* 公式與算法

1. Localization

t = 1970 – 2015（x軸）

只看第一inventor的地區（city）

\*所有地區: 我們鎖定的所有地點會成為pool data

|  |  |
| --- | --- |
| **需要的資料** | |
| **Backward cited**  **(parents)** | Raw: City, country, |
| Cal: 專利數總和 |
| **Original data** | Raw: Date, city, country, |
| Cal: 專利數總和 |
| **Forwward citing**  **(ref by / children)** | x |

1. HHI

At t-th year, 平方再相加

Sub-string matching，output assignee name

|  |  |
| --- | --- |
| **需要的資料** | |
| **Backward cited**  **(parents)** | x |
| **Original data** | Raw: Date, city, country, assignee name |
| Cal: 專利數總和, assignee統計前5大 |
| **Forwward citing**  **(ref by / children)** | x |

1. Orginality

\*專利i: 第t年A地的某個專利

|  |  |
| --- | --- |
| **需要的資料** | |
| **Backward cited**  **(parents)** | Raw: date, uspc |
| Cal: 每個專利引用幾個專利, 引用的專利中分成幾個uspc, 每個uspc有幾個專利 |
| **Original data** | Raw: Date, city, country, |
| Cal: 專利數總和 |
| **Forwward citing**  **(ref by / children)** | x |

1. Diversification

\*472: USPC總分類數目

\*sector: uspc

Uspc class number:

<https://www.uspto.gov/web/patents/classification/selectnumwithtitle.htm>

|  |  |
| --- | --- |
| **需要的資料** | |
| **Backward cited**  **(parents)** | x |
| **Original data** | Raw: Date, city, country, uspc |
| Cal: 計算有多少種uspc |
| **Forwward citing**  **(ref by / children)** | x |

1. Cycle time

\*granted year-citing year

|  |  |
| --- | --- |
| **需要的資料** | |
| **Backward cited**  **(parents)** | x |
| **Original data** | Raw: Date, city, country |
| Cal: 專利總數量, 專利i的發行年 |
| **Forwward citing**  **(ref by / children)** | Raw: Date |
| Cal: 引用專利i的專利的發行年 |

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<https://www.uspto.gov/web/patents/classification/cpc/html/cpc.html>

CPC分類664

A 11+21+29+24=85

B 21+60+23+63+4=171

C 72+16=88

D 40

E 31

F 103

G 84

H 51

Y 11