

PLEASE NOTE: The co-variance matlab calculation is done only at diagonal elements (i.e assuming there is no interdependencies of value in other dimensions. This assumption is based on the recommended practice in Data Mining ebook by Zaki (Pg 386- topic 13.3.2) for making a code fast and avoid huge increase in calculations with increase in dimensions, thereby adding robustness to deal with different datasets

```
>> tamakuwala-assign2.py iris.data 3
```

Mean:

```
[5.006 3.418 1.464 0.244],[5.88832804 2.73063157 4.26752717 1.32421493],[6.63550575 3.01330555  
5.54418883 2.02762859],
```

Covariance Matrices:

```
[[0.82289111 0.    0.    0.    ]  
[0.    0.274772 0.    0.    ]  
[0.    0.    5.29499911 0.    ]  
[0.    0.    0.    0.92265244]]
```

```
[[0.25371793 0.    0.    0.    ]  
[0.    0.19809881 0.    0.    ]  
[0.    0.    0.49160897 0.    ]  
[0.    0.    0.    0.05347118]]
```

```
[[0.96659904 0.    0.    0.    ]  
[0.    0.08740581 0.    0.    ]  
[0.    0.    3.48999958 0.    ]  
[0.    0.    0.    0.75931402]]
```

Iteration Count=5

Cluster Membership:

[5.1 3.5 1.4 0.2],[4.9 3. 1.4 0.2],[4.7 3.2 1.3 0.2],[4.6 3.1 1.5 0.2],[5. 3.6 1.4 0.2],[5.4 3.9 1.7 0.4],[4.6 3.4 1.4 0.3],[5. 3.4 1.5 0.2],[4.4 2.9 1.4 0.2],[4.9 3.1 1.5 0.1],[5.4 3.7 1.5 0.2],[4.8 3.4 1.6 0.2],[4.8 3. 1.4 0.1],[4.3 3. 1.1 0.1],[5.8 4. 1.2 0.2],[5.7 4.4 1.5 0.4],[5.4 3.9 1.3 0.4],[5.1 3.5 1.4 0.3],[5.7 3.8 1.7 0.3],[5.1 3.8 1.5 0.3],[5.4 3.4 1.7 0.2],[5.1 3.7 1.5 0.4],[4.6 3.6 1. 0.2],[5.1 3.3 1.7 0.5],[4.8 3.4 1.9 0.2],[5. 3. 1.6 0.2],[5. 3.4 1.6 0.4],[5.2 3.5 1.5 0.2],[5.2 3.4 1.4 0.2],[4.7 3.2 1.6 0.2],[4.8 3.1 1.6 0.2],[5.4 3.4 1.5 0.4],[5.2 4.1 1.5 0.1],[5.5 4.2 1.4 0.2],[4.9 3.1 1.5 0.1],[5. 3.2 1.2 0.2],[5.5 3.5 1.3 0.2],[4.9 3.1 1.5 0.1],[4.4 3. 1.3 0.2],[5.1 3.4 1.5 0.2],[5. 3.5 1.3 0.3],[4.5 2.3 1.3 0.3],[4.4 3.2 1.3 0.2],[5. 3.5 1.6 0.6],[5.1 3.8 1.9 0.4],[4.8 3. 1.4 0.3],[5.1 3.8 1.6 0.2],[4.6 3.2 1.4 0.2],[5.3 3.7 1.5 0.2],[5. 3.3 1.4 0.2],

[7. 3.2 4.7 1.4],[6.4 3.2 4.5 1.5],[5.5 2.3 4. 1.3],[6.5 2.8 4.6 1.5],[5.7 2.8 4.5 1.3],[6.3 3.3 4.7 1.6],[4.9 2.4 3.3 1.],[6.6 2.9 4.6 1.3],[5.2 2.7 3.9 1.4],[5. 2. 3.5 1.],[5.9 3. 4.2 1.5],[6. 2.2 4. 1.],[6.1 2.9 4.7 1.4],[5.6 2.9 3.6 1.3],[6.7 3.1 4.4 1.4],[5.6 3. 4.5 1.5],[5.8 2.7 4.1 1.],[6.2 2.2 4.5 1.5],[5.6 2.5 3.9 1.1],[6.1 2.8 4. 1.3],[6.3 2.5 4.9 1.5],[6.1 2.8 4.7 1.2],[6.4 2.9 4.3 1.3],[6.6 3. 4.4 1.4],[6.8 2.8 4.8 1.4],[6. 2.9 4.5 1.5],[5.7 2.6 3.5 1.],[5.5 2.4 3.8 1.1],[5.5 2.4 3.7 1.],[5.8 2.7 3.9 1.2],[6. 2.7 5.1 1.6],[5.4 3. 4.5 1.5],[6. 3.4 4.5 1.6],[6.7 3.1 4.7 1.5],[6.3 2.3 4.4 1.3],[5.6 3. 4.1 1.3],[5.5 2.5 4. 1.3],[5.5 2.6 4.4 1.2],[6.1 3. 4.6 1.4],[5.8 2.6 4. 1.2],[5. 2.3 3.3 1.],[5.6 2.7 4.2 1.3],[5.7 3. 4.2 1.2],[5.7 2.9 4.2 1.3],[6.2 2.9 4.3 1.3],[5.1 2.5 3. 1.1],[5.7 2.8 4.1 1.3],[4.9 2.5 4.5 1.7],[6. 2.2 5. 1.5],[6.3 2.8 5.1 1.5],

[6.9 3.1 4.9 1.5],[5.9 3.2 4.8 1.8],[6.7 3. 5. 1.7],[6.3 3.3 6. 2.5],[5.8 2.7 5.1 1.9],[7.1 3. 5.9 2.1],[6.3 2.9 5.6 1.8],[6.5 3. 5.8 2.2],[7.6 3. 6.6 2.1],[7.3 2.9 6.3 1.8],[6.7 2.5 5.8 1.8],[7.2 3.6 6.1 2.5],[6.5 3.2 5.1 2.],[6.4 2.7 5.3 1.9],[6.8 3. 5.5 2.1],[5.7 2.5 5. 2.],[5.8 2.8 5.1 2.4],[6.4 3.2 5.3 2.3],[6.5 3. 5.5 1.8],[7.7 3.8 6.7 2.2],[7.7 2.6 6.9 2.3],[6.9 3.2 5.7 2.3],[5.6 2.8 4.9 2.],[7.7 2.8 6.7 2.],[6.3 2.7 4.9 1.8],[6.7 3.3 5.7 2.1],[7.2 3.2 6. 1.8],[6.2 2.8 4.8 1.8],[6.1 3. 4.9 1.8],[6.4 2.8 5.6 2.1],[7.2 3. 5.8 1.6],[7.4 2.8 6.1 1.9],[7.9 3.8 6.4 2.],[6.4 2.8 5.6 2.2],[6.1 2.6 5.6 1.4],[7.7 3. 6.1 2.3],[6.3 3.4 5.6 2.4],[6.4 3.1 5.5 1.8],[6. 3. 4.8 1.8],[6.9 3.1 5.4 2.1],[6.7 3.1 5.6 2.4],[6.9 3.1 5.1 2.3],[5.8 2.7 5.1 1.9],[6.8 3.2 5.9 2.3],[6.7 3.3 5.7 2.5],[6.7 3. 5.2 2.3],[6.3 2.5 5. 1.9],[6.5 3. 5.2 2.],[6.2 3.4 5.4 2.3],[5.9 3. 5.1 1.8],

Size:50 50 50

Purity:0.96