In [1]:
```
import pandas as pd
import numpy as np
```

In [6]:
```
db = pd.read_csv('insect.txt',
                 header=None,
                 names=['Y', 'X1', 'X2', 'X3'],
                 sep=' ')
db.head()
```

Out[6]:

	Y	X1	X2	X3
0	a	191	131	53
1	a	185	134	50
2	a	200	137	52
3	a	173	127	50
4	a	171	128	49

In [7]:
```
from sklearn.discriminant_analysis import LinearDiscriminantAnalysis as LDA
```

In [8]:
```
model = LDA()
```

In [20]:
```
Y = np.array(db['Y'])
X = np.array(db[['X1', 'X2', 'X3']])
```

In [22]:
```
model.fit(X,Y)
```

Out[22]:
```
LinearDiscriminantAnalysis()
```

In [25]:
```
print(model.predict([[190, 131, 53]]))
```

```
['a']
```

In [26]:
```
from scipy.stats import bartlett
```

In [28]:
```
stat, p = bartlett(db['X1'], db['X2'], db['X3'])
```

In [29]:
```
p
```

Out[29]:
```
1.0685193072965499e-12
```

In [30]:
```
stat
```

Out[30]:
```
55.12949450156246
```

In [31]:
```
[np.var(x, ddof=1) for x in [db['X1'], db['X2'], db['X3']]]
```

Out[31]:
```
[441.9236842105263, 85.83157894736841, 7.694736842105264]
```