In [1]:

```python
import numpy as np
x = np.array([2,2,5,6,5,2.5])
y = np.array([4,3,2,2,2.5,3.5])
import matplotlib.pyplot as plt
%matplotlib inline
```
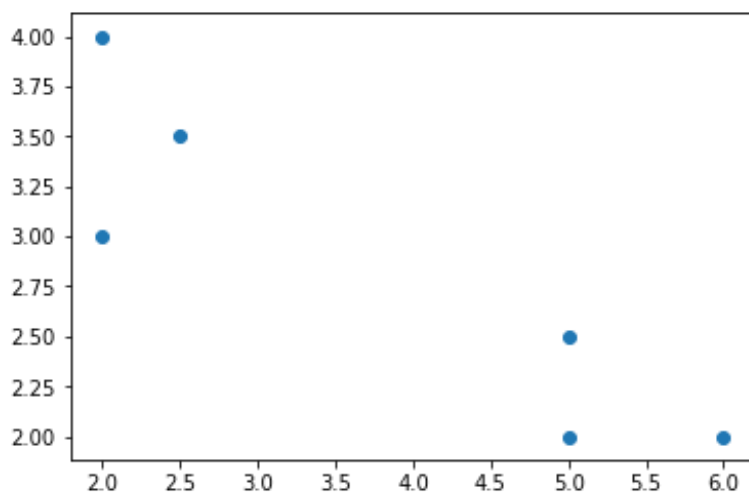
In [2]:

```python
plt.scatter(x,y)
```

Out[2]:

```
<matplotlib.collections.PathCollection at 0x7faaa44310b8>
```


In [3]:

```python
c1 = (2, 4)
c2 = (5, 2)
c3 = []
c4 = []
def distance(c1, c2, a, b):
    for i in range(len(x)):
        m = ((c1[0] - a[i])**2 + ( c1[1] - b[i])**2)**.5
        n = ((c2[0] - a[i])**2 + ( c2[1] - b[i])**2)**.5
        if m < n:
            c3.append([a[i], b[i]])
            c1 = (np.mean([s[0] for s in c3]),
                    np.mean([s[1] for s in c3]))
            print(c1)
        else:
            c4.append([a[i], b[i]])
            c2 = (np.mean([s[0] for s in c4]),
                    np.mean([s[1] for s in c4]))
        print(c2)
    return c1, c2
```

In [4]:

```python
c5, c6 = distance(c1, c2, x, y)
```

```
(2.0, 4.0)
```

```
(5, 2)
(2.0, 3.5)
(5, 2)
(5.0, 2.0)
(5.5, 2.0)
(5.333333333333333, 2.1666666666666665)
(2.1666666666666665, 3.5)
(5.333333333333333, 2.1666666666666665)
```

```python
plt.scatter(x,y)
plt.scatter(c5[0],c5[1])
plt.scatter(c6[0], c6[1])
plt.show()
```