In [1]:

```
import numpy as np
```

In [2]:

```
a = np.array([2,2,5,6,5,2.5])
b = np.array([4,3,2,2,2.5,3.5])
```

In [3]:

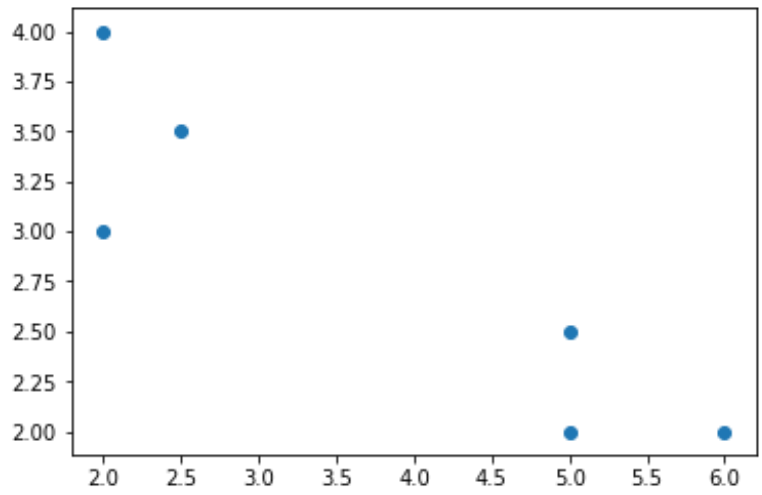
```
import matplotlib.pyplot as plt
%matplotlib inline
```

In [4]:

```
plt.scatter(a,b)
```

Out[4]:

```
<matplotlib.collections.PathCollection at 0x7f7683c48b00>
```



In [12]:

```
c1 = (2, 4)
c2 = (5, 2)
c3 = []
c4 = []
```

In [13]:

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

```
            c2 = (np.mean([s[0] for s in c4]),
                  np.mean([s[1] for s in c4]))
            print(c2)
    return c1, c2
```

In [15]:

```
c5, c6 = distance(c1, c2, a, b)
```

```
(2.0, 4.0)
(2.0, 3.5)
(5.0, 2.0)
(5.5, 2.0)
(5.333333333333333, 2.1666666666666665)
(2.1666666666666665, 3.5)
```

In [16]:

```
plt.scatter(a,b)
plt.scatter(c5[0],c5[1])
plt.scatter(c6[0], c6[1])
plt.show()
```