

Why the TypeScript Sheriff has come to clean up your JavaScript

Mike Doyle

Independent Developer

WHY? -> WHAT? -> HOW? -> WHERE? ->
DETAILS -> DEMO -> TIPS -> MORE INFO



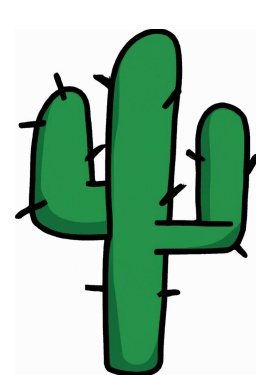
WHY TYPESCRIPT?



```
function stagecoachBook(startPoint, endPoint, date) {  
  //logic here  
}
```

```
stagecoachBook(new Date("1860-06-17T00:00:00"), "San Francisco", "Boulder City");
```

JavaScript



RUNTIME ERROR





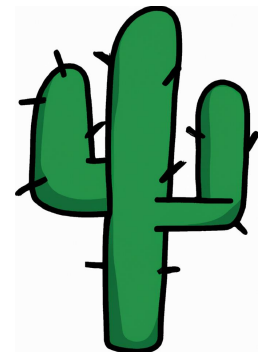
NOW WITH TYPES

```
function stagecoachBook(startPoint: string, endpoint: string, date: Date) {  
    //logic here  
}
```

```
stagecoachBook(new Date("1860-06-17T00:00:00"), "San Francisco", "Boulder City");
```

TypeScript

Argument of type 'Date' is not assignable to parameter of type 'string'.

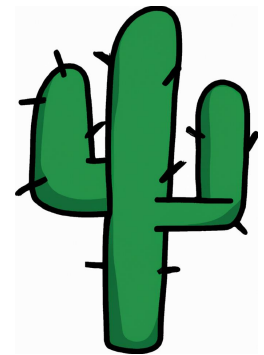


WHAT IS TYPESCRIPT?



TypeScript
JavaScript

Types
↔





HOW DOES IT WORK?

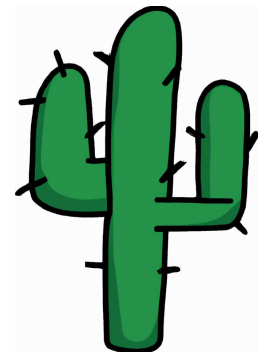
```
function stagecoachBook(startPoint, endPoint, date) {  
    
}
```

JavaScript

Minifies to...

```
function stagecoachBook(o,c,a){}
```

Minified JavaScript





```
function stagecoachBook(startPoint: string, endPoint: string, date: Date): string {  
  
}
```

TypeScript

.ts

Transpiles to...

```
function stagecoachBook(startPoint, endPoint, date) {  
  
}
```

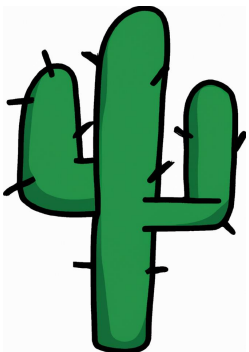
JavaScript

Minifies to...

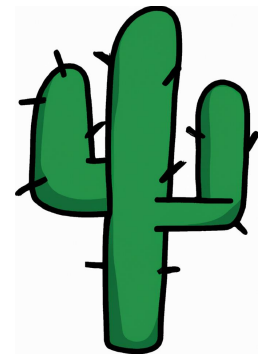
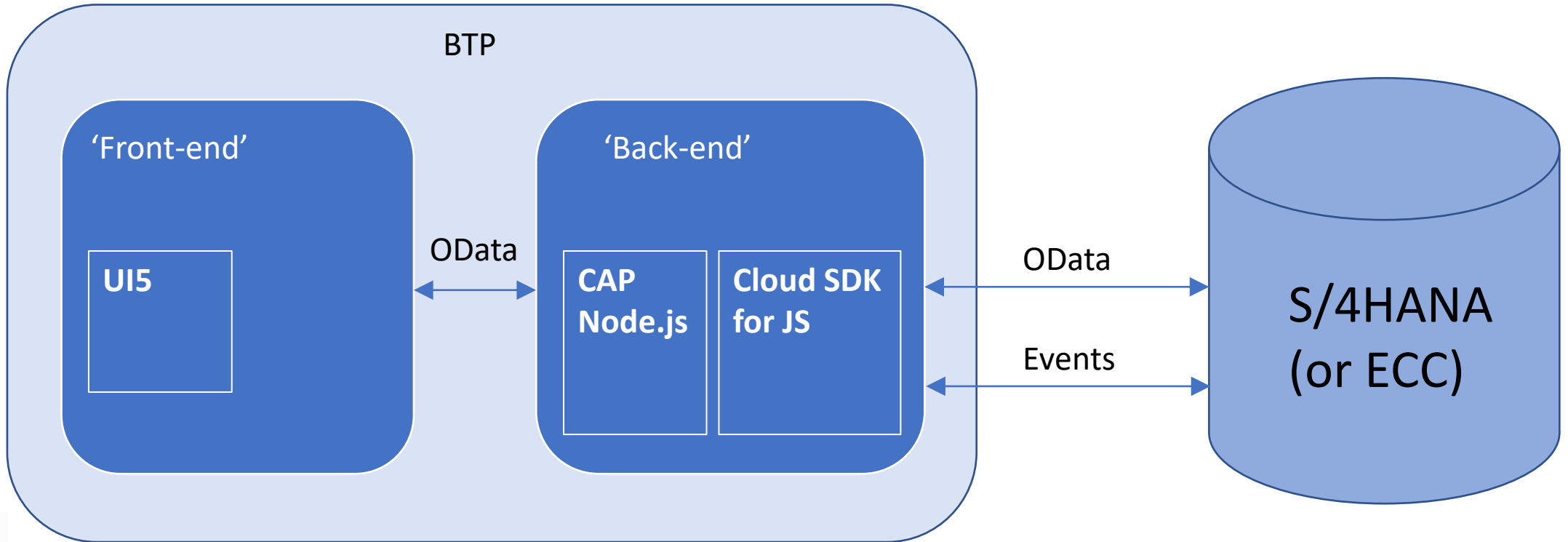
```
function stagecoachBook(o,c,a){}
```

Minified JavaScript

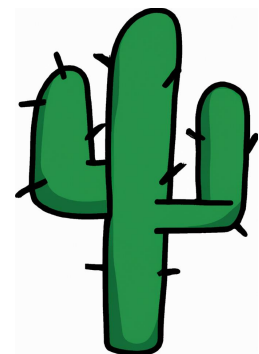
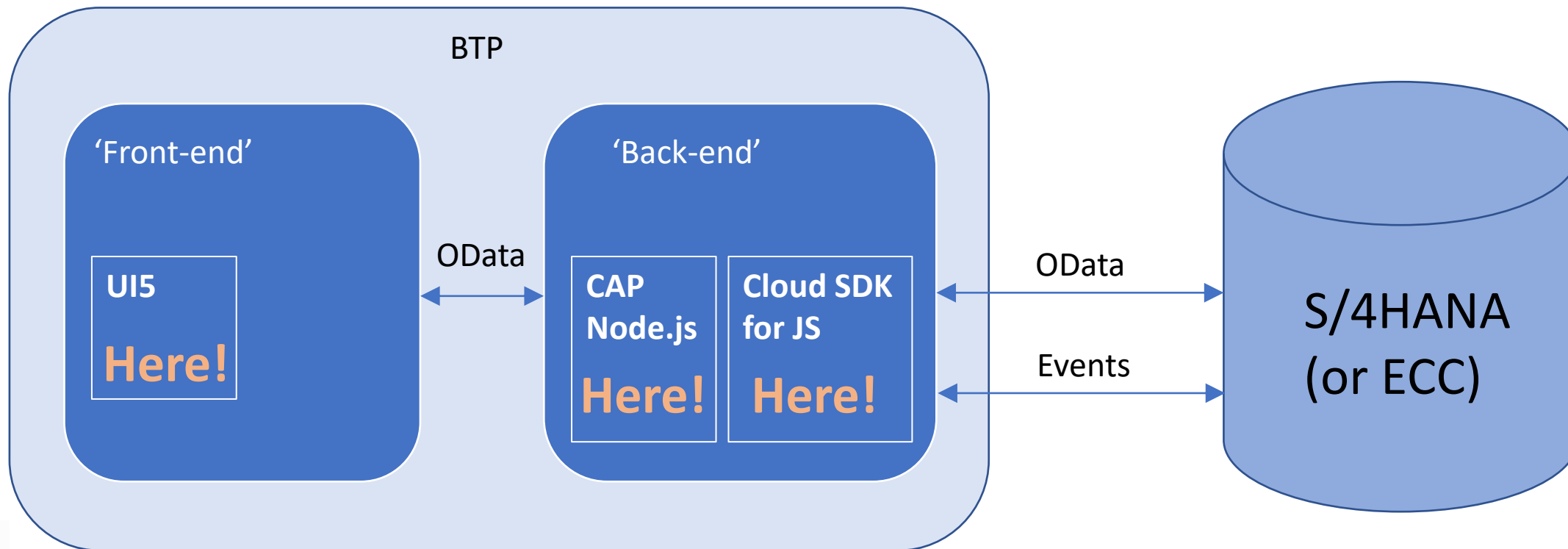
.js



WHERE DOES TYPESCRIPT GO?



WHERE DOES TYPESCRIPT GO?





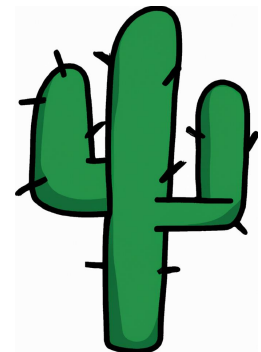
DETAILS: CASTING

```
import Controller from "sap/ui/core/mvc/Controller";  
import UI5Event from "sap/ui/base/Event";  
import Button from "sap/m/Button";
```

```
export default class Test extends Controller {
```

```
    public whiskeyOrdered(event: UI5Event) {  
        const button = (event.getSource() as Button);  
        button.  
    }  
}
```

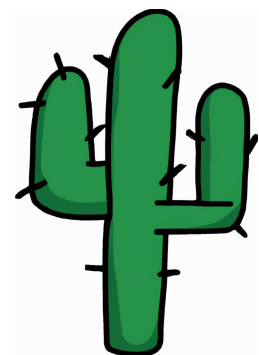
- attachModelContextChange
- attachParseError
- attachPress
- attachValidateFieldGroup
- attachValidationError
- attachValidationSuccess
- bindAggregation





- ✓ node_modules
 - > .bin
 - > @ampproject
 - > @babel
 - > @eslint
 - > @eslint-community
 - > @humanwhocodes
 - > @jridgewell
 - > @nicolo-ribaudo
 - > @nodelib
 - > @sapui5
 - ✓ @types
 - > jquery
 - > json-schema
 - ✓ openui5
 - TS index.d.ts
 - LICENSE
 - { } package.json
 - ① README.md
 - TS sap.f.d.ts
 - TS **sap.m.d.ts**
 - TS sap.tnt.d.ts

```
8247
8248     * Association to controls / ids which label this contro
8249     */
8250     ariaLabelledBy?: Array<Control | string>;
8251 }
8252 }
8253
8254 declare module "sap/m/Button" {
8255     import { default as Control, $ControlSettings } from "sap/
8256
8257     import {
8258         IFormContent,
8259         ID,
8260         URI,
8261         aria,
8262         TextDirection,
8263         CSSSize,
8264     } from "sap/ui/core/library";
8265
8266     import Event from "sap/ui/base/Event";
8267
8268     import ElementMetadata from "sap/ui/core/ElementMetadata";
8269
8270     import { ButtonType } from "sap/m/library";
8271
8272     import { PropertyBindingInfo } from "sap/ui/base/ManagedOb
```



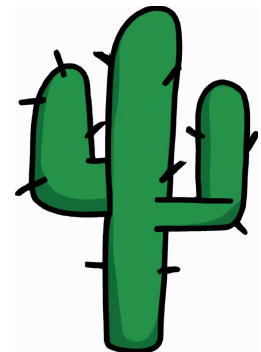


INTERFACES

```
interface Sheriff {  
    name: string;  
    heightMetres: number;  
    birthplace: string;  
    yearOfBirth: string;  
    yearOfDeath?: string;  
}  
  
const sheriff: Sheriff = {  
    name: "Wyatt Berry Stapp Earp",  
    heightMetres: 1.83,  
    birthplace: "Monmouth, Illinois",  
    yearOfBirth: "1848"  
};  
  
sheriff.yearOfDeath = "1929";
```



https://en.wikipedia.org/wiki/Wyatt_Earp





```
interface Sheriff {
  name: string;
  heightMetres: number;
  birthplace: string;
  yearOfBirth: string;
  yearOfDeath?: string;
}

const sheriff: Sheriff = {
  name: "Wyatt Berry Stapp Earp",
  heightMetres: 1.83,
  birthplace: "Monmouth, Illinois"
};
```

Property 'yearOfBirth' is missing in type '{ name: string; heightMetres: number; birthplace: string; }' but required in type 'Sheriff'. ts(2741)

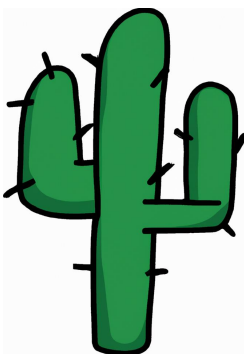
Test.controller.ts(16, 13): 'yearOfBirth' is declared here.

View Problem (Alt+F8) Quick Fix... (Ctrl+.)

```
interface Sheriff {
  name: string;
  heightMetres: number;
  birthplace: string;
  yearOfBirth: string;
  yearOfDeath?: string;
}

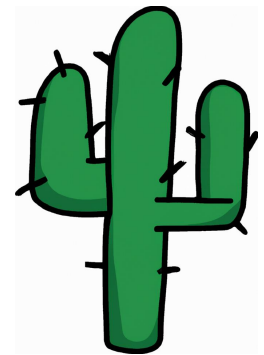
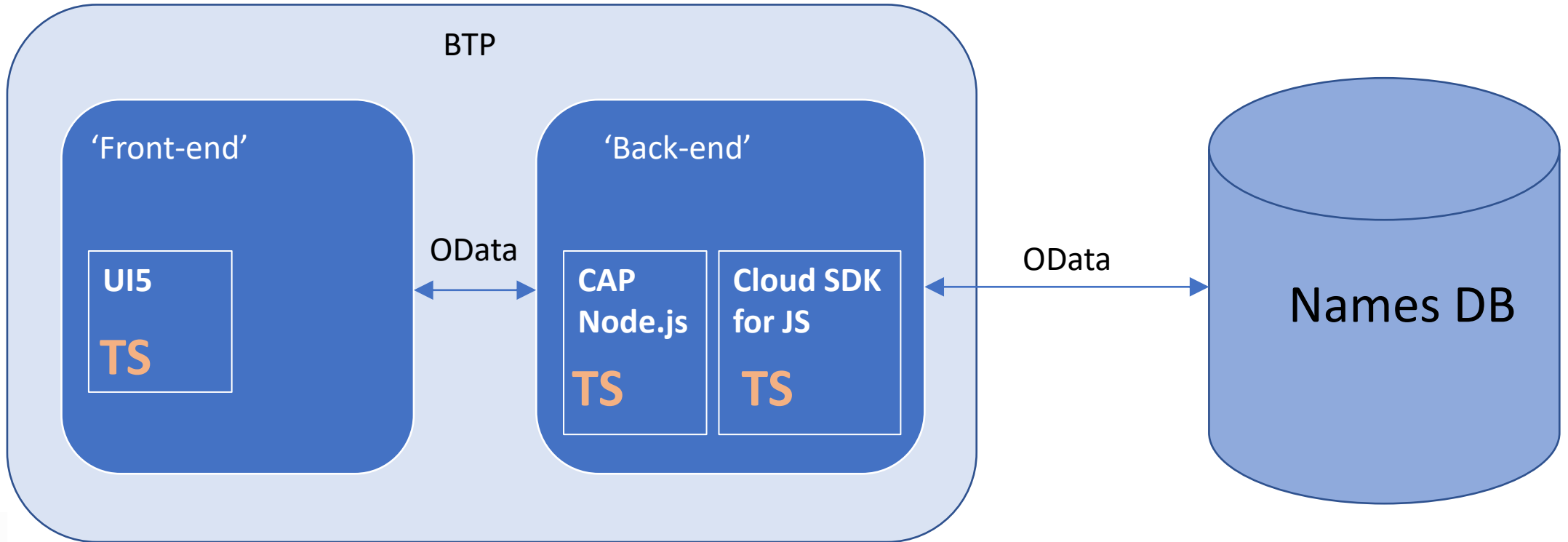
const sheriff: Sheriff = {
  name: "Wyatt Berry Stapp Earp",
  birthplace: "Monmouth, Illinois",
  heightMetres: 1.83,
  yearOfBirth: "1834",
  yearOfDeath?: "1892"
};
```

sheriff.





OUTLAW NAME GENERATOR



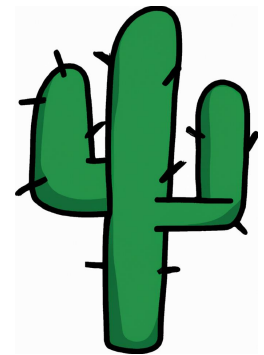


TIP: TYPES ONLY WHEN NEEDED

```
function calculateAgeAtDeath(sheriffDetails: Sheriff): number {  
    return Number.parseInt(sheriffDetails.yearOfDeath) -  
           Number.parseInt(sheriffDetails.yearOfBirth);  
}
```

```
const pat: Sheriff = {  
    name: "Patrick Floyd Jarvis Garrett",  
    heightMetres: 1.79,  
    birthplace: "Chambers County, Alabama",  
    yearOfBirth: "1850",  
    yearOfDeath: "1908",  
};
```

```
const age: number = calculateAgeAtDeath(pat);
```



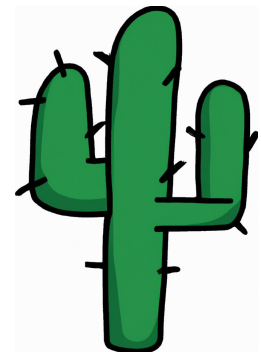


TIP: TYPES ONLY WHEN NEEDED

```
function calculateAgeAtDeath(sheriffDetails: Sheriff): number {  
    return Number.parseInt(sheriffDetails.yearOfDeath) -  
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}
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const pat: Sheriff = {  
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    birthplace: "Chambers County, Alabama",  
    yearOfBirth: "1850",  
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};
```

```
const age: number = calculateAgeAtDeath(pat);
```





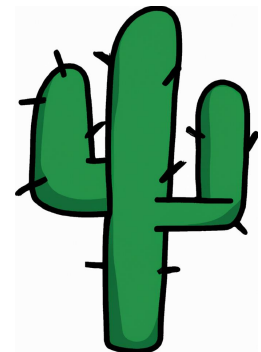
TIP: TYPES ONLY WHEN NEEDED

```
function calculateAgeAtDeath(sheriffDetails: Sheriff): number {  
    return Number.parseInt(sheriffDetails.yearOfDeath) -  
           Number.parseInt(sheriffDetails.yearOfBirth);  
}
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```
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    name: "Patrick Floyd Jarvis Garrett",  
    heightMetres: 1.79,  
    birthplace: "Chambers County, Alabama",  
    yearOfBirth: "1850",  
    yearOfDeath: "1908",  
};
```

```
const age: number = calculateAgeAtDeath(pat);
```

```
const age = calculateAgeAtDeath(pat);
```





TIP: TYPE IMPORT

```
export default class Test extends Controller
```

```
1. public whiskeyOrdered(event: UI5Event) {  
    const button = (event.getSource() as Button);  
}
```

```
type Button = /*unresolved*/ any
```

```
Cannot find name 'Button'. ts(2304)
```

```
View Problem (Alt+F8)
```

```
Quick Fix... (Ctrl+.)
```

2.

Quick Fix...



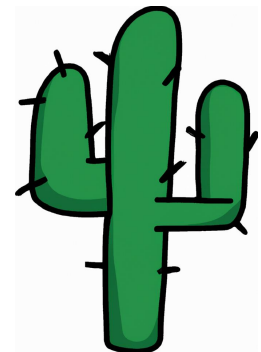
Add import from "sap/m/Button"



Add import from "sap/ui/commons/Button"



Add import from "sap/ui/webc/main/Button"



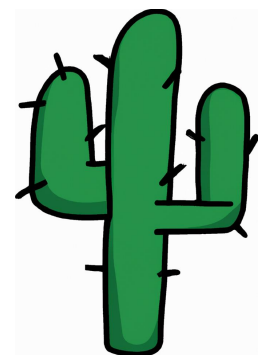
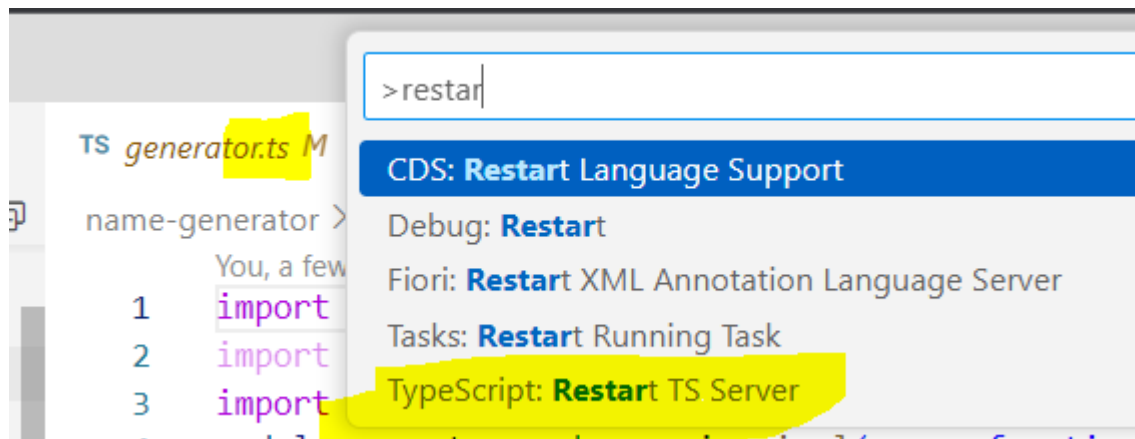


TIP: RESTART TS SERVER

1. Must have
.ts file open!

2. View->Command Palette

3. “Restart TS Server”

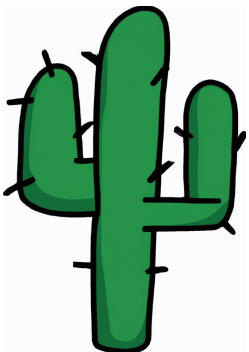


TIP: WATCH YOUR CASE



string $\neq$ String

string
number
boolean



TIP: TAKE A BREAK FROM TYPES

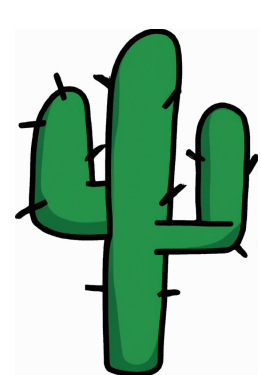


let something: **any** = ...

@ts-ignore

@ts-expect-error

@ts-nocheck



TIP: TS CONFIG



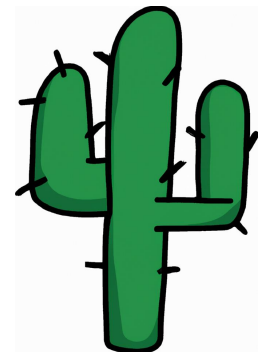
tsconfig.json

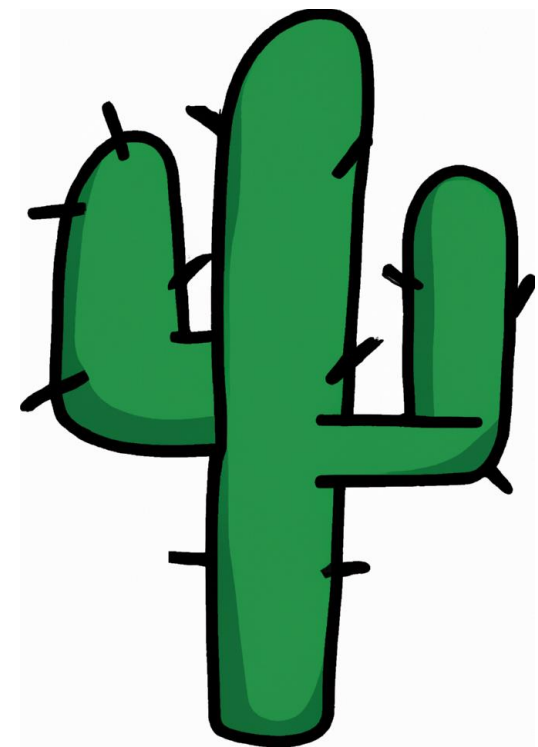
name-generator > tsconfig.json > ...

You, 4 days ago | 1 author (You)

```
1 {
2   "compilerOptions": {
3     "target": "es6",
4     "module": "commonjs",
5     "outDir": "./gen/srv/srv",
6     "rootDir": "./srv",
7     "baseUrl": "./",
8     "moduleResolution": "node",
9     "skipLibCheck": true,
10    "preserveConstEnums": true,
11    "sourceMap": false,
12    "allowJs": true,
13    "strict": true,
14    "strictNullChecks": false,
15    "strictPropertyInitialization": false,
16    "esModuleInterop": true
17  },
18  "include": [
19    "./srv/**/*.ts"
20  ]
21 }
```

You, 4 days ago • Basic service with act

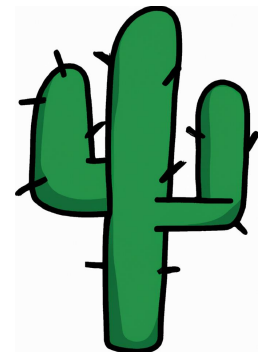




MORE INFO



A screenshot of the TypeScript website. The header is blue with the 'TS TypeScript' logo on the left and navigation links 'Download', 'Docs', 'Handbook', 'Community', 'Playground', and 'Tools' on the right. The main content area is also blue and features the text 'TypeScript is JavaScript with syntax for types.' in large white font. Below this, in a smaller white font, it says 'TypeScript is a strongly typed programming language that builds on JavaScript, giving you better tooling at any scale.'



www.typescriptlang.org



Product ▾

Solutions ▾

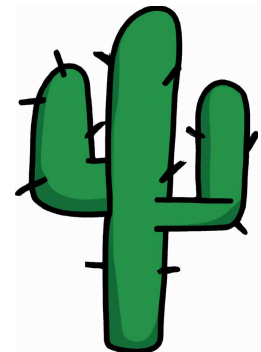
Open Source ▾

Pricing



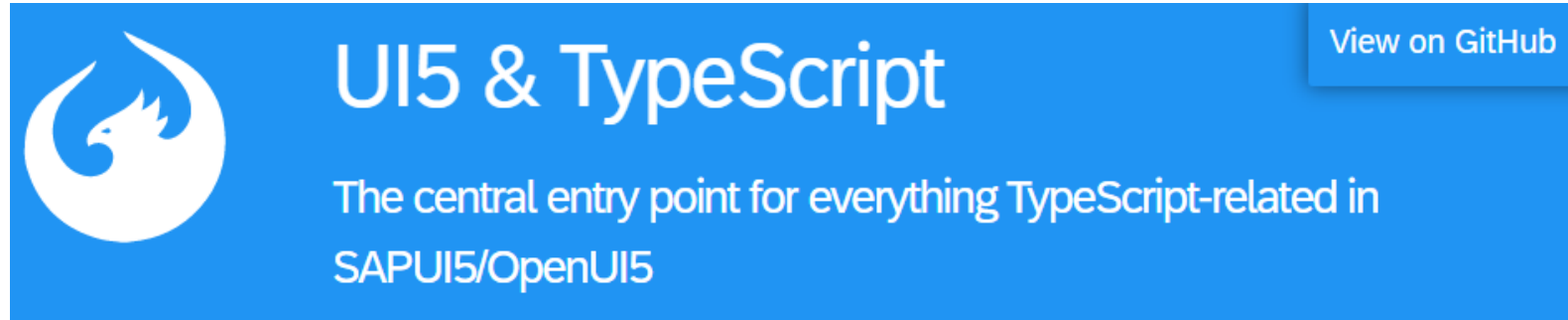
SAP-samples / btp-full-stack-typescript-app

Public



github.com/SAP-samples/btp-full-stack-typescript-app

 @MikeEDoyle



sap.github.io/ui5-typescript/

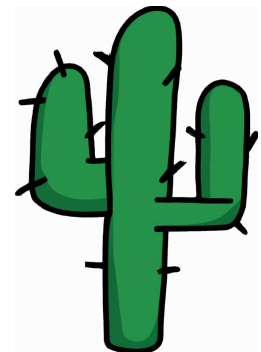


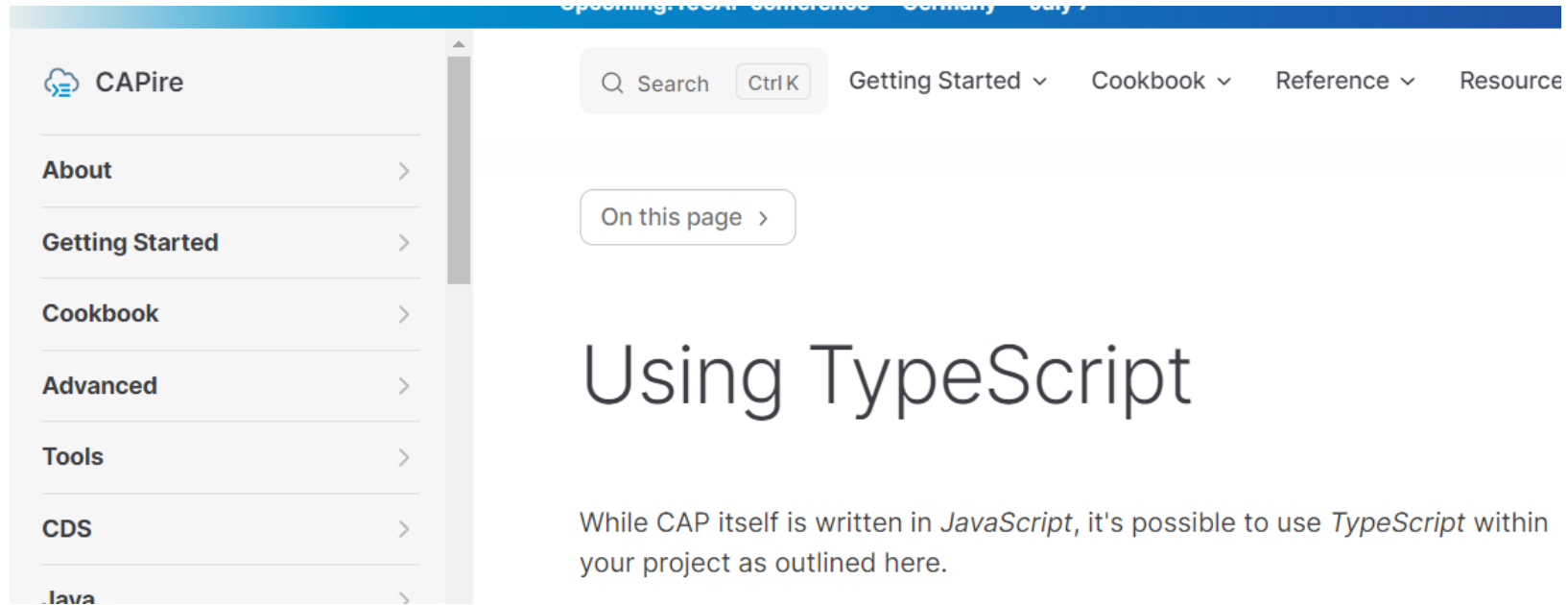
Peter Muessig 

July 1, 2021 | 5 minute read

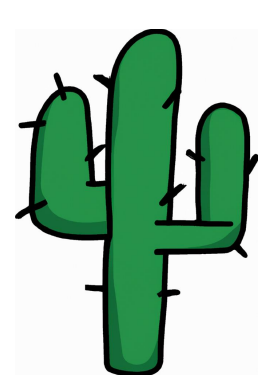
Getting Started with TypeScript for
UI5 Application Development

blogs.sap.com/2021/07/01/getting-started-with-typescript-for-ui5-application-development





cap.cloud.sap/docs/node.js/typescript



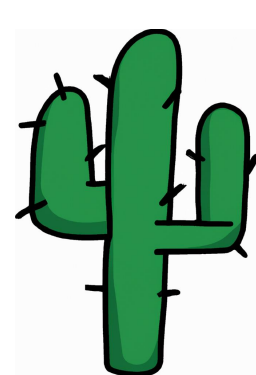


Andreas Kunz 

April 13, 2023 | 7 minute read

UI5 and TypeScript: how to generate types for OData services

blogs.sap.com/2023/04/13/ui5-and-typescript-how-to-generate-types-for-odata-services



How to Connect with Me

E: mike.e.doyle@gmail.com

Li: [linkedin.com/in/mikedoyle/](https://www.linkedin.com/in/mikedoyle/)

[@MikeEDoyle](#) / [@mikedoyle@mastodon.cloud](#)