In [46]:
```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
from scipy.cluster.hierarchy import dendrogram, linkage
from sklearn.metrics.pairwise import euclidean_distances
```

In [47]:
```
x=np.array([[0.40,0.53],[0.22,0.38],[0.35,0.32],[0.26,0.19],[0.08,0.41],[0.45,(
x
```

Out[47]:
```
array([[0.4 , 0.53],
       [0.22, 0.38],
       [0.35, 0.32],
       [0.26, 0.19],
       [0.08, 0.41],
       [0.45, 0.3 ]])
```

```
proximity_matrix=eculidean_distance(x,x)
```

In [48]:
```
proximity_matrix=euclidean_distances(x,x)
```

In [49]:
```
proximity matrix
```

Out[49]:
```
array([[0.        , 0.23430749, 0.21587033, 0.36769553, 0.34176015,
        0.23537205],
       [0.23430749, 0.        , 0.14317821, 0.19416488, 0.14317821,
        0.24351591],
       [0.21587033, 0.14317821, 0.        , 0.15811388, 0.28460499,
        0.10198039],
       [0.36769553, 0.19416488, 0.15811388, 0.        , 0.28425341,
        0.21954498],
       [0.34176015, 0.14317821, 0.28460499, 0.28425341, 0.        ,
        0.38600518],
       [0.23537205, 0.24351591, 0.10198039, 0.21954498, 0.38600518,
        0.        ]])
```

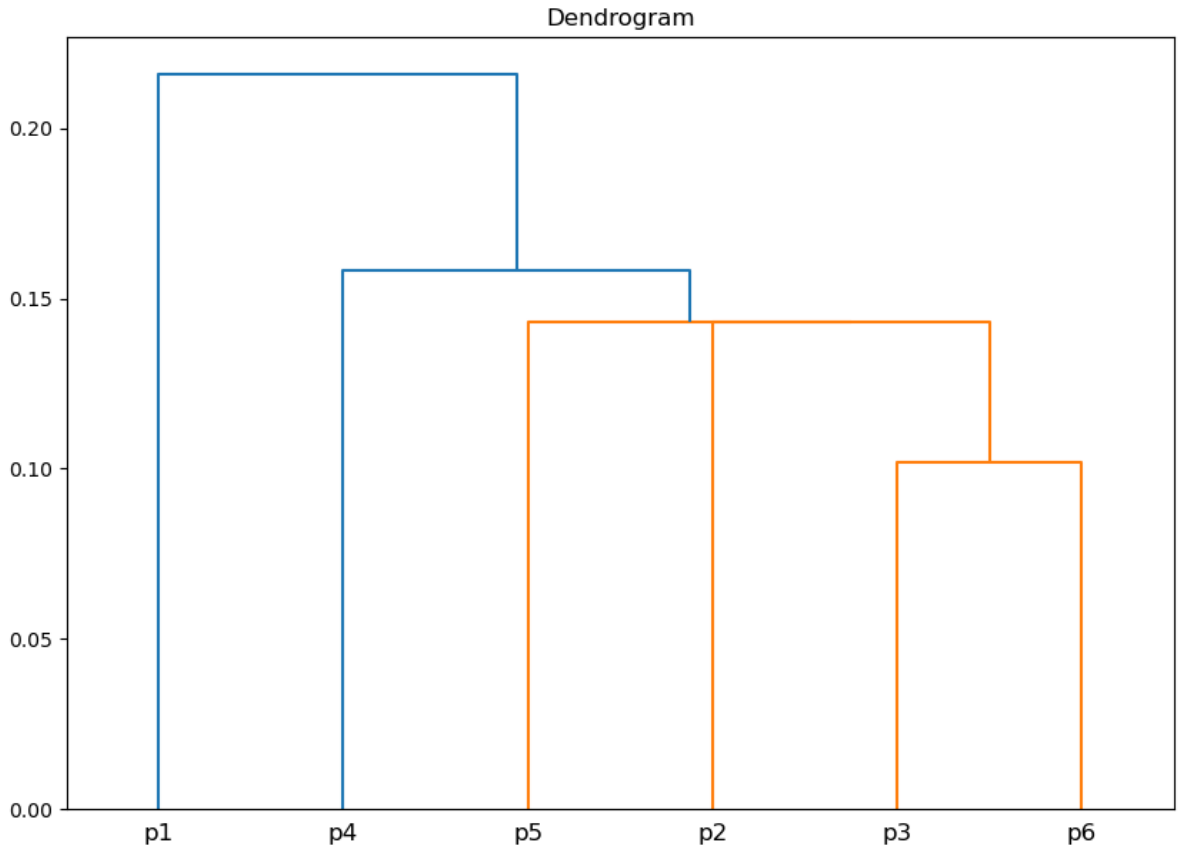
In [50]:
```
df=pd.DataFrame(proximity_matrix)
df
```

Out[50]:

	0	1	2	3	4	5
0	0.000000	0.234307	0.215870	0.367696	0.341760	0.235372
1	0.234307	0.000000	0.143178	0.194165	0.143178	0.243516
2	0.215870	0.143178	0.000000	0.158114	0.284605	0.101980
3	0.367696	0.194165	0.158114	0.000000	0.284253	0.219545
4	0.341760	0.143178	0.284605	0.284253	0.000000	0.386005
5	0.235372	0.243516	0.101980	0.219545	0.386005	0.000000

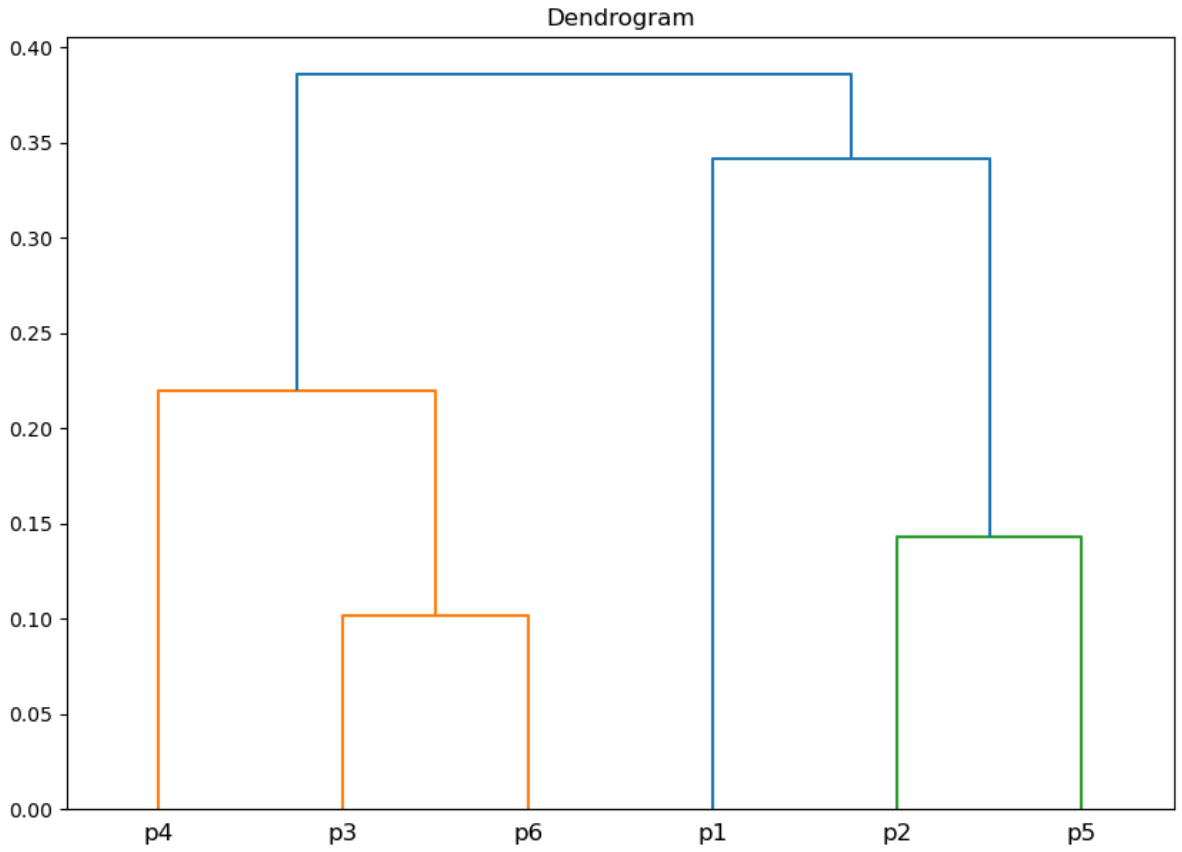
In [51]:
```
z=linkage(x,method='single',metric='euclidean')
```

In [52]:
```
plt.figure(figsize=(10,7))
plt.title('Dendrogram')
dendrogram(z,labels=['p1','p2','p3','p4','p5','p6'])
plt.show()
```



In [53]:
```
z=linkage(x,method='complete',metric='euclidean')
```

In [54]:
```
plt.figure(figsize=(10,7))
plt.title('Dendrogram')
dendrogram(z,labels=['p1','p2','p3','p4','p5','p6'])
plt.show()
```



In [ ]:

In [ ]: