

```
data = [120 125 125 135 145 ; 61 60 64 68 72];
```

```
mean_vec = mean(data,2);
```

```
n = size(data,1)
```

```
B = data - mean_vec
```

```
S = (1/(n-1)) * B * transpose(B)
```

```
[U,L] = eig(S);
```

```
"Eigenvalues:"
```

```
l2 = L(1,1)
```

```
l1 = L(2,2)
```

```
"Eigenvectors:"
```

```
U
```

```
variance = l1/(l1+l2)
```

```
scatter(data(1,:),data(2,:))
```

```
n =
```

```
2
```

```
B =
```

```
-10    -5    -5     5    15  
-4     -5    -1     3     7
```

```
S =
```

```
400    190  
190    100
```

```
ans =
```

```
"Eigenvalues:"
```

```
l2 =
```

```
7.9256
```

```
l1 =
```

```
492.0744
```

```
ans =
```

```
"Eigenvectors:"
```

U =

0.4361	-0.8999
-0.8999	-0.4361

variance =

0.9841

