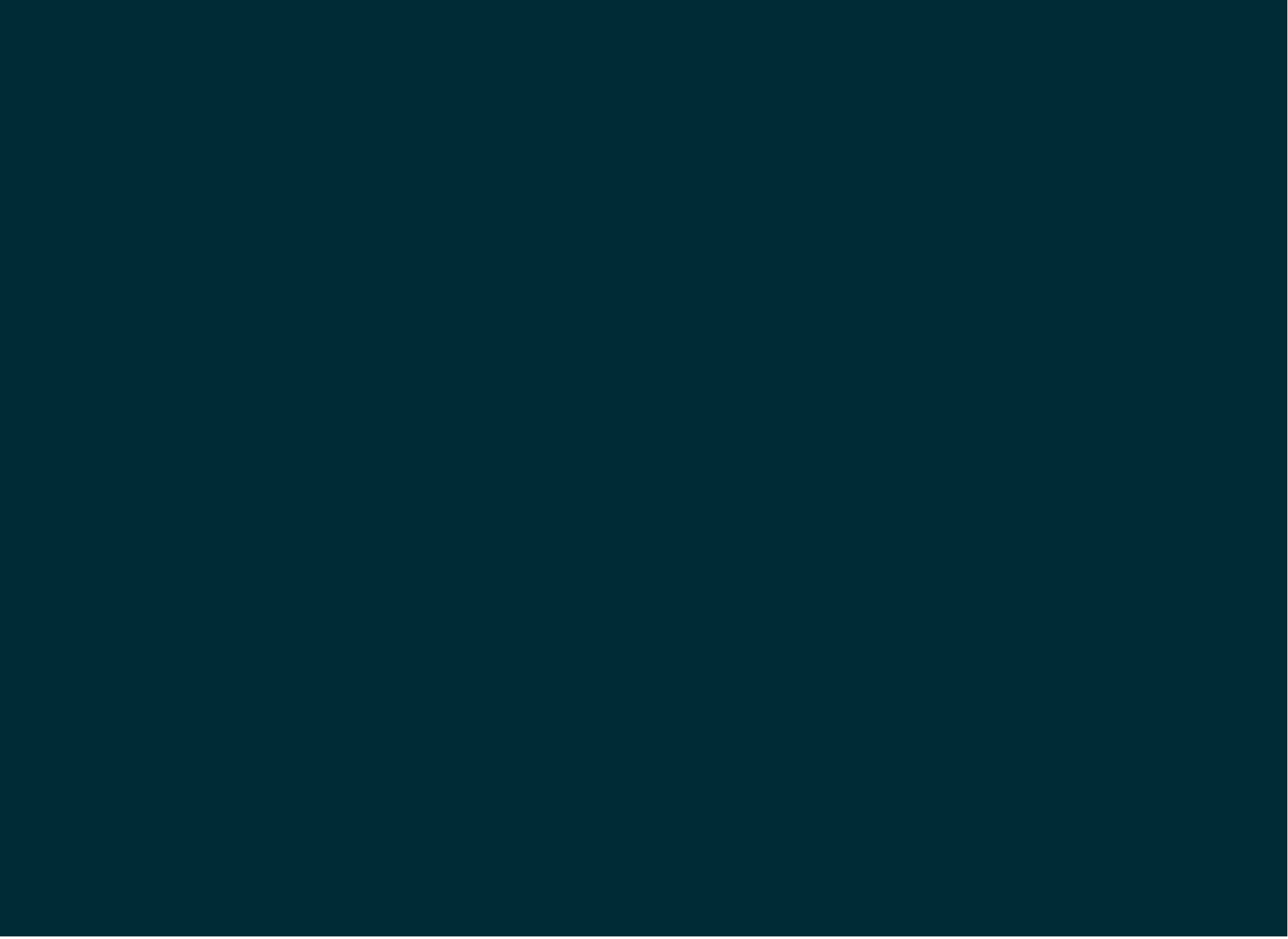
 EXISTDB UPDATE NODE SYNTAX

 OTHER DIALECTS

SPONSORS?

 EMBEDDED XQUERY IN XSLT

SPONSORS?



**THAT BIG FILE? STILL HUGE, EASIER TO
READ.**

THIS TOOK 250 MS TO FORMAT 

WHY

WHY

USEFUL?

AVAILABLE ON NPM

PRETTIER-PLUGIN-XQUERY

DEMO: [XQUERY.ELLIAT.NL](https://xquery.elliat.nl)

Q?

PRETTIER-PLUGIN-XQUERY

[XQUERY.ELLIAT.NL](https://xquery.elliatt.nl)

Add your code here:

```
1 declare boundary-space preserve;  
2  
3 <xml>  
4   <a></a><b/><c>With content to make this too long!  
   aaaaaaaaaaaaaaaaaaaaaa</c>  
5 </xml>
```

The result after formatting:

```
1 'Hello world!'
```

DEMO