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# < Angular 开发技巧 >



多奇數位創意有限公司

技術總監 黃保翕 (Will 保哥)

<http://blog.miniasp.com/>



# Will 保哥 (黃保翕)



- 現任多奇數位創意有限公司技術總監
- 台灣 Angular 社群核心成員 (Angular Taiwan)
- 2018 年榮獲 [Angular/Web GDE](#) (谷歌开发者专家)
- 2008 至今連續 11 度獲選 Microsoft MVP
- 每年在台灣約有十幾場演講與數十場培訓課程
- 出版著作有 ASP.NET MVC 2 開發實戰、Windows Phone 開發實戰、ASP.NET MVC 4 開發實戰等書籍。



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# Angular 開發心法

先擁有觀念，再培養速度



# 擁有觀念

- Angular 啟動生命週期
- Angular 執行生命週期
- Angular 表單開發技巧
- Angular 狀態管理技巧
- Angular 元件開發觀念
- 熟悉常用第三方元件
- 多頁面路由開發觀念
- 效能調校與變更偵測
- 單元測試與整合測試
- 模組封裝與發行







绝世武功

# 培養速度

- 培養盲打能力
- 先求準度再談速度
- 務必熟悉開發工具
- 編程的心流模式 (Flow)

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# Angular CLI

改善前端開發環境的終極武器



# 使用 Schematics 實現開發自動化

- `ng new demo1 --routing --style css`
- `ng generate component hello`
- `ng update`
- 自訂代碼產生器
  - 以 [Manfred Steyer](#) 的 [angular-crud](#) 為例
  - `ng g angular-crud:crud-module hotel`
- `ng add @angular/elements`
- `ng add @angular/material`
- `ng add @angular/pwa`
- `ng add @clr/angular`
- `ng add @nativescript/schematics`
- `ng add ng-zorro-antd`
- `ng add ngcli-wallaby`





# ng new / ng add / ng generate 互動式介面

```
C:\> ng new demo2  
  
G:\Projects>ng new demo2  
? Would you like to add Angular routing? Yes  
? Which stylesheet format would you like to use?  
  CSS  
> SCSS    [ http://sass-lang.com      ]  
  SASS    [ http://sass-lang.com      ]  
  LESS    [ http://lesscss.org        ]  
  Stylus  [ http://stylus-lang.com    ]
```

ng new demo1 --routing --style css



# ng add @angular/material

```
G:\Projects\demo1>ng add @angular/material
Installing packages for tooling via npm.
npm WARN @angular/material@7.0.4 requires a peer of @angular/cdk@7.0.4 but none is installed. You must
install peer dependencies yourself.
npm WARN optional SKIPPING OPTIONAL DEPENDENCY: fsevents@1.2.4 (node_modules\fsevents):
npm WARN notsup SKIPPING OPTIONAL DEPENDENCY: Unsupported platform for fsevents@1.2.4: wanted {"os":"da
rwin","arch":"any"} (current: {"os":"win32","arch":"x64"})

+ @angular/material@7.0.4
added 1 package and audited 39135 packages in 19.083s
found 0 vulnerabilities

Installed packages for tooling via npm.
? Choose a prebuilt theme name, or "custom" for a custom theme:
> Indigo/Pink [ Preview: https://material.angular.io?theme=indigo-pink ]
  Deep Purple/Amber [ Preview: https://material.angular.io?theme=deeppurple-amber ]
  Pink/Blue Grey [ Preview: https://material.angular.io?theme=pink-bluegrey ]
  Purple/Green [ Preview: https://material.angular.io?theme=purple-green ]
  Custom
```



# 自動更新與升級 Angular 應用程式

- <https://update.angular.io/>
- 更新過時的 rxjs 寫法

```
npm install -g rxjs-tslint
rxjs-5-to-6-migrate -p src/tsconfig.app.json
npm uninstall rxjs-compat
```
- 升級到 Angular v7 最新版本

```
npm install @angular/cli
ng update @angular/cli @angular/core
ng update @angular/material
```



# 善用 Angular CLI v7 的 Bundle Budgets 功能

```
30     "configurations": {  
31       "production": {  
32         "fileReplacements": [  
33           {  
34             "replace": "src/environments/environment.ts",  
35             "with": "src/environments/environment.prod.ts"  
36           }  
37         ],  
38         "optimization": true,  
39         "outputPath": "dist",  
40         "sourceMap": false,  
41         "vendorChunk": true,  
42         "webpack": true,  
43         "baseHref": "/"  
44       }  
45     },  
46     "budgets": [  
47       {  
48         "type": "initial",  
49         "maximumWarning": "2mb",  
50         "maximumError": "5mb"  
51       }  
52     ]  
53   }  
54 }  
55 }
```

angular.json



# 包的預算警示 200kB / 錯誤 500kB

```
G:\Projects\demo1>ng build --prod
```

```
Date: 2018-11-14T17:16:41.799Z
```

```
Hash: 805dbba822221ef429c0
```

```
Time: 20184ms
```

```
chunk {0} runtime.ec2944dd8b20ec099bf3.js (runtime) 1.41 kB [entry] [rendered]
```

```
chunk {1} main.03731d229824b993b278.js (main) 253 kB [initial] [rendered]
```

```
chunk {2} polyfills.c6871e56cb80756a5498.js (polyfills) 37.5 kB [initial] [rendered]
```

```
chunk {3} styles.3bb2a9d4949b7dc120a9.css (styles) 0 bytes [initial] [rendered]
```

```
WARNING in budgets, maximum exceeded for initial. Budget 200 kB was exceeded by 92.1 kB.
```





# 包的預算警示 200kB / 錯誤 250kB

```
G:\Projects\demo1>ng build --prod
```

```
Date: 2018-11-14T17:16:41.799Z
```

```
Hash: 805dbba822221ef429c0
```

```
Time: 20184ms
```

```
chunk {0} runtime.ec2944dd8b20ec099bf3.js (runtime) 1.41 kB [entry] [rendered]
```

```
chunk {1} main.03731d229824b993b278.js (main) 253 kB [initial] [rendered]
```

```
chunk {2} polyfills.c6871e56cb80756a5498.js (polyfills) 37.5 kB [initial] [rendered]
```

```
chunk {3} styles.3bb2a9d4949b7dc120a9.css (styles) 0 bytes [initial] [rendered]
```

```
WARNING in budgets, maximum exceeded for initial. Budget 200 kB was exceeded by 92.1 kB.
```

```
ERROR in budgets, maximum exceeded for initial. Budget 250 kB was exceeded by 42.1 kB.
```



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# Visual Studio Code

最貼心的 Angular 開發工具



# 導航程式碼的利器

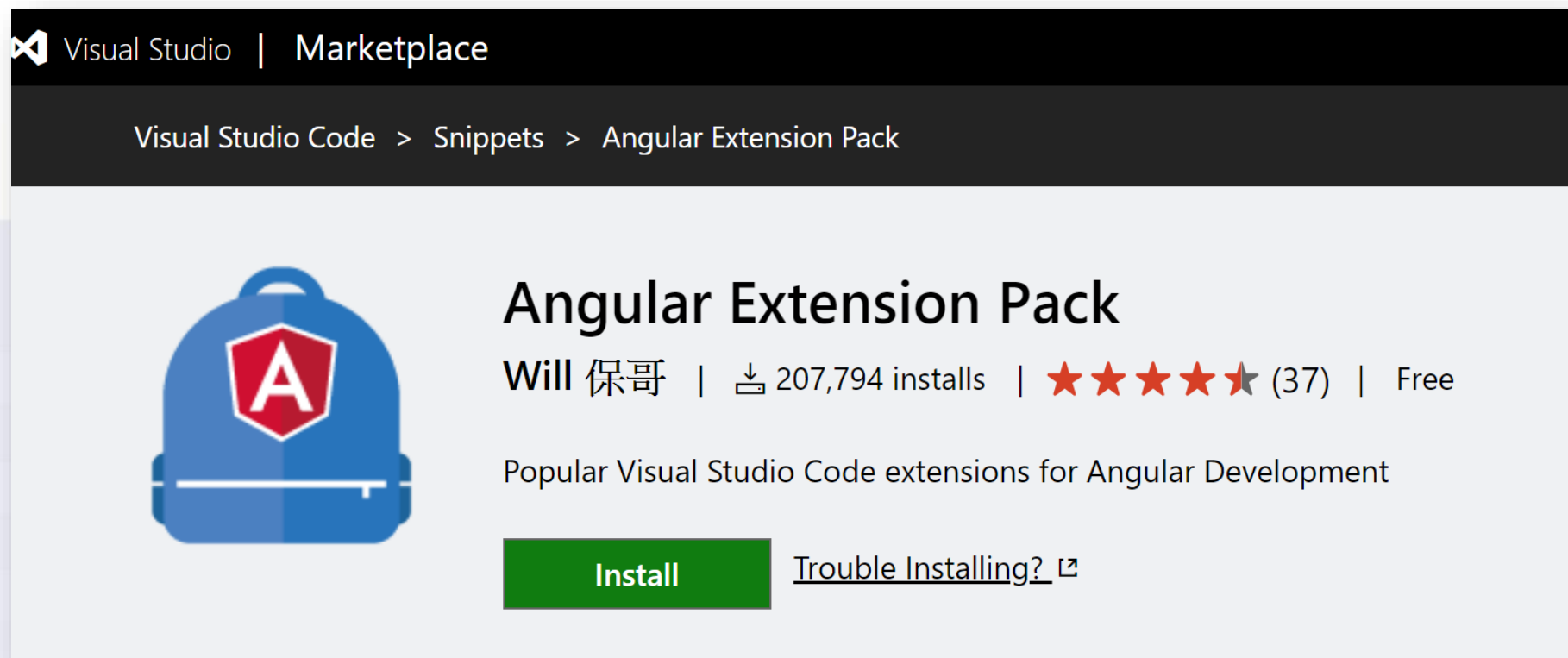
- 不要使用 VSCode 資源管理器 (EXPLORER)
- 一律使用 **Ctrl+E** 快捷鍵查找檔案 ( 命令: `workbench.action.quickOpen` )
  - 善加利用模糊比對機制 (Fuzzy matching)
- 快速開啟最近檔案
  - 後退：**Alt+←** ( 命令: `workbench.action.navigateBack` )
  - 前進：**Alt+→** ( 命令: `workbench.action.navigateForward` )
- 編輯器上方的導航路徑 (Breadcrumbs)
  - 啟動導航：**Ctrl+Shift+.** ( 命令: `breadcrumbs.toggleToOn` )
  - 向左移動：**Ctrl+←** ( 命令: `breadcrumbs.focusPrevious` )
  - 向右移動：**Ctrl+→** ( 命令: `breadcrumbs.focusNext` )



# Angular Extension Pack

請認明 Will 保哥 出品


- 請安裝 [Angular Extension Pack](#) 擴充套件



The screenshot shows the Visual Studio Marketplace interface. At the top, the breadcrumb navigation reads "Visual Studio Code > Snippets > Angular Extension Pack". The main content area features the Angular logo (a blue shield with a white 'A') on the left. To the right of the logo, the title "Angular Extension Pack" is displayed in a large, bold font. Below the title, the author "Will 保哥" is listed, followed by "207,794 installs", a rating of four stars out of five (with 37 reviews), and the word "Free". A descriptive subtitle reads "Popular Visual Studio Code extensions for Angular Development". At the bottom of the card, there is a green "Install" button and a link labeled "Trouble Installing?" with an external link icon.

Visual Studio | Marketplace

Visual Studio Code > Snippets > Angular Extension Pack



## Angular Extension Pack

Will 保哥 | 207,794 installs | ★★★★★ (37) | Free

Popular Visual Studio Code extensions for Angular Development

[Install](#) [Trouble Installing?](#)

# Angular Language Service

- 提供元件範本中所有必要的 IntelliSense 支援
- 提供 AOT 診斷訊息
- 提供 Directives 相關信息
- 轉到定義 (Go to definition)





# 快速切換元件內的不同檔案

- 快速切換至元件範本 ( \*.html )
  - 快速鍵：**alt+o** (Windows) / **shift+alt+o** (macOS)
- 快速切換至元件樣式 ( \*.css )
  - 快速鍵：**alt+i** (Windows) / **shift+alt+i** (macOS)
- 快速切換至元件類 ( \*.ts )
  - 快速鍵：**alt+u** (Windows) / **shift+alt+u** (macOS)
- 快速切換至元件 Spec 檔 ( \*.spec.ts )
  - 快速鍵：**alt+p** (Windows) / **shift+alt+p** (macOS)



# 養成使用代碼片段的習慣

- 大量利用 Code Snippets 完成代碼
  - `ng-import-*` 導入常見的 Angular 模組與服務元件
  - `a-*` Angular v7 Snippets
  - `ng-*` Angular Snippets
  - `ngrx-*` Angular NgRx Snippets
  - `ngxs-*` Angular Ngxs Snippets
  - `m-*` Angular Material Design Snippets
  - `rx-*` RxJS Snippets for both TypeScript and JavaScript



# 使用 TSLint 優化代碼品質

- 內建命令
  - TSLint: Fix all auto-fixable problems ( 命令: tslint.fixAllProblems )
- 用戶設置
  - **"tslint.autoFixOnSave": true**
- [TSLint core rules](#) ( tslint.json )
  - **import-blacklist**
  - **prefer-const**



# 多利用 TypeScript 重構功能 (Refactoring)

- Code Actions = Quick Fixes
  - `Ctrl+.`
- Rename symbol
  - `F2`
- Change All Occurrences
  - `Ctrl+F2` / `CMD+F2`
- Move TS
  - Move TypeScript files and update relative imports
- Refactoring actions
  - Extract Method
  - Extract Variable
  - Extract function
  - Extract constant
  - Suggestion Code Action ( ... )
  - Generate 'get' and 'set' accessors
  - Move to new file
  - Convert to async function
  - Convert between named imports and namespace imports



# 活用 TypeScript 型別宣告

- [JSON to TS](#)

- **Ctrl+Alt+V**      從剪貼簿中的 JSON 字串轉換為 TypeScript 介面
- **Ctrl+Alt+S**      從選取的 JSON 字串轉換為 TypeScript 介面

- [Paste JSON as Code](#)

- 支持 TypeScript, Python, Go, Ruby, C#, Java, Swift, Rust, Kotlin, C++, Flow, Objective-C, JavaScript, Elm, and JSON Schema 等程式語言。
- 先選取語言模式，再執行 Paste JSON as Code/Type 命令
- Paste JSON as Code      ( 命令: quicktype.pasteJSONAsTypesAndSerialization )
- Paste JSON as Type      ( 命令: quicktype.pasteJSONAsTypes )





# 自動產生代碼文檔

- Document This
  - 連按 **Ctrl+Alt+D** 兩次就會自動產生註解範本！

# 遵循 Angular Style Guide 指引方針

- <https://angular.io/guide/styleguide>
  - 每個檔案只放一個元件
  - 每個檔案不超過 400 行，每個函式不超過 75 行
  - 命名不要用 dash 也不要偷懶用縮寫
  - .....
- 有空就認真看一遍
- 沒空就用 Angular CLI
  - `ng generate` 產生程式碼骨架
  - `ng lint` 檢查程式碼撰寫風格 ([codelyzer](#))
  - 搭配 TSLint 自動進行風格檢查



# 相關連結

- [Version 7 of Angular — CLI Prompts, Virtual Scroll, Drag and Drop and more](#)
- [How Did Angular CLI Budgets Save My Day And How They Can Save Yours](#)
- [Angular Extension Pack - Visual Studio Marketplace](#)
- [Angular CLI Command Reference](#)
- [Angular Update Guide](#)
- [Angular Style Guide](#)



< THANK YOU >



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