

# 使用者與畫面互動

- 選取特定資料
  - 取得進一步資訊
- 依特定條件篩選資料
  - 觀察關聯性
- 拉近拉遠距離
  - 地圖類資訊觀察



# 與長條圖互動

- 當滑鼠移動至特定Bar時
  - 顯示詳細資訊
- 複製前一個例子的專案繼續修改

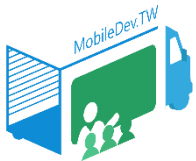


# index.html

```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="utf-8">
    <title></title>
    <link rel="stylesheet" href="style.css">
  </head>
  <body>
    <div class="bar-chart-container"></div>
    <div class="controls">
      <button data-name="revenue">Revenue</button>
      <button data-name="budget">Budget</button>
      <button data-name="popularity">Popularity</button>
    </div>

    <div class="tooltip"></div>

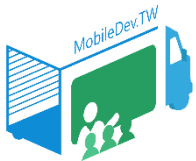
    <script src="//unpkg.com/d3"></script>
    <script src="main.js"></script>
  </body>
</html>
```



# style.css

- 設定 tooltip 的顯示樣式

```
/* interactive 詳細資訊視窗設定 */  
.tooltip{  
    position: fixed;  
    opacity: 0;  
    pointer-events: none; /*避免出現連結或其他預設行為*/  
}
```



# main.js

- 加在setupCanvas的最後面

```
update(barChartData);
```

```
//interactive 互動處理
```

```
const tip = d3.select('.tooltip');
```

```
function mouseover(e){  
    tip.style('left',e.clientX+'px')  
        .style('top',e.clientY+'px')  
        .style('opacity',0.98)  
        .html("Hello")  
}
```

```
//interactive 新增監聽
```

```
d3.selectAll('.bar').on('mouseover',mouseover);
```

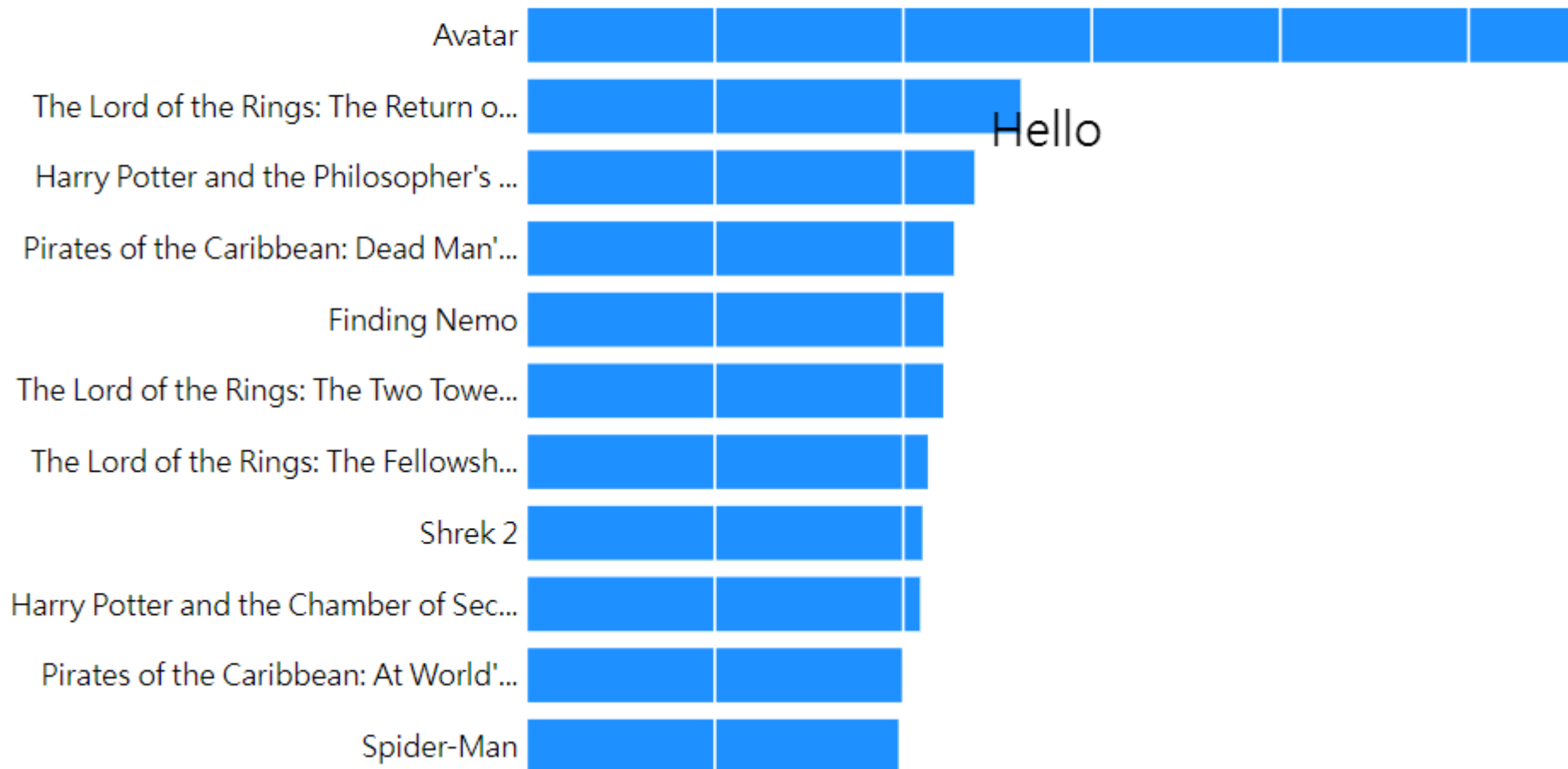
```
}
```

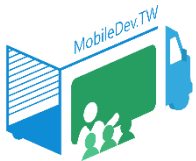
# 確認目前是否有偵測到

Top 15 revenue movies in \$US

Years:2000-2009

0 500mil 1bil 1.5bil 2bil 2.5bil





# 繼續改良

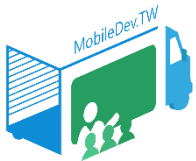
- 移開會不見
- 在Bar中移動會更新位置
- 位置稍微偏右一些

```
function mouseover(e){  
    tip.style('left',(e.clientX+15)+'px')  
    .style('top',e.clientY+'px')  
    .style('opacity',0.98)  
    .html("Hello")  
}
```

```
function mousemove(e){  
    tip.style('left',(e.clientX+15)+'px')  
    .style('top',e.clientY+'px')  
    .style('opacity',0.98)  
    .html("Hello")  
}
```

```
function mouseout(e){  
    tip.style('opacity',0)  
}
```

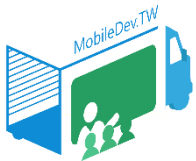
```
//interactive 新增監聽  
d3.selectAll('.bar')  
    .on('mouseover',mouseover)  
    .on('mousemove',mousemove)  
    .on('mouseout',mouseout);  
}
```



# 取得資料

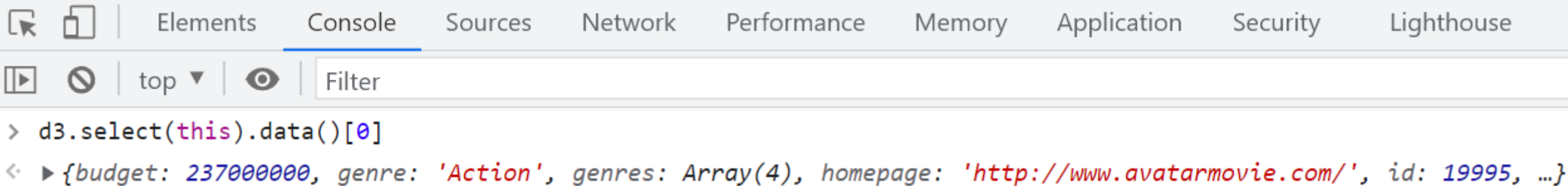
- 確認可以拿到目前這個Bar的資料
- 修改顯示格式
- 呈現

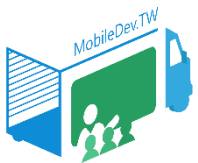




# main.js

```
function mouseover(e){  
  //get data  
  const thisBarData = d3.select(this).data()[0];  
  debugger;  
  
  tip.style('left',(e.clientX+15)+'px')  
    .style('top',e.clientY+'px')  
    .style('opacity',0.98)  
    .html("Hello")  
}
```

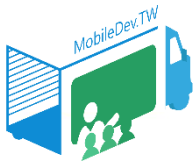




# index.html

- 讓tooltip更格式化

```
<div class="tooltip">  
  <div class="tip-header">  
    <h3></h3>  
    <h4></h4>  
  </div>  
  <div class="tip-body"></div>  
</div>
```



# style.css

```
/* interactive 詳細資訊視窗設定 */
.tooltip{
    position: fixed;
    opacity: 0;
    pointer-events: none;
    /*避免出現連結或其他預設行為*/
    background: #eee;
    max-width: 200px;
}

.tip-header{
    border-bottom: 2px solid white;
    padding: 0.9rem 1rem;
}

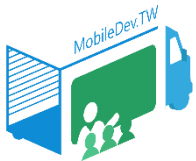
.tip-body{
    padding: 0.2rem 0;
}
```

```
h3,h4{
    font-size: 0.9rem;
    color: #555;
    margin: 0;
}

h4{
    font-weight: normal;
}

.tip-info{
    margin: 0;
    padding: 0.3rem 1em;
    font-size: 0.8em;
}

/*偶數元素設定不同背景樣式*/
.tip-info:nth-of-type(even){
    background: #e0e0e0;
}
```



# main.js

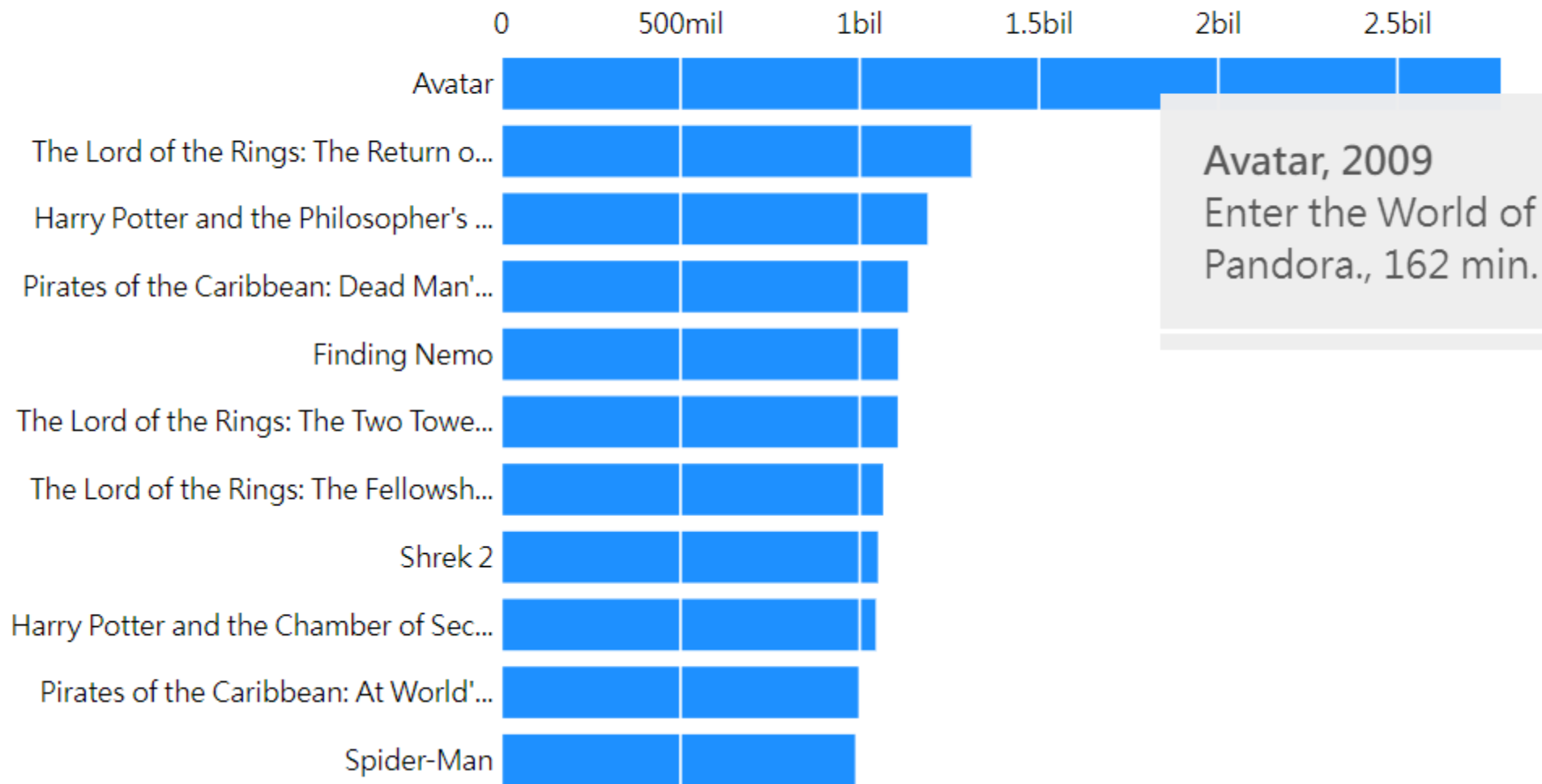
- 讓資料現身

```
function mouseover(e){  
    //get data  
    const thisBarData = d3.select(this).data()[0];  
  
    tip.style('left',(e.clientX+15)+'px')  
        .style('top',e.clientY+'px')  
        .style('opacity',0.98);  
  
    tip.select('h3').html(` ${thisBarData.title}, ${thisBarData.release_year} `);  
    tip.select('h4').html(` ${thisBarData.tagline}, ${thisBarData.runtime} min.`);  
  
}  
  
function mousemove(e){  
    tip.style('left',(e.clientX+15)+'px')  
        .style('top',e.clientY+'px');  
  
}
```

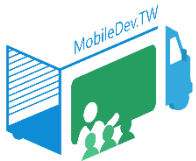
# 測試結果

## Top 15 revenue movies in \$US

Years:2000-2009



Avatar, 2009  
Enter the World of Pandora., 162 min.

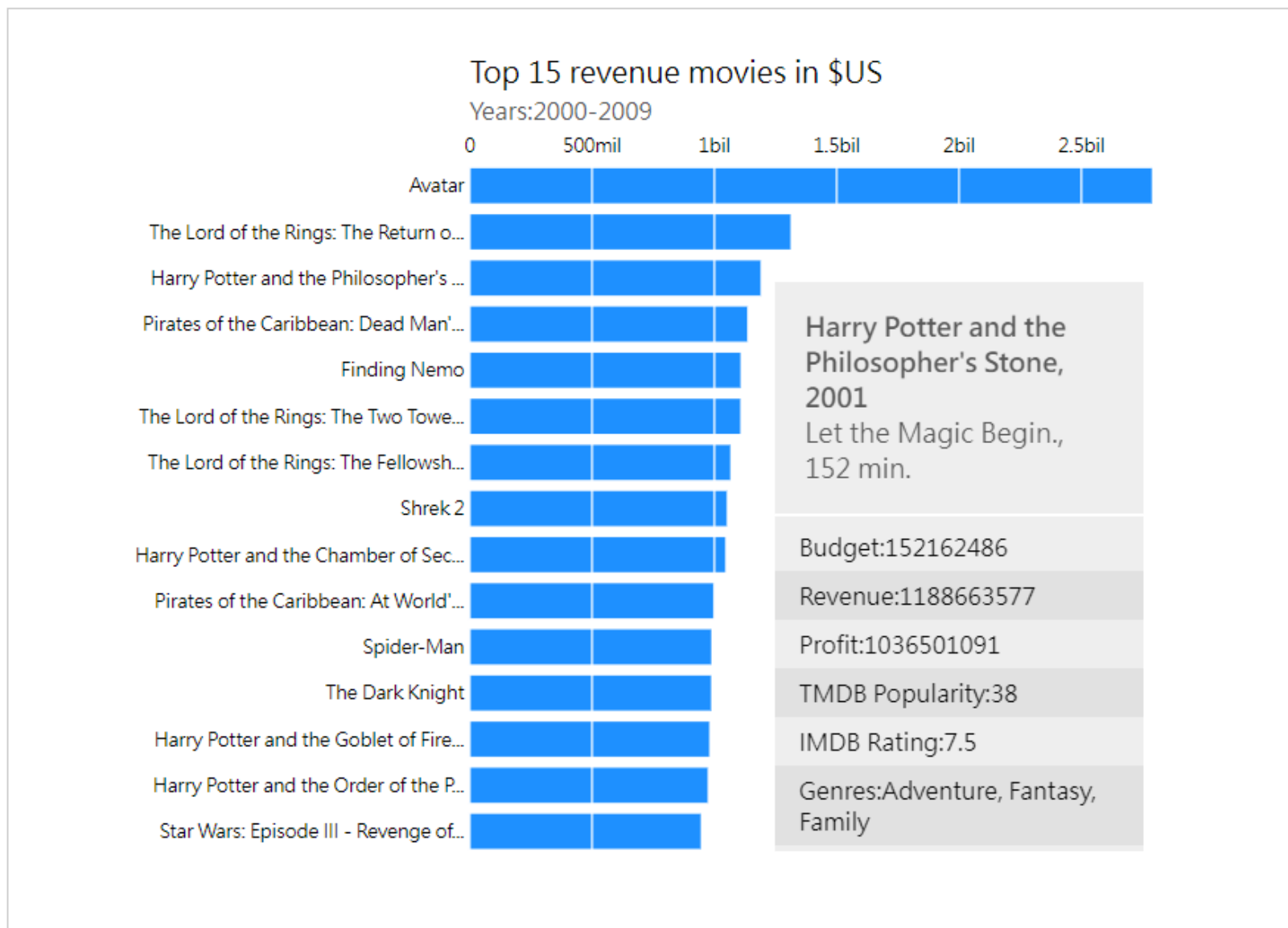


# 繼續增加其他細節

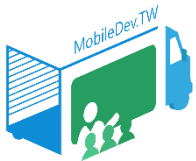
```
function mouseover(e){
  //get data
  const thisBarData = d3.select(this).data()[0];
  const bodyData = [
    ['Budget', thisBarData.budget],
    ['Revenue', thisBarData.revenue],
    ['Profit', thisBarData.revenue - thisBarData.budget],
    ['TMDB Popularity', Math.round(thisBarData.popularity)],
    ['IMDB Rating', thisBarData.vote_average],
    ['Genres', thisBarData.genres.join(', ')]
  ];
  tip.style('left', (e.clientX+15)+'px')
    .style('top', e.clientY+'px')
    .style('opacity', 0.98);
  tip.select('h3').html(`${thisBarData.title}, ${thisBarData.release_year}`);
  tip.select('h4').html(`${thisBarData.tagline}, ${thisBarData.runtime} min.`);

  d3.select('.tip-body').selectAll('p').data(bodyData)
    .join('p').attr('class', 'tip-info')
    .html(d=>`${d[0]} : ${d[1]}`);
}
```

# 測試結果



Revenue Budget Popularity



# 套用formatTicks在大數字上

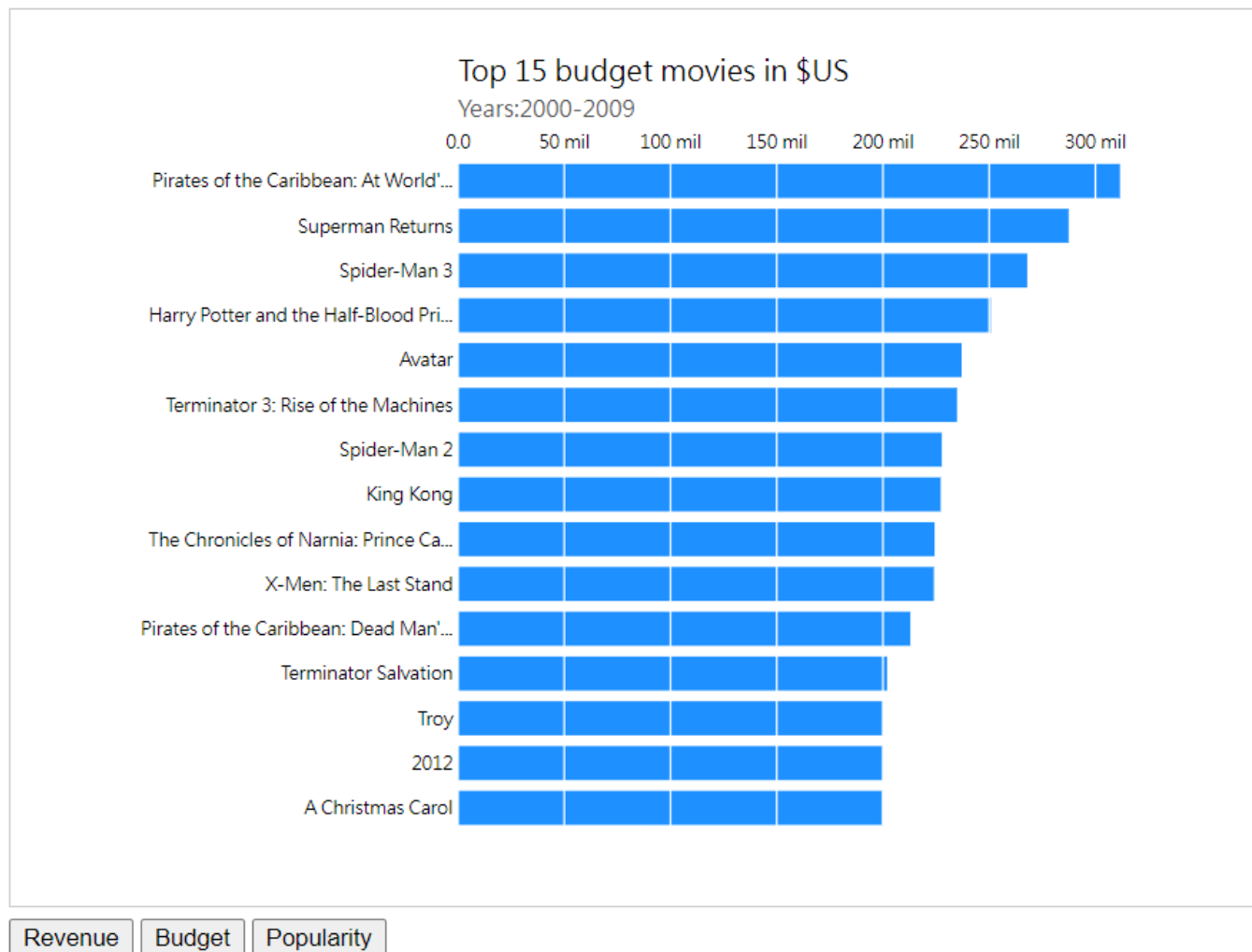
```
function formatTicks(d){  
    return d3.format('.2s')(d)  
        .replace('M', ' mil').replace('G', ' bil').replace('T', ' tri')  
}
```

```
const bodyData = [  
    ['Budget', formatTicks(thisBarData.budget)],  
    ['Revenue', formatTicks(thisBarData.revenue)],  
    ['Profit', formatTicks(thisBarData.revenue - thisBarData.budget)],  
    ['TMDB Popularity', Math.round(thisBarData.popularity)],  
    ['IMDB Rating', thisBarData.vote_average],  
    ['Genres', thisBarData.genres.join(', ')]  
];
```



# 我們做完了嗎？

- 切換至其他項目，有些Bar不會顯示詳細資訊





# 把滑鼠監聽放進update函數中

```
function update(data){  
  ....  
  //interactive 新增監聽  
  d3.selectAll('.bar')  
    .on('mouseover',mouseover)  
    .on('mousemove',mousemove)  
    .on('mouseout',mouseout);  
}
```



# 在每次變更透明度時，加上轉場動畫

- 切換各個Bar時會較溫和

```
function mouseover(e){  
    .....  
    tip.style('left',(e.clientX+15)+'px')  
        .style('top',e.clientY+'px')  
        .transition()  
        .style('opacity',0.98);  
  
function mouseout(e){  
    tip.transition()  
        .style('opacity',0);  
}
```