



# **DATA3750**

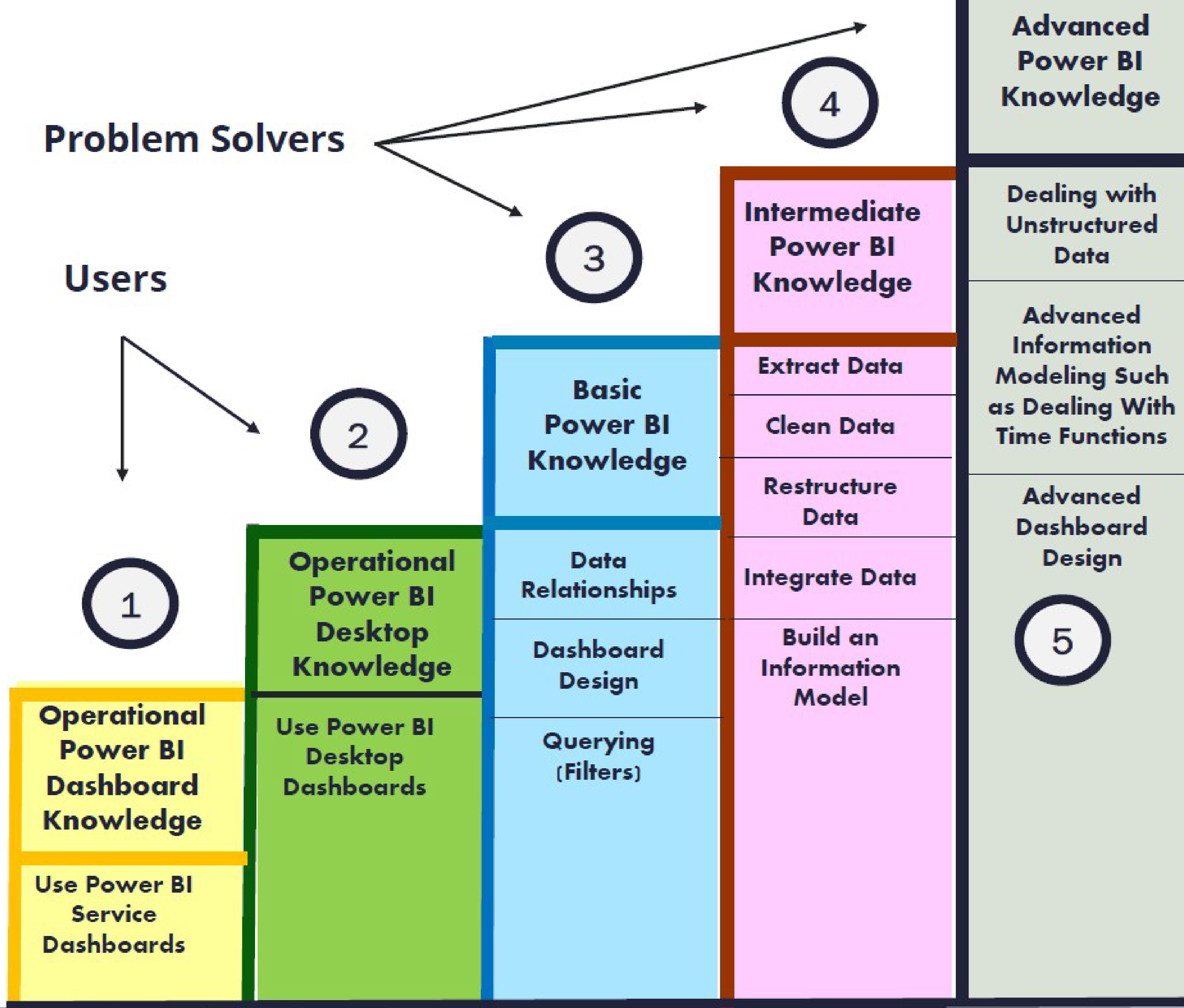
# **DATA VISUALIZATION BUSINESS**

# **REPORTING**

A LEADING POLYTECHNIC COMMITTED TO YOUR SUCCESS

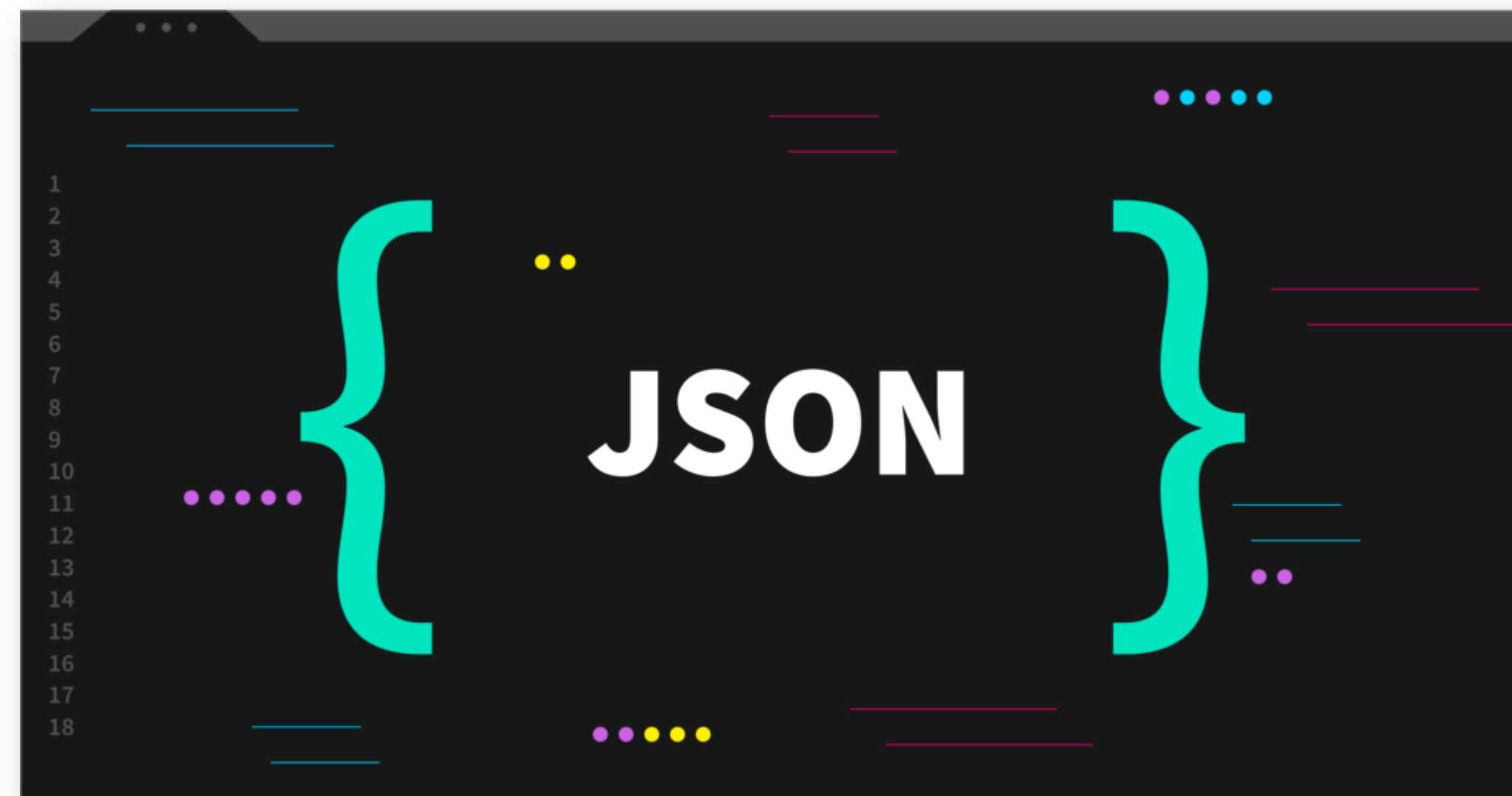
**Problem Solvers**

**Users**



# Importing JSON Data

JSON (JavaScript Object Notation, pronounced /'dʒeɪsən/; also /'dʒeɪ,sn/) is an **open standard file format and data interchange format** that uses human-readable text to store and transmit data objects consisting of attribute–value pairs and arrays (or other serializable values).



# CASE STUDY

Wk6\_data.json

- ❖ What is the sales in Quarter 2 in Japan?
- ❖ Show a map of the Sales

# Custom Visuals

What are “Custom Visuals”

Development Setup & How it Works

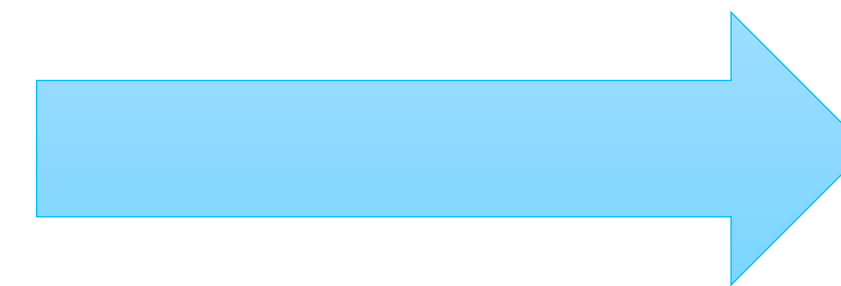
An Example Visual

Q & A





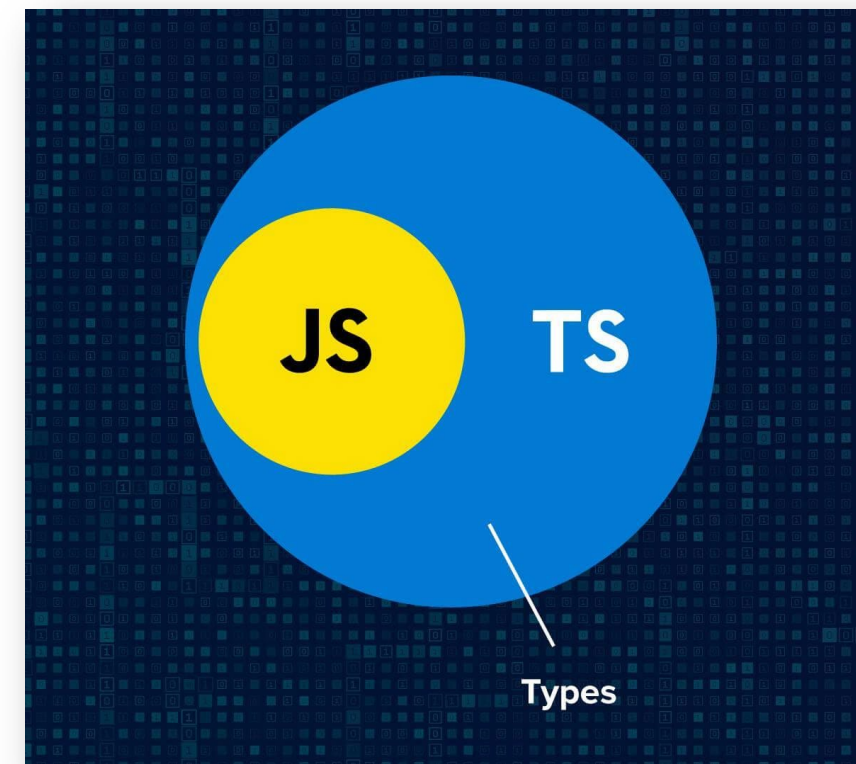
# Custom Visuals?



# Custom Visuals = TypeScript

TypeScript is JavaScript with syntax for types.

<https://www.typescriptlang.org/>



# Custom Visuals: Setup

**Install Node.js** = Enable us to test the visual & Install further packages

**Install PowerBI Custom Visuals Tools & Packages** = Create projects & build visuals

**Create & Install a Certificate** = Test visual via Power BI Service

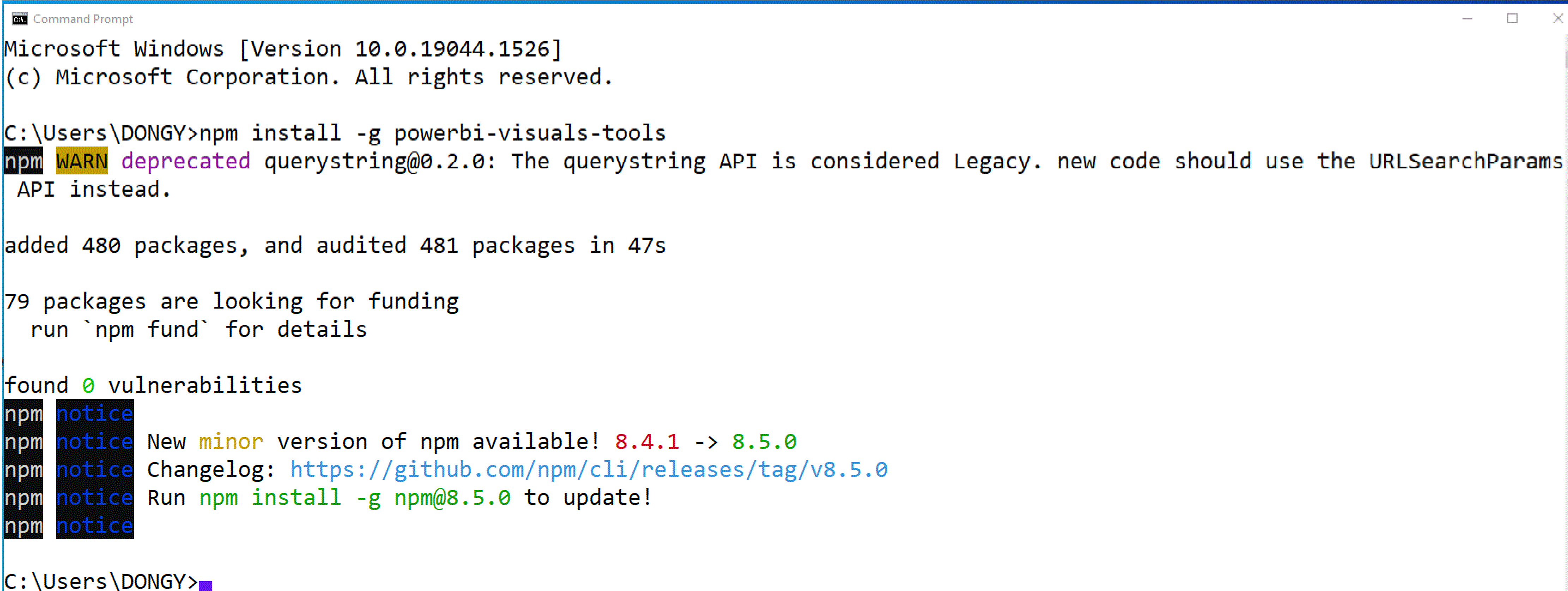
**Install an IDE** = Write codes for the custom visual



# Custom Visuals: Setup

Install Node.js = Enable us to test the visual & Install further packages

<https://nodejs.org/en/>



```
Command Prompt
Microsoft Windows [Version 10.0.19044.1526]
(c) Microsoft Corporation. All rights reserved.

C:\Users\DONGY>npm install -g powerbi-visuals-tools
npm WARN deprecated querystring@0.2.0: The querystring API is considered Legacy. new code should use the URLSearchParams
API instead.

added 480 packages, and audited 481 packages in 47s

79 packages are looking for funding
  run `npm fund` for details

found 0 vulnerabilities
npm notice
npm notice New minor version of npm available! 8.4.1 -> 8.5.0
npm notice Changelog: https://github.com/npm/cli/releases/tag/v8.5.0
npm notice Run npm install -g npm@8.5.0 to update!
npm notice

C:\Users\DONGY>
```

# Custom Visuals: Setup

Create & Install a Certificate = Test visual via Power BI Service

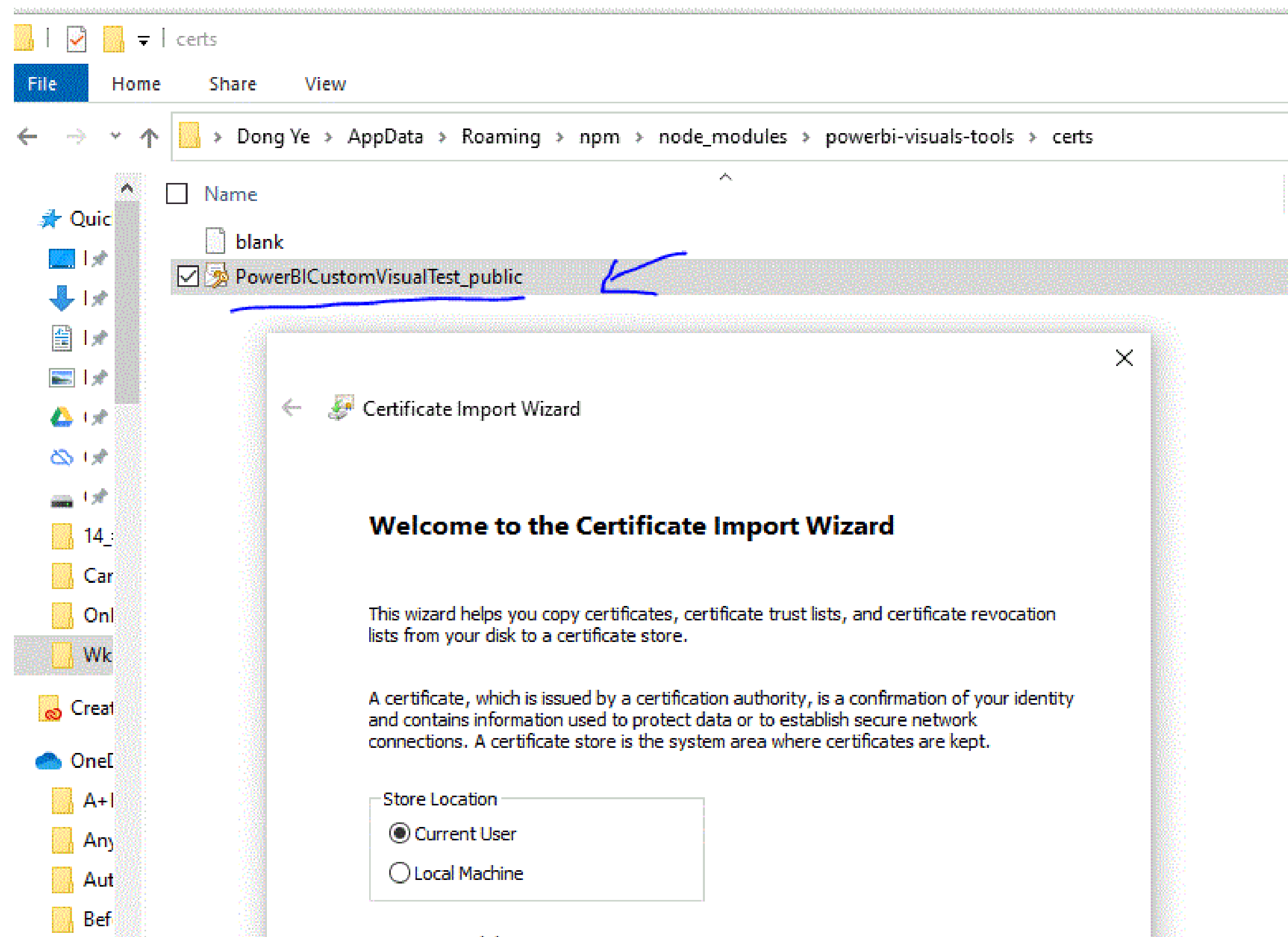
```
C:\WINDOWS\system32\cmd.exe

C:\Users\DONGY>pbviz --install-cert
info powerbi-visuals-tools version - 4.0.4
error Certificate not found. The new certificate will be generated
info Generating a new certificate...
info Certificate generated. Location is C:\Users\DONGY\AppData\Roaming\npm\node_modules\powerbi-visuals-tools\certs\PowerBICustomVisualTest_public.pfx. Passphrase is '2009325365357939'

C:\Users\DONGY>
```

# Custom Visuals: Setup

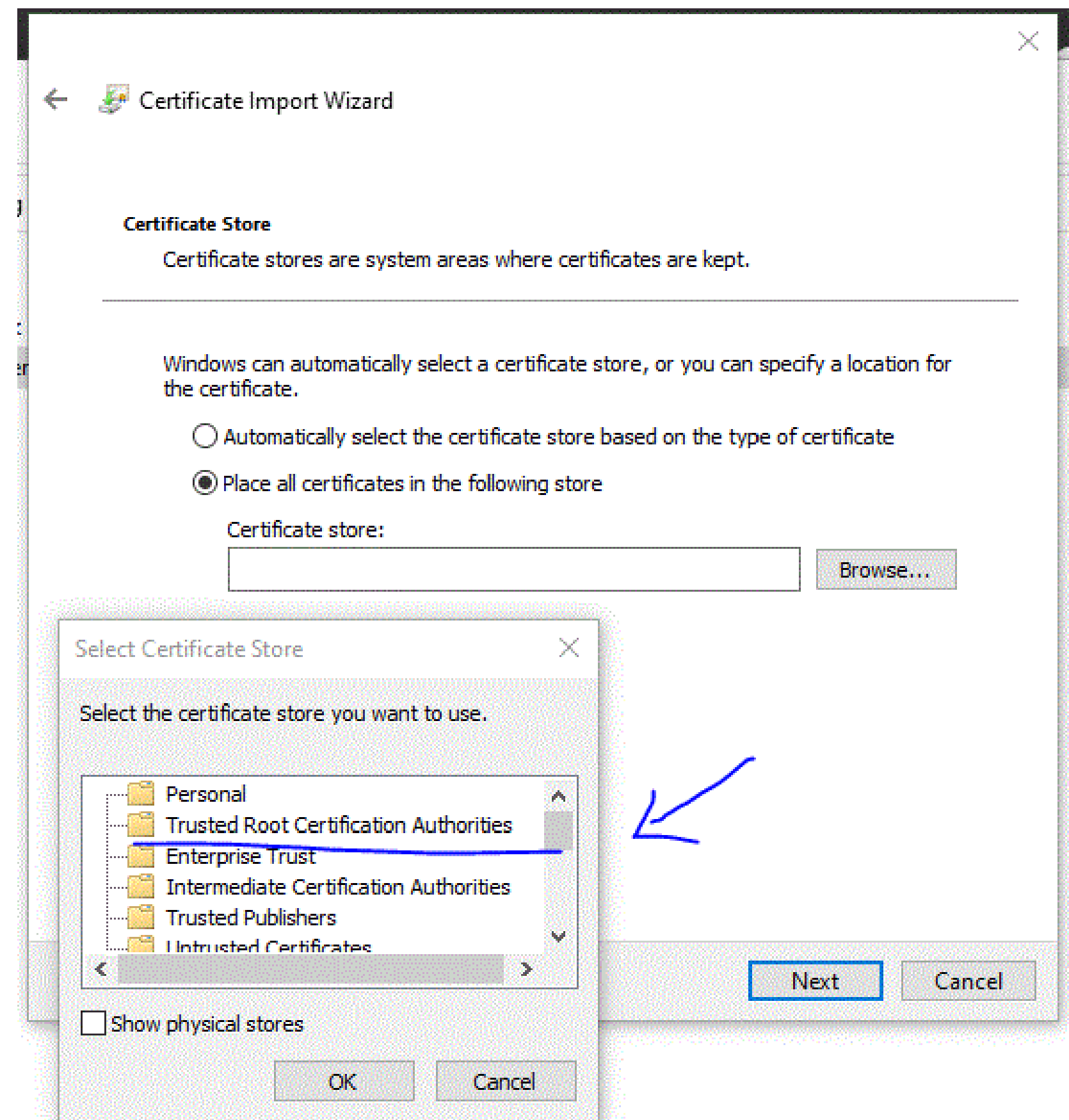
## Create & Install a Certificate = Test visual via Power BI Service



Password is the passphrase.

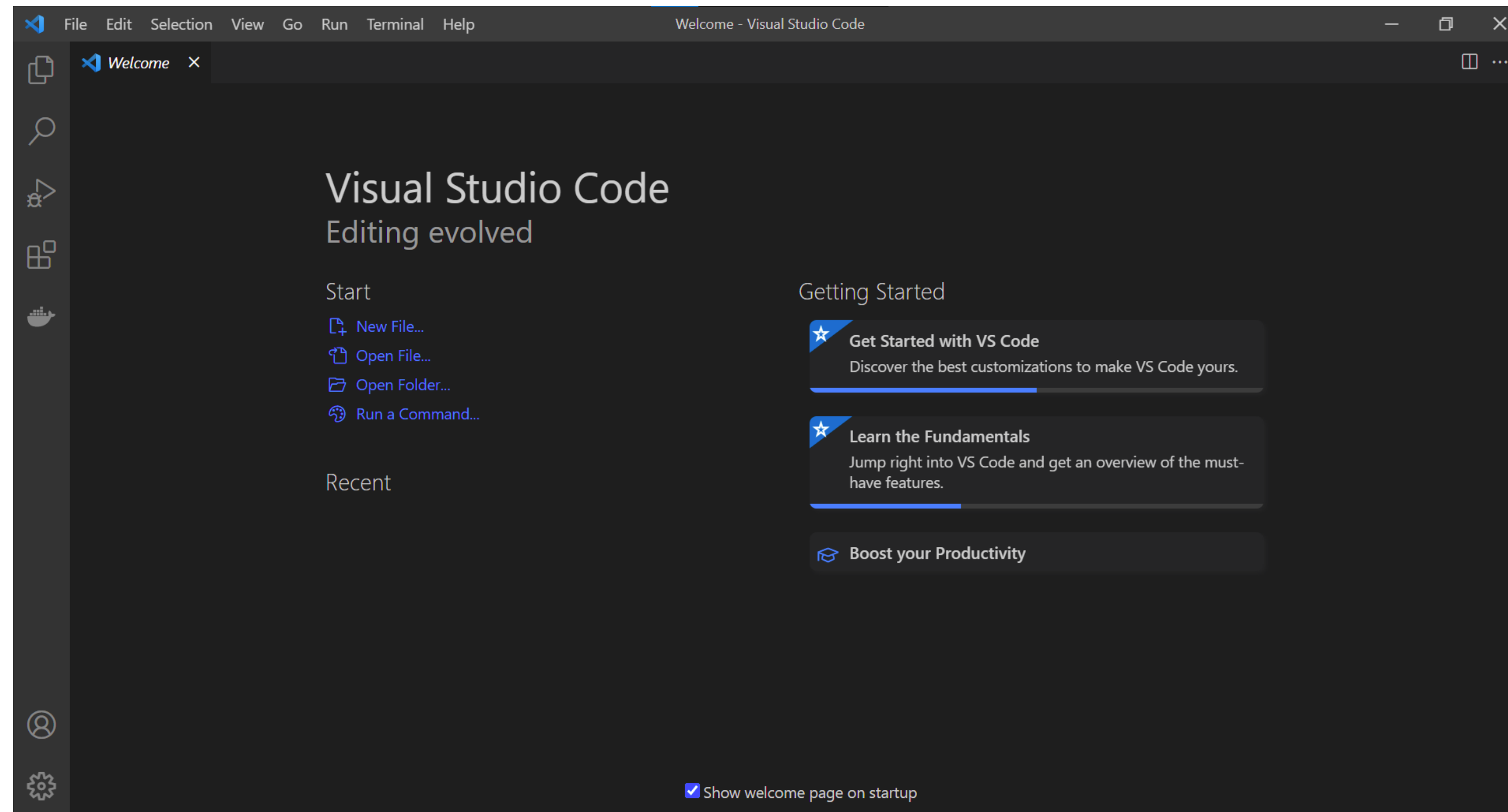
# Custom Visuals: Setup

Create & Install a Certificate = Test visual via Power BI Service



# Custom Visuals: Setup

Install an IDE = Write codes for the custom visual





# Create a Project

```
C:\WINDOWS\system32\cmd.exe
C:\Users\DONGY>cd OneDrive - NAIT\Work\Courses\DATA3750\Delivery\Wk6

C:\Users\DONGY\OneDrive - NAIT\Work\Courses\DATA3750\Delivery\Wk6>pbiviz new wk6barchart
info powerbi-visuals-tools version - 4.0.4
info Creating new visual
info Installing packages...
info Installed packages.
done Visual creation complete
```

# Create a Project – test the folder

cmd npm list powerbi-visuals-api version

C:\Users\DONGY\OneDrive - NAIT\Work\Courses\DATA3750\Delivery\Wk6\wk6barchart>pbviz start

info powerbi-visuals-tools version - 4.0.4

info Certificate is valid.

info Starting server...

<i> [webpack-dev-server] Generating SSL certificate...

<i> [webpack-dev-server] SSL certificate: C:\Users\DONGY\OneDrive - NAIT\Work\Courses\DATA3750\Delivery\Wk6\wk6barchart\node\_modules\.cache\webpack-dev-server\server.pem

info Start preparing plugin template

<i> [webpack-dev-server] Project is running at:

<i> [webpack-dev-server] Loopback:

<i> [webpack-dev-server] On Your Network (IPv4):

<i> [webpack-dev-server] On Your Network (IPv6):

<i> [webpack-dev-server] Content not from webpack is served from ' ' directory

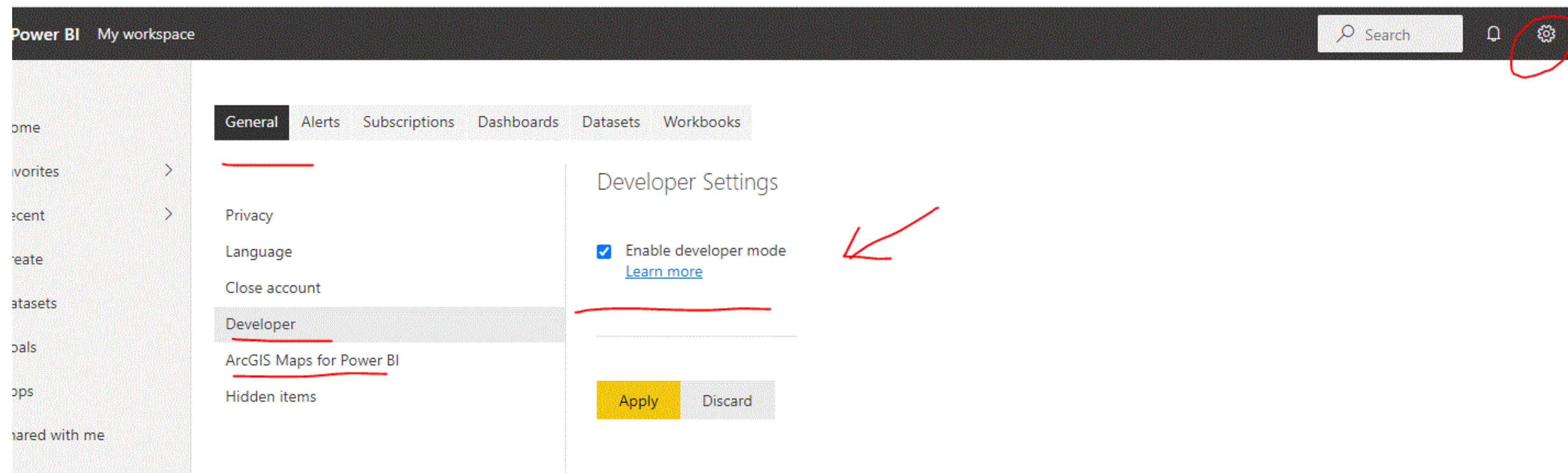
info Server listening on port 8080

Keep it running when  
developing the new visual.

# Create a Project – PowerBI Service

<https://app.powerbi.com/>

Publish a PowerBI workbook  
using Wk6data CSV file to  
PowerBI Service





# Create a Project – PowerBI Service

<https://app.powerbi.com/>

Publish a PowerBI workbook  
using Wk6data CSV file to  
PowerBI Service

Wk6\_customvisual\_data | Data updated 2/14/22

Search

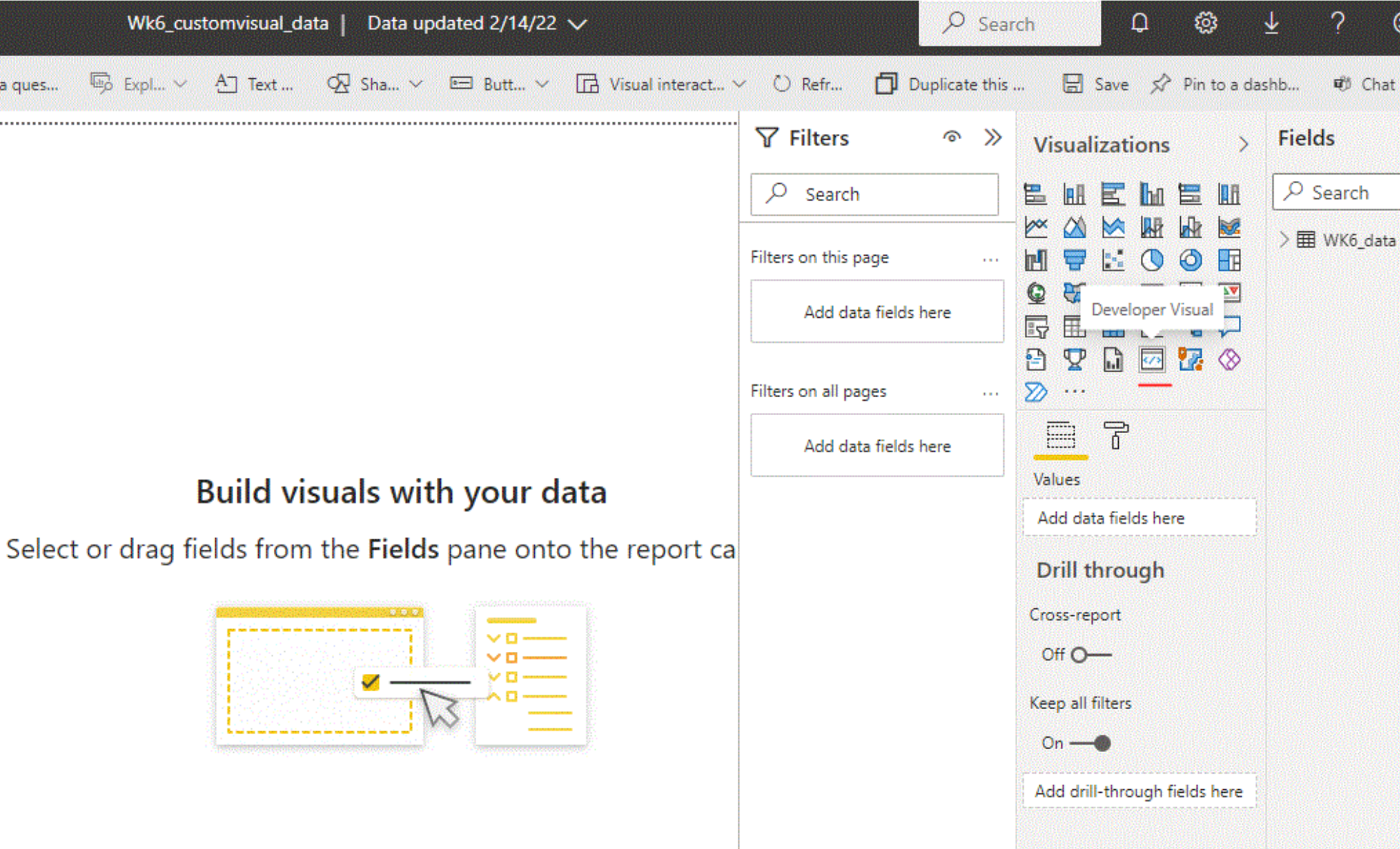
Visualizations

Fields

Wk6\_data

Build visuals with your data

Select or drag fields from the Fields pane onto the report canvas



ID	Name	Age	Gender	Address
1	John	25	Male	123 Main St
2	Jane	30	Female	456 Oak St
3	Mike	22	Male	789 Pine St
4	Sarah	28	Female	101 Elm St
5	David	35	Male	202 Maple St

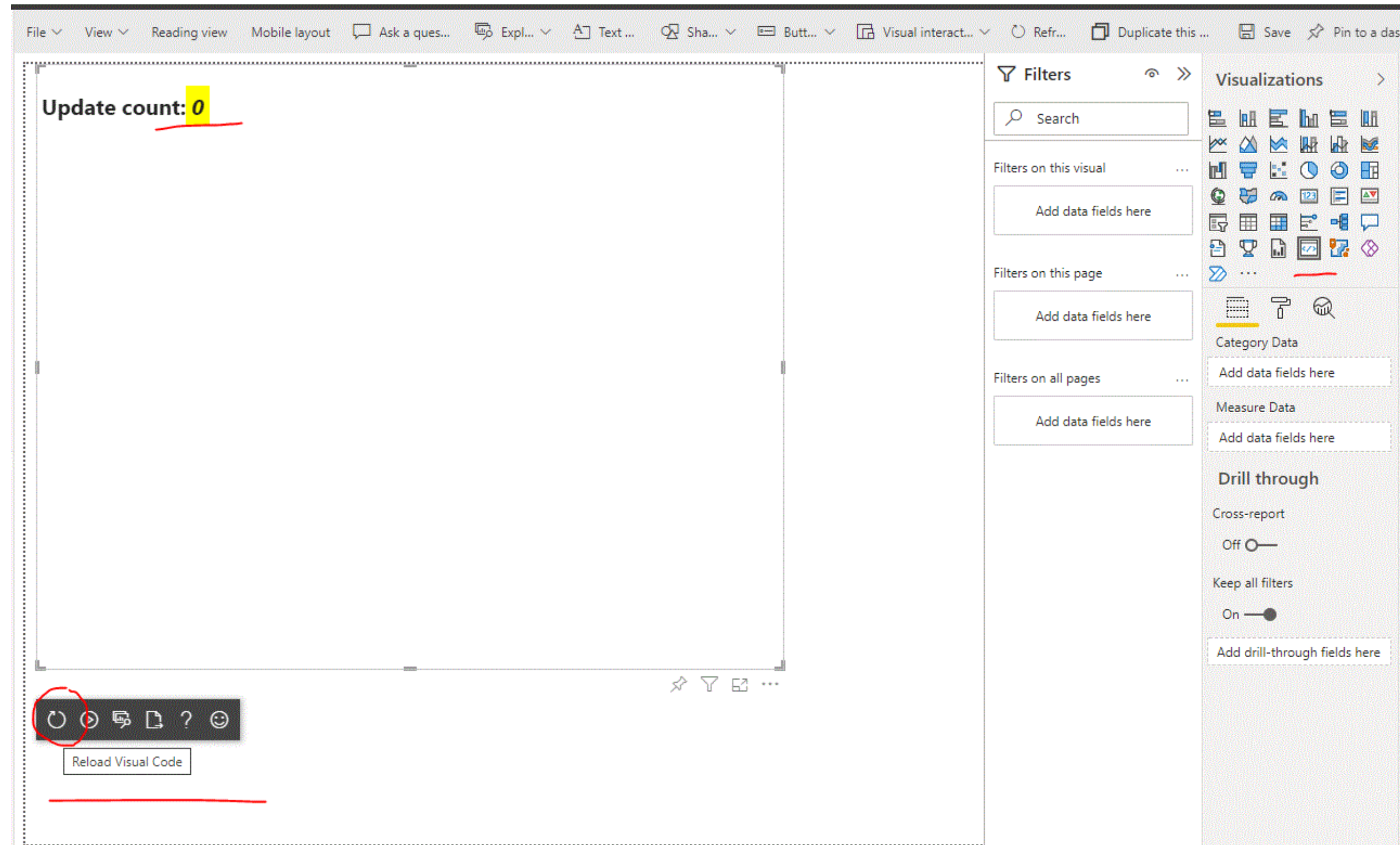
WE ARE ESSENTIAL  
TO ALBERTA





# Create a Project – Test Custom Visual via PowerBI Service

<https://app.powerbi.com/>

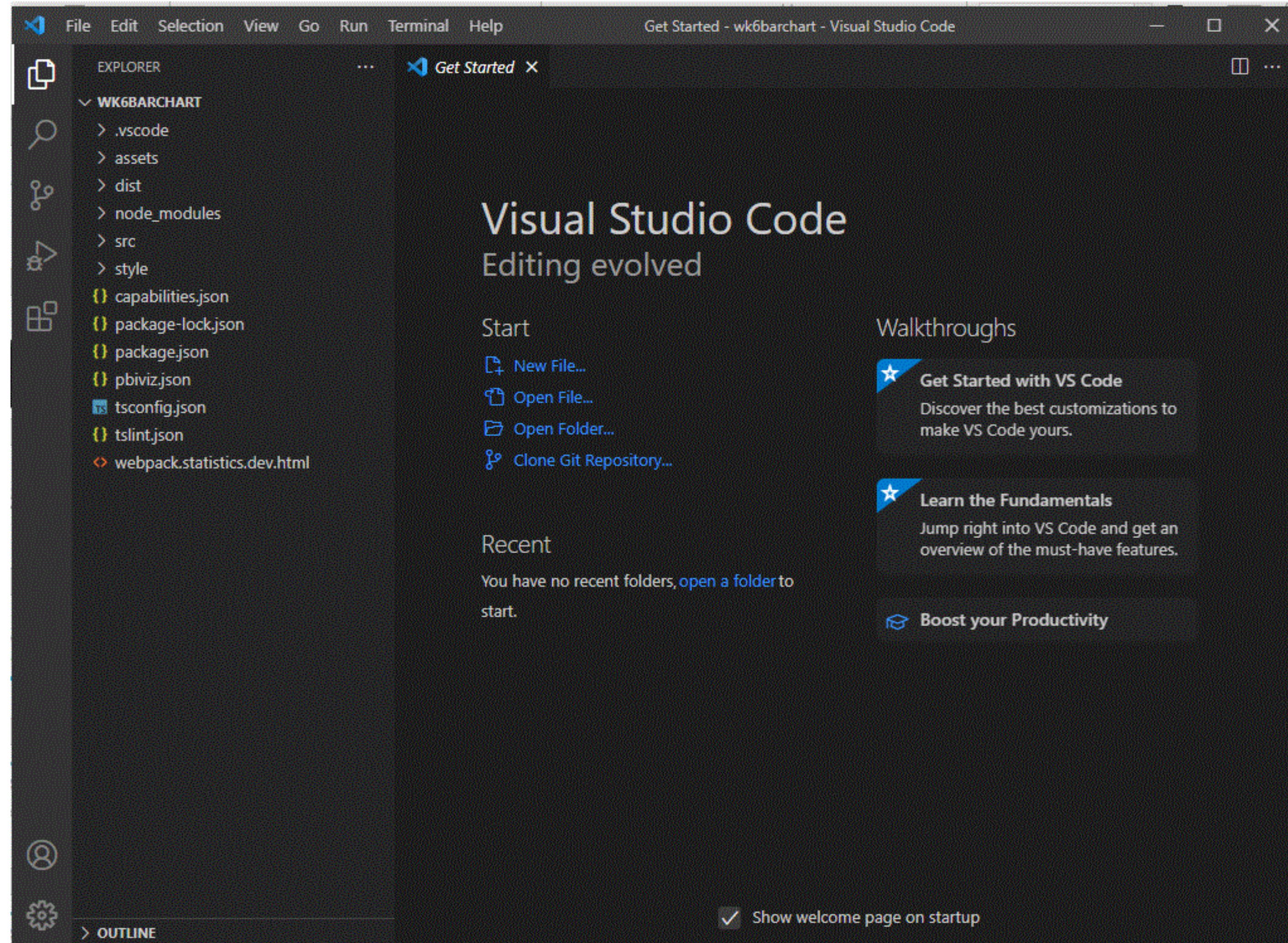


WE ARE ESSENTIAL  
TO ALBERTA





# Create a Project – Visual Studio

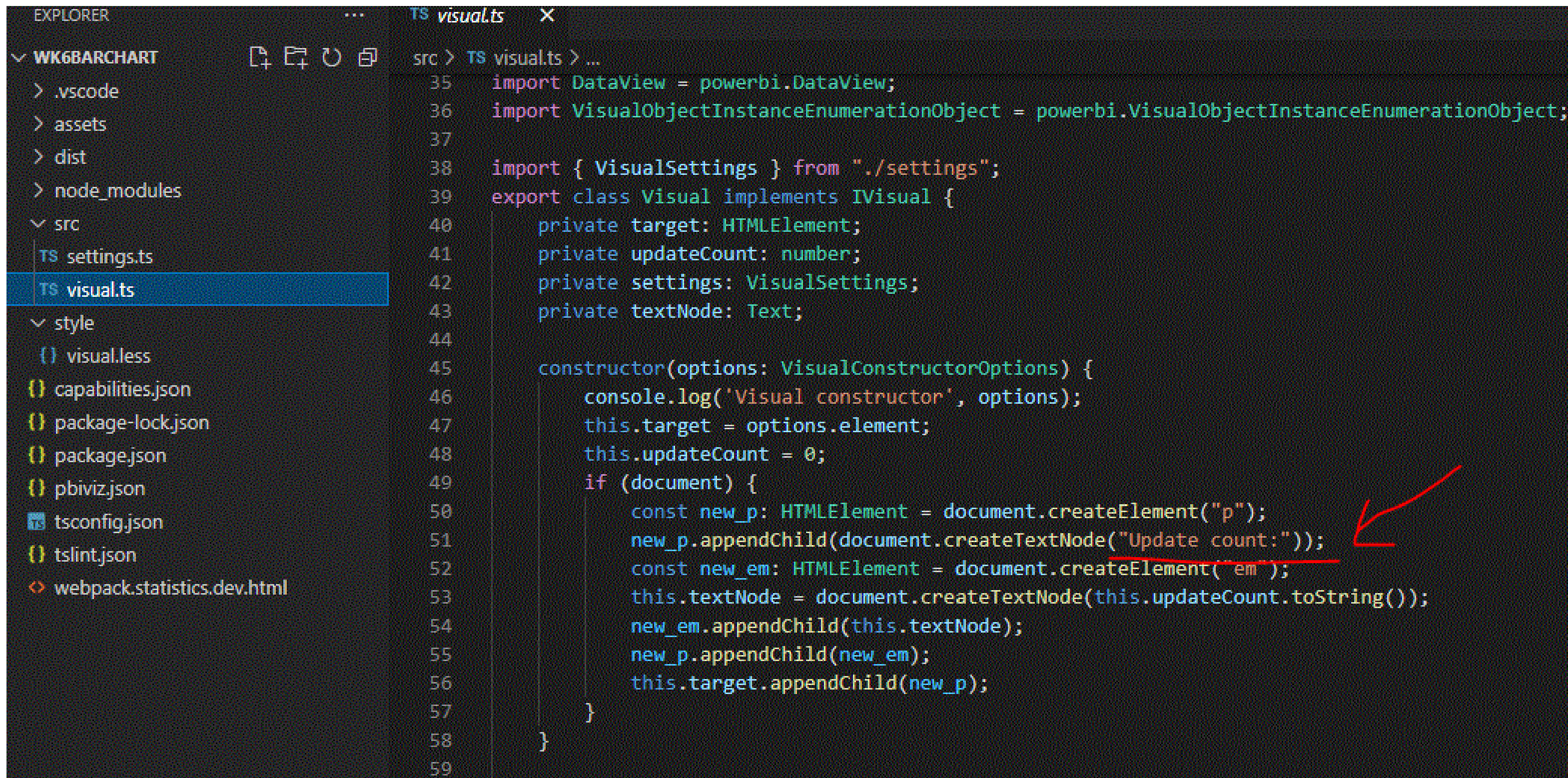


Change the update count to “My update count”.



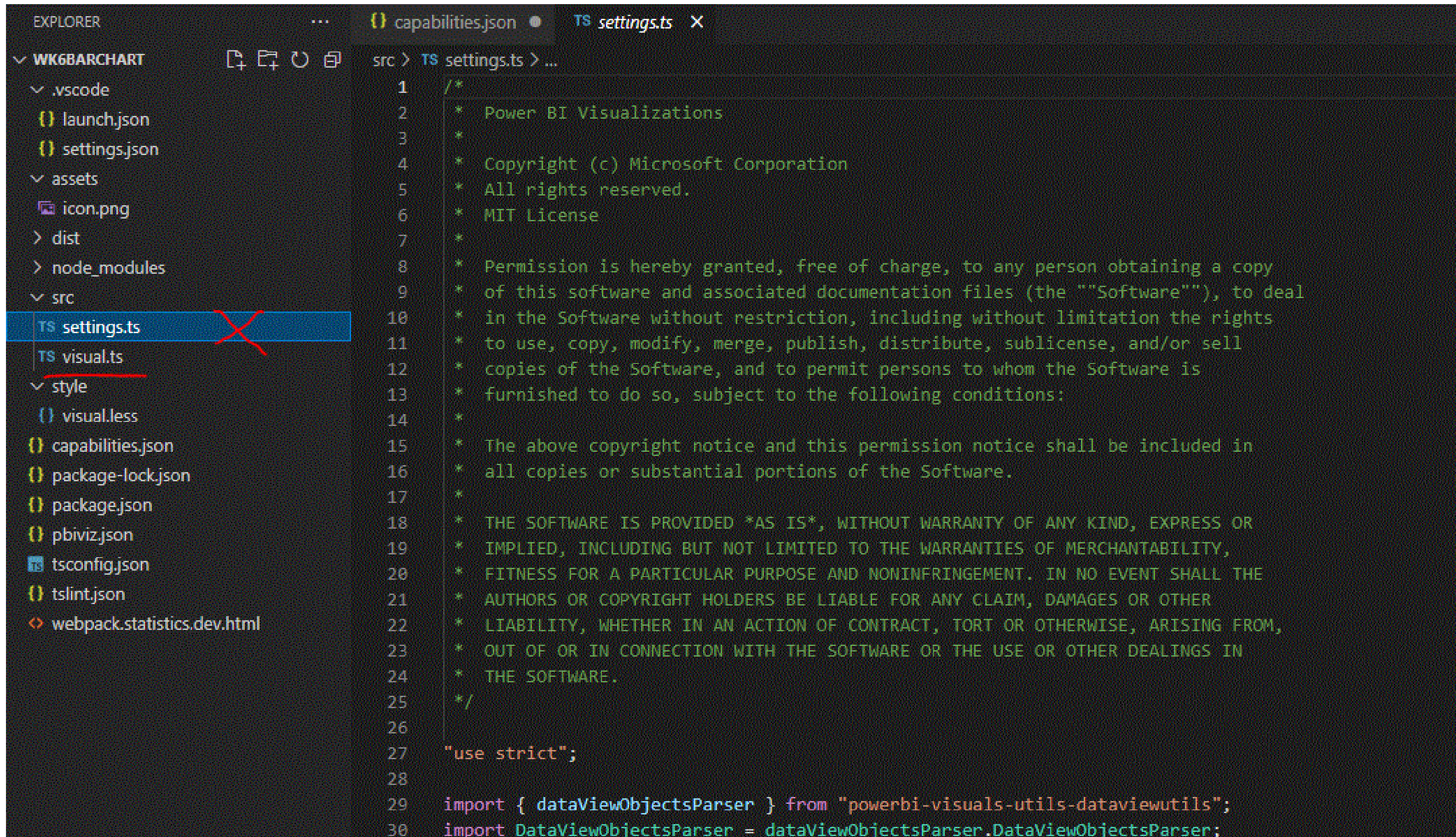
# Create a Project – Visual Studio

Change the update count to “My update count”.



```
35 import DataView = powerbi.DataView;
36 import VisualObjectInstanceEnumerationObject = powerbi.VisualObjectInstanceEnumerationObject;
37
38 import { VisualSettings } from "../settings";
39 export class Visual implements IVisual {
40     private target: HTMLElement;
41     private updateCount: number;
42     private settings: VisualSettings;
43     private textNode: Text;
44
45     constructor(options: VisualConstructorOptions) {
46         console.log('Visual constructor', options);
47         this.target = options.element;
48         this.updateCount = 0;
49         if (document) {
50             const new_p: HTMLElement = document.createElement("p");
51             new_p.appendChild(document.createTextNode("Update count:"));
52             const new_em: HTMLElement = document.createElement("em");
53             this.textNode = document.createTextNode(this.updateCount.toString());
54             new_em.appendChild(this.textNode);
55             new_p.appendChild(new_em);
56             this.target.appendChild(new_p);
57         }
58     }
59 }
```

# Create a Project – Visual Studio



```
1  /*
2  * Power BI Visualizations
3  *
4  * Copyright (c) Microsoft Corporation
5  * All rights reserved.
6  * MIT License
7  *
8  * Permission is hereby granted, free of charge, to any person obtaining a copy
9  * of this software and associated documentation files (the "Software"), to deal
10 * in the Software without restriction, including without limitation the rights
11 * to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
12 * copies of the Software, and to permit persons to whom the Software is
13 * furnished to do so, subject to the following conditions:
14 *
15 * The above copyright notice and this permission notice shall be included in
16 * all copies or substantial portions of the Software.
17 *
18 * THE SOFTWARE IS PROVIDED *AS IS*, WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
19 * IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
20 * FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
21 * AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
22 * LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
23 * OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN
24 * THE SOFTWARE.
25 */
26
27 "use strict";
28
29 import { dataViewObjectsParser } from "powerbi-visuals-utils-dataviewutils";
30 import DataViewObjectsParser = dataViewObjectsParser.DataViewObjectsParser;
```