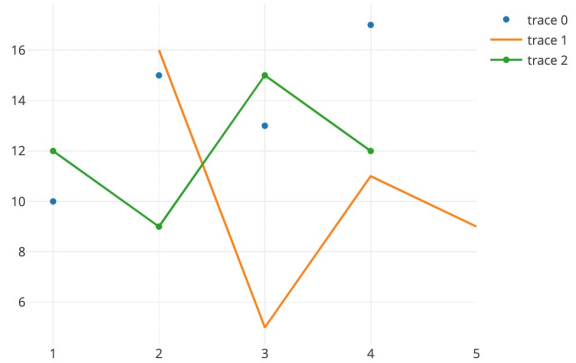
折線圖 & 散點圖

Line and Scatter Chart by Plotly.js



Ryan Chung

新建專案

- 新建資料夾 LineAndScatter
- VS Code -> 檔案 -> 開啟資料夾 -> 選擇該資料夾
- 建立檔案

  index.html

  data.js

  main.js

  style.css

index.html

```
<!DOCTYPE html>
<html>
    <head>
        <meta charset="utf-8">
        <title></title>
        <link rel="stylesheet" href="style.css">
    </head>
    <body>
        <div id="myGraph"></div>
        <script src="https://cdn.plot.ly/plotly-2.24.1.min.js"></script>
        <script src="data.js"></script>
        <script src="main.js"></script>
    </body>
</html>
```

style.css

```
#myGraph{
    width: 600px;
    height: 400px;
}
```

data.js

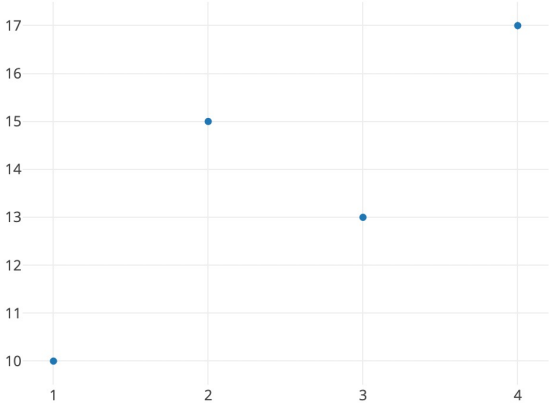
```
let set1 = [
    [1,10],
    [2,15],
    [3,13],
    [4,17]
];
```

main.js

```
let myGraph = document.getElementById('myGraph');

let trace1 = {};
trace1.mode = "markers";
trace1.type = "scatter";
trace1.x = [];
trace1.y = [];

for(let i=0;i<set1.length;i++){
    trace1.x[i] = set1[i][0];
    trace1.y[i] = set1[i][1];
}

let data = [];
data.push(trace1);

let layout = {
    margin:{
        t:0
    }
};

Plotly.newPlot(myGraph, data, layout);
```

執行並檢視結果

- 右下角 Go Live
- 或 index.html 右鍵 -> Open with Live Server



增加一條線

- 增加資料
- 設定繪製模式與資料
- 加入繪製

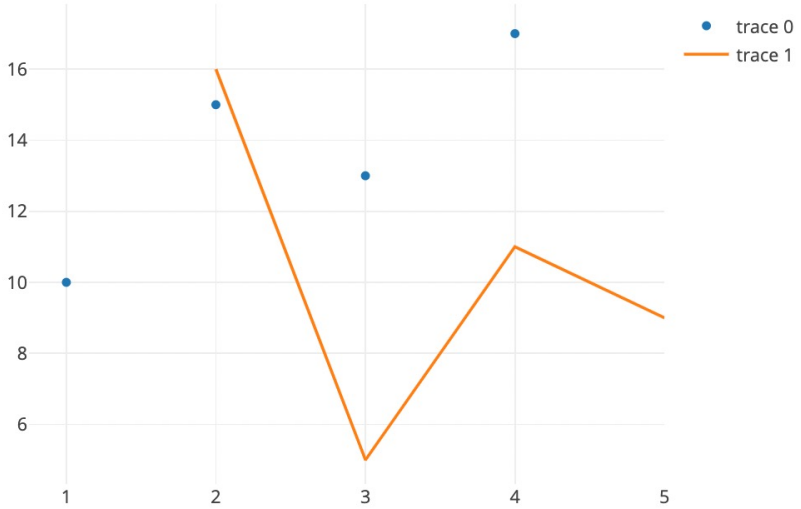
data.js

```
let set1 = [
    [1,10],
    [2,15],
    [3,13],
    [4,17]
];


let set2 = [
    [2, 16],
    [3, 5],
    [4, 11],
    [5, 9]
];
```

main.js

```
let trace2 = {};
trace2.mode = "lines";
trace2.type = "scatter";
trace2.x = [];
trace2.y = [];

for (let i = 0; i < set2.length; i++) {
    trace2.x[i] = set2[i][0];
    trace2.y[i] = set2[i][1];
}

let data = [];
data.push(trace1);
data.push(trace2);

let layout = {
    margin:{
        t:0
    }
};

Plotly.newPlot(myGraph, data, layout);
```

檢視結果



再增加一條線

- 增加資料
- 設定繪製模式與資料
- 加入繪製

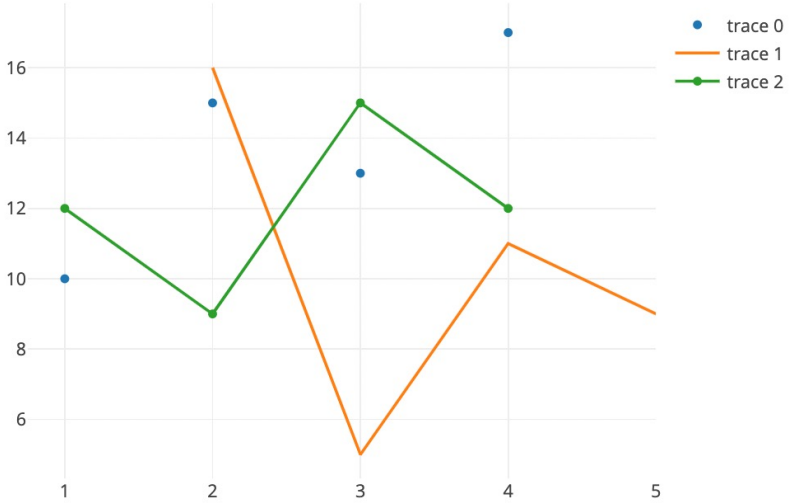
data.js

```
let set1 = [
    [1,10],
    [2,15],
    [3,13],
    [4,17]
];

let set2 = [
    [2, 16],
    [3, 5],
    [4, 11],
    [5, 9]
];

let set3 = [
    [1, 12],
    [2, 9],
    [3, 15],
    [4, 12]
];
```

main.js

```
let trace3 = {};
trace3.mode = "lines+markers";
trace3.type = "scatter";
trace3.x = [];
trace3.y = [];


for (let i = 0; i < set3.length; i++) {
    trace3.x[i] = set3[i][0];
    trace3.y[i] = set3[i][1];
}


let data = [];
data.push(trace1);
data.push(trace2);
data.push(trace3);
```

檢視結果



修改呈現文字內容

- 新增三條線的名稱
- 新增每一個點的名稱
- 設定節點大小
- 設定X軸、Y軸的刻度範圍
- 新增標題

data.js

```
let set1 = [
    [1,10,"A1"],
    [2,15,"A2"],
    [3,13,"A3"],
    [4,17,"A4"]
];

let set2 = [
    [2, 16, "B1"],
    [3, 5, "B2"],
    [4, 11, "B3"],
    [5, 9, "B4"]
];

let set3 = [
    [1, 12, "C1"],
    [2, 9, "C2"],
    [3, 15, "C3"],
    [4, 12, "C4"]
];
```

main.js

```
let myGraph = document.getElementById('myGraph');


let trace1 = {};
trace1.mode = "markers";
trace1.type = "scatter";
trace1.name = "Team A";
trace1.marker = {
    size:10
};
trace1.x = [];
trace1.y = [];
trace1.text = [];


for(let i=0;i<set1.length;i++){
    trace1.x[i] = set1[i][0];
    trace1.y[i] = set1[i][1];
    trace1.text[i] = set1[i][2];
}
```

main.js

```
let trace2 = {};
trace2.mode = "lines";
trace2.type = "scatter";
trace2.name = "Team B";
trace2.x = [];
trace2.y = [];
trace2.text = [];


for (let i = 0; i < set2.length; i++) {
    trace2.x[i] = set2[i][0];
    trace2.y[i] = set2[i][1];
    trace2.text[i] = set2[i][2];
}
```

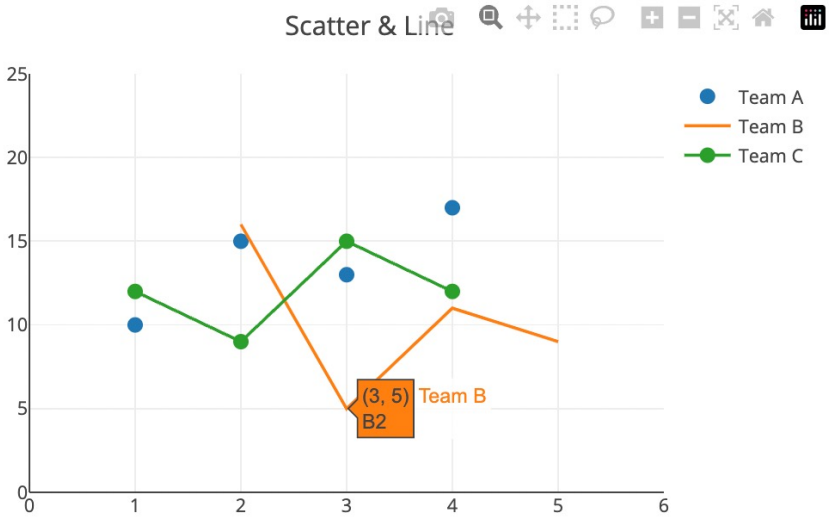
main.js

```
let trace3 = {};
trace3.mode = "lines+markers";
trace3.type = "scatter";
trace3.name = "Team C";
trace3.marker = {
    size: 10
};
trace3.x = [];
trace3.y = [];
trace3.text = [];


for (let i = 0; i < set3.length; i++) {
    trace3.x[i] = set3[i][0];
    trace3.y[i] = set3[i][1];
    trace3.text[i] = set3[i][2];
}
```

main.js

```
let data = [];
data.push(trace1);
data.push(trace2);
data.push(trace3);

let layout = {
    margin:{
        t:50
    },
    xaxis:{
        range:[0,6]
    },
    yaxis:{
        range:[0,25]
    },
    title:'Scatter & Line'
};

Plotly.newPlot(myGraph, data, layout);
```

檢視結果


Scatter & Line
Team A
Team B
Team C
25
20
15
10
5
0
0
1
2
3
4
5
6
(3, 5)
B2
Team B

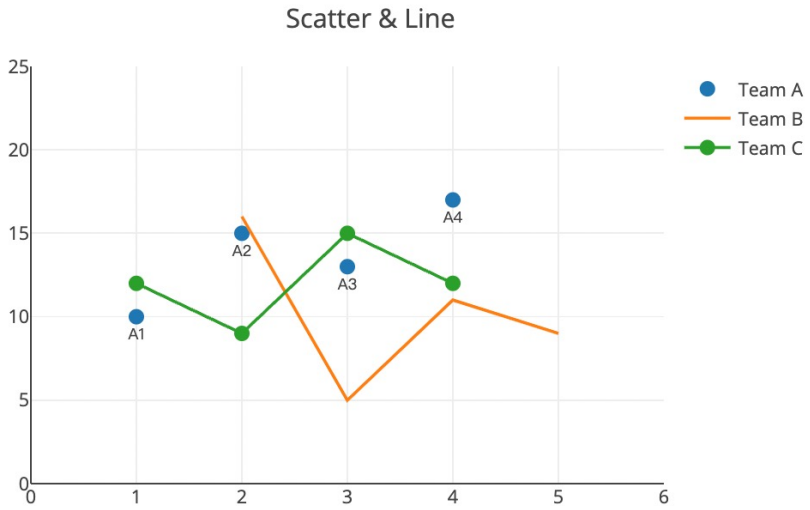
直接顯示節點名稱在圖表上

- 直接顯示節點名稱於節點旁
- 可設定位置、字型大小

main.js

```
let trace1 = {};
trace1.mode = "markers+text";
trace1.type = "scatter";
trace1.name = "Team A";
trace1.marker = {
    size:10
};
trace1.x = [];
trace1.y = [];
trace1.text = [];
trace1.textposition = "bottom center";
trace1.textfont = {
    family:"Raleway, sans-serif",
    size:10
};
```

觀察結果


Scatter & Line
Team A
Team B
Team C
A1
A2
A3
A4
0
5
10
15
20
25
0
1
2
3
4
5
6