



如何設計商業 網站

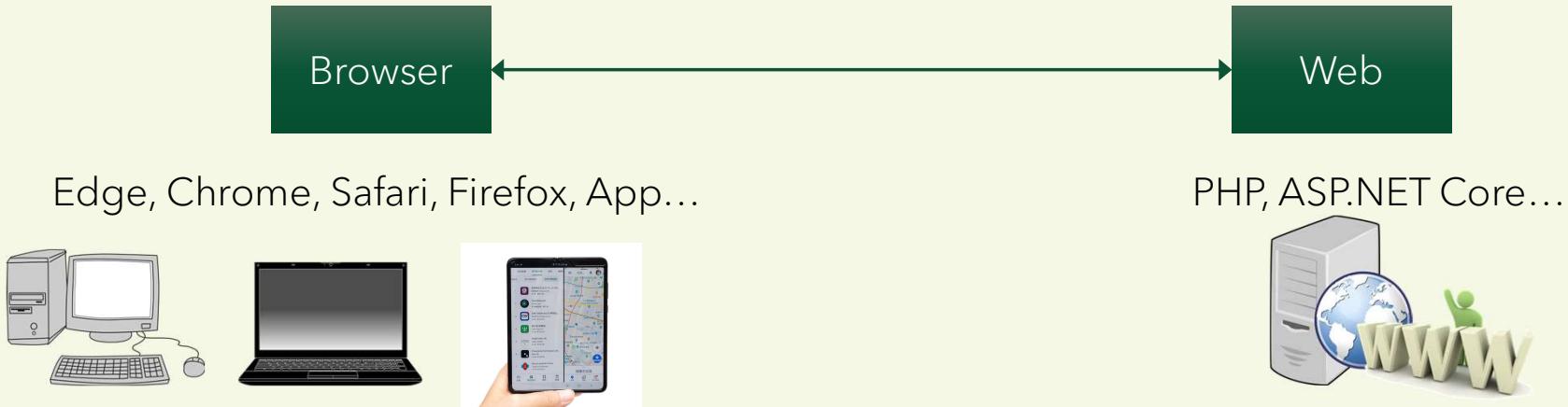
(前台+控制項+資料庫)

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議程

-
- 00 AI Coding前置作業
 - 01 如何用AI建置商業網站(前台)
 - 02 如何用AI建置商業網站(前台+資料庫)
 - 03 如何設計商業網站(前台+控制項+資料庫)
 - 04 如何設計商業網站(後台+Auth/OAuth)
 - 05 如何建立AI小助手(Agent Skills)

商業網站完整架構

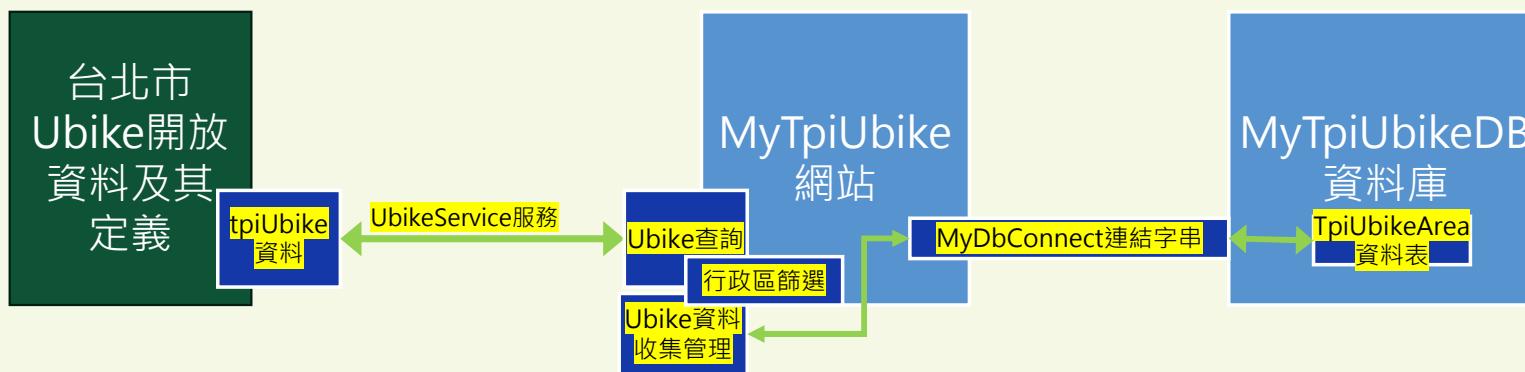


- Auth 包含登入（認證）和權限（授權）
 - 認證 (Authentication/AuthN)：證明你是你所說的那個人 (例如：輸入帳密登入)
 - 授權 (Authorization/AuthZ)：在你登入後，決定你能存取哪些資料或功能 (例如：你被允許看某個文件，但不能編輯)。
- OAuth 專注於授權，透過發放授權碼(Authorization Code) 或存取權杖(Access Token)，讓程式獲得存取資源的“鑰匙”



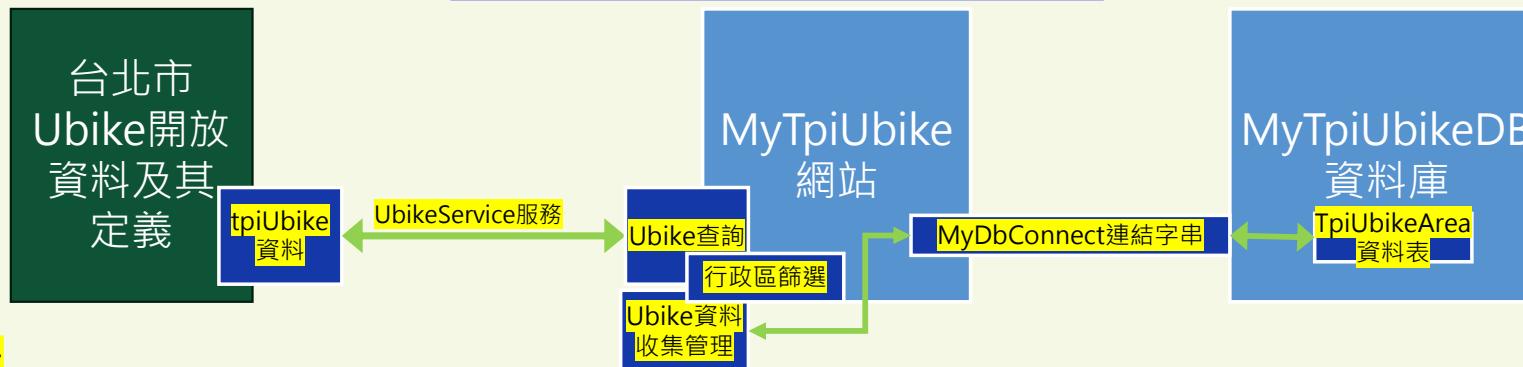
台北市Ubike借用系統(1/2)

- 模擬案例：用戶想要建立查詢台北市各據點Ubike借用狀況，可以用行政區篩選Ubike縮小查詢範圍。並可以下載收集各據點Ubike借用狀況資料至本機電腦。
- 如果你是系統設計師，你可以想像並畫出系統架構圖請AI來幫你編碼嗎？



台北市Ubike借用系統(2/2)

- 如何把系統架構圖用AI可以理解的提式詞幫你規劃任務並編碼?



Step1:

- 建立MyTpiUbike專案，以.Net Core建立ASP MVC網站並建立“MyTpiUbikeDB”資料庫。
- 在前端網頁增加“Ubike查詢”控制項透過“UbikeService服務”連結tpiUbike資料，tpiUbike資料來源自https://tcgbusfs.blob.core.windows.net/dotapp/youbike/v2/youbike_immediate.json，其JSON資料定義參考<https://data.taipei/dataset/detail?id=c6bc8aed-557d-41d5-bfb1-8da24f78f2fb>
- 透過“Ubike查詢”提供一個areaQry功能當傳遞一個行政區域字串，透過串接tpiUbike資料擷取與篩選相對應行政區域資料。將篩選查詢結果資料以JSON，採用DTO架構資料回應。

Step2:

- 在MyTpiUbike專案透過“MyDbConnect”連結字串至TpiUbikeDB資料庫，在網頁新增“Ubike資料收集管理”控制項(可以執行或結束)。當執行時每間隔15秒鐘匯入資料庫已篩選行政區有時間戳記TpiUbikeArea資料表。當結束時可供用戶下載從開始到結束收集到資料轉成csv檔案。

感謝聆聽 Thank You

共創與合作

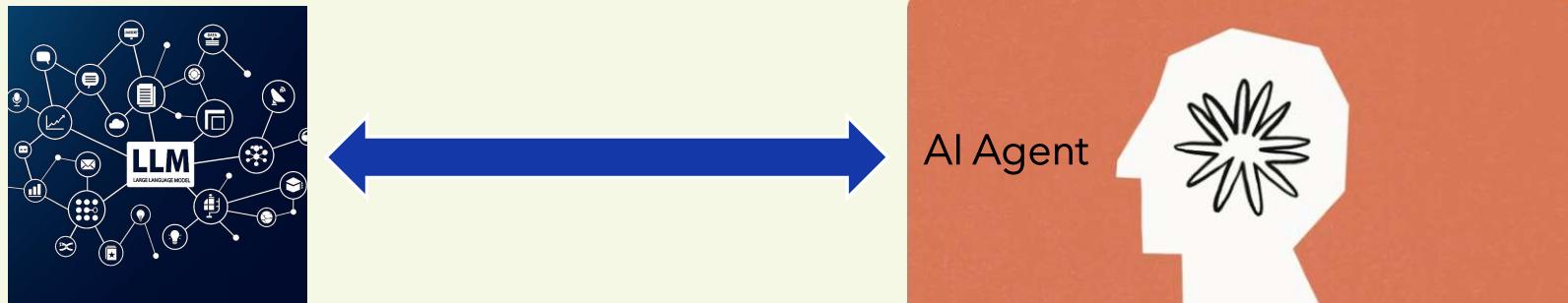
感謝您的時間與支持。我們以AI與團隊協作，啟動更好的可能。

保持連結

期待與您持續交流，共同推動創新與影響力。



用AI在網站建立控制項並與資料庫關聯



MyWeb Home YouBike 查詢 資料收集 Privacy

YouBike 行政区域查询

行政区域名称：
大安區

查詢結果 - 大安區
共找到 213 個站點

站點編號	站點名稱	行政區域	可借車輛	可還空位	總停車格	狀態
500101001	YouBike2.0_捷運科技大樓站	大安區	20	7	28	營運中
500101002	YouBike2.0_復興南路二段273號前	大安區	9	12	21	營運中
500101003	YouBike2.0_國北教大實小東側門	大安區	8	20	28	營運中
500101004	YouBike2.0_和平公園東側	大安區	9	1	11	營運中
500101005	YouBike2.0_辛亥復興路口西北側	大安區	4	12	16	營運中
500101006	YouBike2.0_復興南路二段280號前	大安區	22	5	27	營運中
500101007	YouBike2.0_復興南路二段340巷口	大安區	10	1	11	營運中
500101008	YouBike2.0_新生南路三段52號前	大安區	2	15	17	營運中
500101009	YouBike2.0_新生南路三段66號前	大安區	0	16	16	營運中
500101010	YouBike2.0_新生南路三段82號前	大安區	13	7	20	營運中

MyWeb Home YouBike 查詢 資料收集 Privacy

YouBike 資料收集管理

資料收集已停止，共收集 1724 範

執行狀態：已停止 Session ID：519c4cf2 開始時間：2026-01-27 14:26:36 已收集筆數：1724

已收集時間：64 秒
確定行政區：松山區

收集狀態

選擇行政區（可多選，留空則收集全部）：

- 中正區
- 大同區
- 中山區
- 松山區
- 大安區

啟動收集

資料匯出

選擇行政區（可多選，留空則匯出全部）：

- 士林區
- 大同區
- 大安區
- 中山區
- 中正區

按住 Ctrl (Windows) 或 Command (Mac) 可多選

下載 CSV

Cursor(1/6)

The screenshot shows the Cursor application interface. At the top, there is a navigation bar with options: 檔案(F), 編輯(E), 選取項目(S), 檢視(V), 移至(G), 執行(R), 終端機(T), 說明(H). Below the navigation bar, the title bar displays the file path: • mytpiubike_project_implementation_54b7549c.plan.md - workspace - Cursor.

The main area is divided into several sections:

- Left Sidebar:** Contains icons for WORKSPACE, PLANS, AGENTS, and TERMINAL.
- Top Center:** Shows the current plan: Plans > mytpiubike_project_implementation_54b7549c.plan.md. It includes a "Build Ctrl+Shift+B" button.
- Middle Left:** A list titled "9 To-dos · Completed In Order" with the following items:
 - Create new .NET Core MVC project MyTpiUbike targeting net8.0
 - Add MyTpiUbikeDB connection string and API URL to appsettings.json
 - Create UbikeStationDto with JsonPropertyName attributes for all API fields
 - Create AppSettings model class
 - Implement UbikeService with AreaQryAsync method for filtering by area
 - Configure dependency injection in Program.cs for HttpClient and UbikeService
 - Create UbikeController with Query view action and AreaQry API endpoint
 - Create Query.cshtml view with input field, query button, and results table
 - Add Ubike Query navigation link to _Layout.cshtml
- Middle Right:** A detailed view of the first item in the list:
 - MyTpiUbike Project Implementation**: A brief description: Create a new .NET Core ASP.NET MVC project "MyTpiUbike" targeting net8.0 with Ubike query functionality, including database configuration, DTO architecture, service layer, controller, and frontend view for querying YouBike stations by administrative area.
 - A "More To-dos" section with three items:
 - Create new .NET Core MVC project MyTpiUbike targeting net8.0
 - Add MyTpiUbikeDB connection string and API URL to appsettings.json
 - Create UbikeStationDto with JsonPropertyName attributes for all API fields
 - A "... 6 more" button.
- Bottom:** A terminal window showing the command PS C:\Users\user\.cursor\workspace> and three powershell tabs.

Cursor(2/6)

The screenshot shows the Cursor application interface. The main window title is "mytpiubike_project_implementation_54b7549c.plan.md - workspace - Cursor". The left sidebar shows a file tree for the "MyTpiUbike" project, including files like "appsettings.Development.json", "appsettings.json", "MyTpiUbike.csproj", "Program.cs", and "MyUbikeWeb". The central workspace displays a list of "9 To-dos · Completed In Order" with a red box highlighting the first item. The tasks listed are:

- Create new .NET Core MVC project MyTpiUbike targeting net8.0
- Add MyTpiUbikeDB connection string and API URL to appsettings.json
- Create UbikeStationDto with JsonPropertyName attributes for all API fields
- Create AppSettings model class
- Implement UbikeService with AreaQryAsync method for filtering by area
- Configure dependency injection in Program.cs for HttpClient and UbikeService
- Create UbikeController with Query view action and AreaQry API endpoint
- Create Query.cshtml view with input field, query button, and results table
- Add Ubike Query navigation link to _Layout.cshtml

Below the tasks, it says "Referenced by 2 Agents" and lists "MyTpiUbike 專案 Ubike 資料查詢 · Author" and "MyTpiUbike project development tasks · 9 todos assigned". The bottom terminal window shows a PS prompt at "C:\Users\user\.cursor\workspace>". The right sidebar shows a build summary: "Build succeeded. All todos are complete." and a list of completed items numbered 1 through 8.

Build succeeded. All todos are complete.
Summary:
Completed Implementation
1. Created .NET Core MVC project - MyTpiUbike targeting net8.0
2. Configured database and API - Added connection string and YouBike API URL to appsettings.json
3. Created DTO - UbikeStationDto with JsonPropertyName attributes for all API fields
4. Created Models - AppSettings model class for configuration
5. Implemented Service - UbikeService with AreaQryAsync method that filters stations by area (Chinese or English)
6. Configured DI - Set up dependency injection in Program.cs for HttpClient and UbikeService with proper JSON serialization options
7. Created Controller - UbikeController with Query view action and AreaQry API endpoint with error handling
8. Created View - Query.cshtml with input

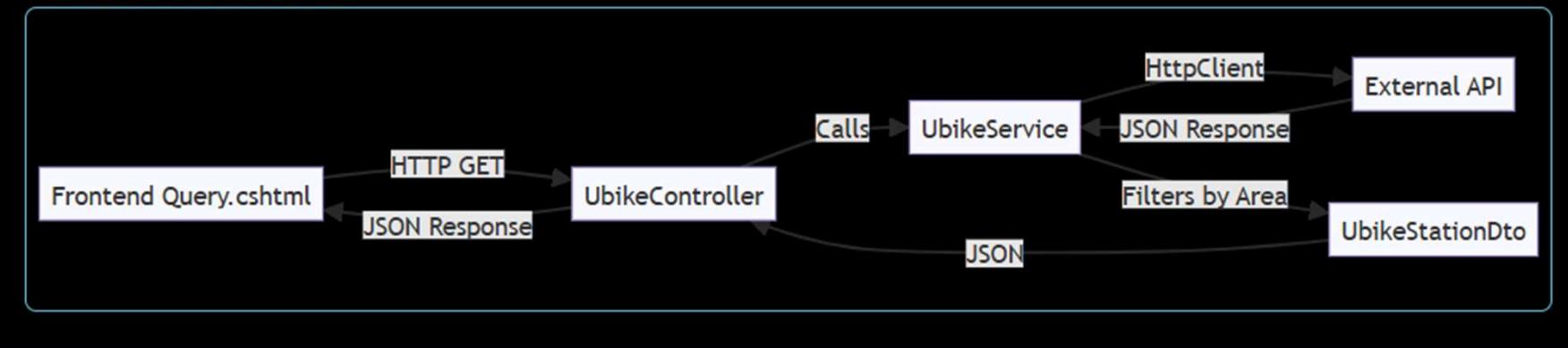
Cursor(3/6)

MyTpiUbike Project Implementation Plan

Project Overview

Create a new .NET Core ASP.NET MVC project named `MyTpiUbike` targeting `.net8.0` with YouBike query functionality. The project will fetch real-time data from the Taipei YouBike API and provide filtering by administrative area.

Architecture Flow



Cursor(4/6)

The screenshot shows a development environment with the following components:

- Left Sidebar:** A file tree for the project "MyTpiUbike". It includes files like AppSettings.cs, ErrorViewModel.cs, Program.cs, and various DTOs and Models.
- Top Bar:** Shows the title "Ubike 查詢 - MyTpiUbike - workspace - Cursor" and standard window controls.
- Central Area:**
 - A browser-like interface showing the URL <http://localhost:5172/Ubike/Query>. The page displays a navigation menu with links to Home, Privacy, and Ubike 查詢.
 - A search form with a text input "信義區" and a button "查詢".
 - A table titled "查詢結果" (Query Results) showing YouBike station data:

站點代號	場站名稱	行政區	可用車輛	空位數量	更新時間
500112001	YouBike2.0_黎忠區民活動中心	信義區	7	24	2026-01-27 15:17:53
500112002	YouBike2.0_基隆路二段159巷口	信義區	1	13	2026-01-27 15:17:53
500112003	YouBike2.0_嘉興街175巷口	信義區	2	21	2026-01-27 15:17:53
500112004	YouBike2.0_和平東路三段631巷口	信義區	10	14	2026-01-27 15:17:53
500112005	YouBike2.0_和平東路三段530巷口	信義區	10	15	2026-01-27 15:17:53
500112006	YouBike2.0_景勤二號公園	信義區	13	28	2026-01-27 15:17:53
500112007	YouBike2.0_臺北醫學大學	信義區	33	31	2026-01-27 15:17:53
- Right Side:**
 - A sidebar with a "Build" section showing "9 of 9 To-dos Completed".
 - A list of tasks:
 - Created View - Query.cshtml with input field, query button, and results table displaying station information
 - Updated Navigation - Added "Ubike 查詢" link to the navigation menu in _Layout.cshtml
 - A message stating: "The project builds successfully and is ready to use. The application will:" followed by a bulleted list of requirements.
 - A terminal window at the bottom showing the command "dotnet run" being executed and the application starting on port 5172.

Cursor(5/6)

The screenshot shows the Cursor application interface. On the left is a sidebar with various icons and a tree view of project files. The main area displays a 'Plans' section with a list of '12 To-dos Selected'. A red box highlights this list. At the top right, there is a 'Build Ctrl+Shift+B' button, which is also highlighted with a yellow box. The right side of the screen contains a sidebar with project details, a 'Answers' section, and a 'Review' section.

WORKSPACE

ubike_data_collection_management_18f16ec9.plan.md - workspace - Cursor

Plans > ubike_data_collection_management_18f16ec9.plan.md

Auto Build Ctrl+Shift+B

12 To-dos Selected

- ✓ 安裝 Entity Framework Core 套件到 MyTpiUbike.csproj
- ✓ 在 appsettings.json 新增 MySqlConnect 連線字串
- ✓ 建立 TpiUbikeArea 實體模型
- ✓ 建立 MyTpiUbikeDbContext
- ✓ 建立 DataCollectionService 管理收集狀態
- ✓ 建立 UbikeDataCollectionBackgroundService 背景服務
- ✓ 建立 CsvExportService 處理 CSV 噴出
- ✓ 在 UbikeController 新增管理相關 actions
- ✓ 在 Program.cs 註冊所有新服務和 DbContext
- ✓ 建立並執行 EF Core migration
- ✓ 建立 CollectionManagement.cshtml 管理頁面
- ✓ 在 _Layout.cshtml 新增資料收集管理導航連結

Referred by 1 Agent

+ New Agent

問題 輸出 終端機

info: System.Net.Http.HttpClient.Default.LogicalHandler[101] End processing HTTP request after 27.6692ms - 200	[powershell]
info: MyTpiUbike.Services.Ubikeservice[0] Filtering stations by area: 信義區	[powershell]
info: MyTpiUbike.Services.Ubikeservice[0] Found 126 stations matching area 信義區	[powershell]
info: Microsoft.Hosting.Lifetime[0]	

MyTpiUbike 專案 UI MyTpiUbike + ⚙

Build MyTpiUbike Project Implementation

9 of 9 To-dos Completed

In MyTpiUbike專案透過"MyDbConnect"連結字串至TpiUbikeDB資料庫，在網頁新增"Ubike資料收集管理"控制項(可以執行或結束)。當執行時每間短暫時間匯入資料庫已無需再訪問各時間點。

檢視現有程式碼結構，以規劃實作。

Explored 1 directory 6 files 1 search

需要確認幾個細節：

Answers

關於資料庫連線字串：您提到使用"MyDbConnect"，目前 appsettings.json 中有"MyTpiUbikeDB"。您希望：新增"MyDbConnect" 連線字串 (保留現有的 MyTpiUbikeDB)

關於資料收集的行政區篩選：讓使用者在網頁上選擇要收集的行政區 (可多選)

建立實作計畫：

ubike_data_collection_manageme... ↗

Ubike Data Collection Management

在 MyTpiUbike 專案中新增資料收集管理功能，包含背景服務每 15 秒收集指定行政區的 YouBike 資料並存入資料庫，以及 CSV 噴出。

> 9 Files Undo All Keep All Review

Cursor(6/6)

The screenshot shows the Cursor application interface. The main window title is "ubike_data_collection_management_18f16ec9.plan.md - workspace - Cursor". The left sidebar contains a "WORKSPACE" tree view with the following structure:

- MyTpiUbike
 - bin
 - Controllers
 - Data
 - DTOs
 - Migrations
 - Models
 - obj
 - Properties
 - Services
 - Views
 - Home
 - Shared
 - Ubike
 - _ViewImports.cshtml
 - _ViewStart.cshtml
 - wwwroot
- {} appsettings.Development.json
- {} appsettings.json
- MyTpiUbike.csproj
- Program.cs
- > MyUbikeWeb

The central workspace area displays a list of "12 To-dos Selected" with the following items:

- ✓ 安裝 Entity Framework Core 套件到 MyTpiUbike.csproj
- ✓ 在 appsettings.json 新增 MyDbConnect 連線字串
- ✓ 建立 TpiUbikeArea 實體模型
- ✓ 建立 MyTpiUbikeDbContext
- ✓ 建立 DataCollectionService 管理收集狀態
- ✓ 建立 UbikeDataCollectionBackgroundService 背景服務
- ✓ 建立 CsvExportService 處理 CSV 匯出
- ✓ 在 UbikeController 新增管理相關 actions
- ✓ 在 Program.cs 註冊所有新服務和 DbContext
- ✓ 建立並執行 EF Core migration
- ✓ 建立 CollectionManagement.cshtml 管理頁面
- ✓ 在 _Layout.cshtml 新增資料收集管理導航連結

At the bottom of the workspace, there is a log output section showing:

```
info: System.Net.Http.HttpClient.DefaultLogicalHandler[101]
End processing HTTP request after 27.6692ms - 200
info: MyTpiUbike.Services.Ubikeservice[0]
Filtering stations by area: 信義區
info: MyTpiUbike.Services.Ubikeservice[0]
Found 126 stations matching area 信義區
info: Microsoft.Hosting.Lifetime[0]
Application is shutting down...
```

The right side of the interface has a "Build" status bar showing "12 of 12 To-dos Completed" and a "Realization Summary" section with the following content:

已實作 Ubike 資料收集管理功能，包含：

已完成的功能

- 資料庫設定
 - 安裝 Entity Framework Core 套件
 - 新增 MyDbConnect 連線字串
 - 建立 TpiUbikeArea 實體模型
 - 建立 MyTpiUbikeDbContext
 - 建立並準備 EF Core migration
- 資料收集服務
 - DataCollectionService：管理收集狀態（開始/停止）
 - UbikeDataCollectionBackgroundService：背景服務，每 15 秒自動收集資料
 - 支援多行政區同時收集
- CSV 匯出功能
 - CsvExportService：將收集的資料匯出為 CSV
 - 支援 UTF-8 with BOM 編碼（正確顯示中文）
 - 包含所有欄位的中文標題

Bottom right corner: Plan, @ for context, / for commands

建立資料庫(方案一)

- (Cursor建議)本機無安裝任何SQL Server資料庫(推薦)

```
 DATABASE_SETUP.md X

MyTpIUbike > DATABASE_SETUP.md > # 資料庫設定說明 > ## 解決方案 > ### 方案 1：安裝 SQL Server LocalDB ( 推薦 )

1 # 資料庫設定說明
11 ## 解決方案
13 #### 方案 1：安裝 SQL Server LocalDB ( 推薦 )
14
15 1. **下載並安裝 SQL Server Express LocalDB**
16   - 前往：https://www.microsoft.com/zh-tw/sql-server/sql-server-downloads
17   - 下載 "SQL Server Express" 或 "Developer" 版本
18   - 安裝時選擇 "LocalDB" 功能
19
20 2. **或者使用 Visual Studio Installer**
21   - 打開 Visual Studio Installer
22   - 修改已安裝的 Visual Studio
23   - 在「個別元件」中搜尋並勾選「SQL Server Express LocalDB」
24   - 安裝完成後重新啟動應用程式
25
26 3. **驗證安裝**
27   - 打開命令提示字元（以管理員身份）
28   - 執行：`sqllocaldb info`
29   - 應該會看到 LocalDB 實例列表
30
```

建立資料庫(方案二/1)

- (Cursor建議)本機有安裝SQL Server資料庫 => 經筆者測試沒有效果!

```
### 方案 2：使用現有的 SQL Server 實例

如果您已經有 SQL Server 實例（如 SQL Server Express、Developer 或 Standard），可以修改連線字串：

1. **修改 `appsettings.json`**  

```json
{
 "ConnectionStrings": {
 "MyDbConnect": "Server=localhost;Database=TpiUbikeDB;Trusted_Connection=True;
 MultipleActiveResultSets=true"
 }
}
```

2. **或使用命名實例**  

```json
{
 "ConnectionStrings": {
 "MyDbConnect": "Server=localhost\\SQLEXPRESS;Database=TpiUbikeDB;Trusted_Connection=True;
 MultipleActiveResultSets=true"
 }
}
```
Review next file >

3. **或使用 SQL Server 認證**  

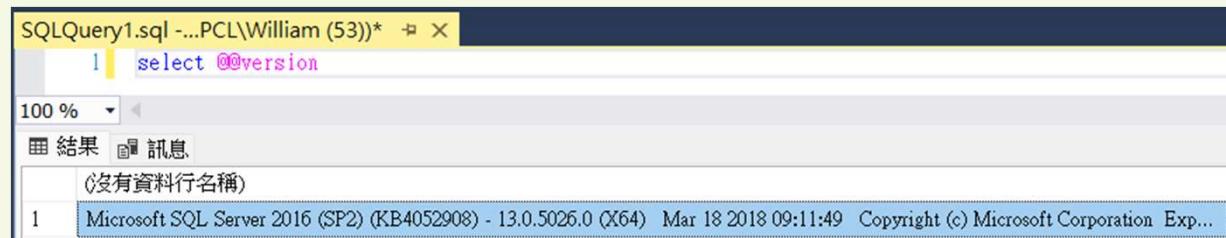
```json
{
 "ConnectionStrings": {
 "MyDbConnect": "Server=localhost;Database=TpiUbikeDB;User Id=your_username;Password=your_password;
 MultipleActiveResultSets=true"
 }
}
```

```

建立資料庫(方案二/2)

- 【筆者做法】本機有安裝SQL Server資料庫和SSMS(舊版本)

1. 用SSMS打開資料庫，新增查詢視窗輸入select @@version



The screenshot shows the SSMS interface with a query window titled 'SQLQuery1.sql - ...PCL\William (53)*'. The query 'select @@version' is entered. The results pane shows one row with the output: 'Microsoft SQL Server 2016 (SP2) (KB4052908) - 13.0.5026.0 (X64) Mar 18 2018 09:11:49 Copyright (c) Microsoft Corporation Exp...'. The '結果' tab is selected.

2. (AI Agent提示詞)本機有安裝Microsoft SQL Server 2016 (SP2)
(KB4052908) - 13.0.5026.0 (X64) Mar 18 2018 09:11:49 Copyright (c)
Microsoft Corporation Express Edition (64-bit) on Windows 10
Enterprise 10.0 <X64> (Build 22631:) (Hypervisor)
請新增MyWebUbike 資料庫。

建立資料庫(方案二/3)

- 直接告訴AI Agent你是用哪一種SQL DB版本，AI建立DB成功率才會高！

The screenshot shows a terminal window titled "workspace - Cursor" with the following content:

開啟聊天 Ctrl + Shift + L
Hide Terminal Ctrl + J
Hide Files Ctrl + B
前往檔案 Ctrl + P
Open Browser Ctrl + Shift + B

Info: Microsoft.EntityFrameworkCore.Database.Command[20101]
Executed DbCommand (56ms) [Parameters=@_sessionId 0='?' (DbType = Guid)], CommandType='Text', CommandTimeout='30'
SELECT [t].[Id], [t].[Act], [t].[Ar], [t].[Aren], [t].[AvailableRentBikes], [t].[AvailableReturnBikes], [t].[CollectionSessionId], [t].[CollectionTimestamp], [t].[InfoDate], [t].[InfoTime], [t].[Latitude], [t].[Longitude], [t].[Mday], [t].[Sarea], [t].[Sareaen], [t].[Sna], [t].[Snaen], [t].[Sno], [t].[SrcUpdateTime], [t].[Total], [t].[UpdateTime]
FROM [TpiUbikeArea] AS [t]
WHERE [t].[CollectionSessionId] = @_sessionId
ORDER BY [t].[CollectionTimestamp], [t].[Sarea], [t].[Sno]

Info: MyTpiUbike.Services.CsvExportService[0]
Exported 266 records to CSV for session 9e518f61-56e4-48b8-b542-35d683dcabd7

In the status bar, there is a message: "已經幫你建立好 MyTpiUbikeDB 資料庫，並套用現有的 EF Core migration。"

On the right side of the terminal window, there is a sidebar with the following information:

J: MyTpiUbike project development + ⌂

本機有安裝Microsoft SQL Server 2016 (SP2)
(KB4052908) - 13.0.5026.0 (X64) Mar 18 2018
09:11:49 Copyright (c) Microsoft Corporation
Enterprise Edition (64-bit) on Windows 10

已經幫你建立好 MyTpiUbikeDB 資料庫，並套用現有的 EF Core migration。

目前設定如下：

- 連線字串 `MyDbConnect` (`appsettings.json`)：
`Server=.;Database=MyTpiUbikeDB;Integrated Security=true;TrustServerCertificate=True;MultipleActiveResultSets=true`
- `Program.cs` 中的 `DbContext` 也是使用 `MyDbConnect`。

你可以重新啟動網站後，再到「Ubike 資料收集管理」頁面點「開始收集」，先前的 LocalDB 連線錯誤應該會消失，資料會每 15 秒寫入 `TpiUbikeArea`。

...
Connection Error
The connection stalled. Please try again.
Copy Request Details (d6a3e265-e...) Resume ↻
> 12 Files Undo All Keep All Review
Plan, @ for context, / for commands

建立資料庫(方案三)

- (Cursor建議)本機有安裝SQL Server資料庫 =>(筆者實際測試)不可行!

```
### 方案 3：建立資料庫

安裝 SQL Server 後，執行以下命令建立資料庫：

```bash
cd c:\Users\user\.cursor\workspace\MyTpiUbike
dotnet ef database update
```

```

- 若要手動安裝SQL DB可參考筆者”02 如何設計商業網站(前台+資料庫)”教學檔案附件”用powershell安裝SQL資料庫”步驟說明。