Praktikum   #2

Distribusi Normal
Kepekatan Peluang
Analisis Diskriminan

Pattern Recognition

Review

```
data = normrnd(50,2,30,1)
[mu,sigma,muci,sigmaci] =
normfit(data)
x = sort(data);
y = pdf('normal',x,mu,sigma);
plot(x,y);
```

Analisis Diskriminan

- Nama Fungsi **Classify**

  Tipe
- 'linear' — Fits a multivariate normal density to each group, with a pooled estimate of covariance. This is the default.
- 'diaglinear' — Similar to 'linear', but with a diagonal covariance matrix estimate (naive Bayes classifiers).
- 'quadratic' — Fits multivariate normal densities with covariance estimates stratified by group.
- 'diagquadratic' — Similar to 'quadratic', but with a diagonal covariance matrix estimate (naive Bayes classifiers).
- 'mahalanobis' — Uses Mahalanobis distances with stratified covariance estimates.

Bentuk Umum

```
class = classify(sample,training,group)
class = classify(sample,training,group,type)
[class,err] = classify(...)
```
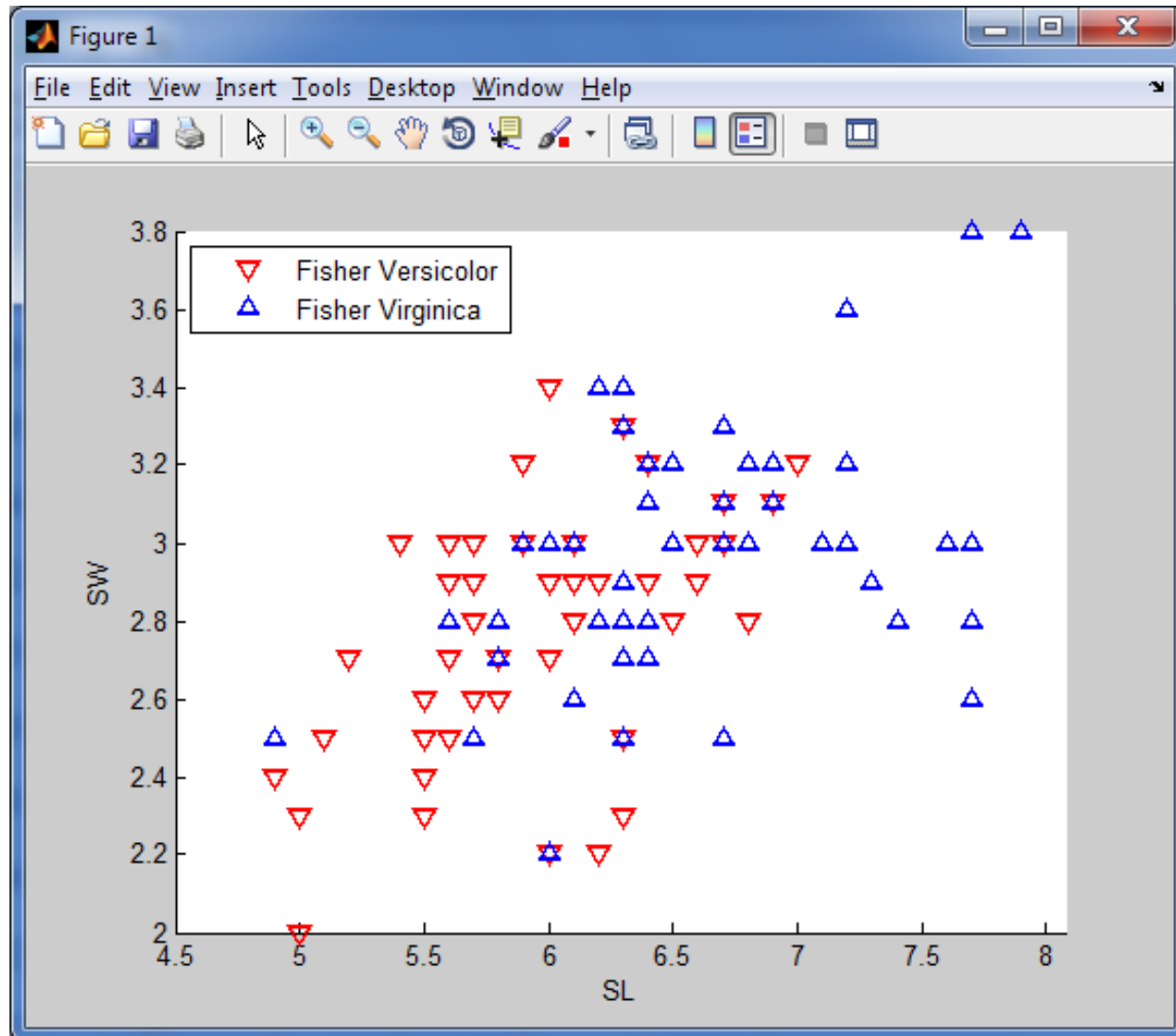
Kasus

- Fisher Sepal Measurement
  - Kelas: Iris Vesicolor dan Iris Virginica

Example

```
load fisheriris  % load data iris
SL = meas(51:end,1); % sepal length
SW = meas(51:end,2); % sepal width
group = species(51:end); % ambil kolom kelas
h1 = gscatter(SL,SW,group,'rb','v^',[],'off');
set(h1,'LineWidth',2)
legend('Fisher versicolor','Fisher
  virginica','Location','NW')
```

Hasil

Proses Klasifikasi

%Classify a grid of measurements on the same scale:

```
[X,Y] = meshgrid(linspace(4.5,8),linspace(2,4));
X = X(:); Y = Y(:);
[C,err,P,logp,coeff] = classify([X Y],[SL SW],...
group,'quadratic');
```

Visualisasi

```
hold on;
gscatter(X,Y,C,'rb','.',1,'off');
 K = coeff(1,2).const;
 L = coeff(1,2).linear;
 Q = coeff(1,2).quadratic;
 f = sprintf('0=
   %g+%g*x+%g*y+%g*x^2+%g*x.*y+%g*y.^2',...
   K,L,Q(1,1),Q(1,2)+Q(2,1),Q(2,2));
 h2 = ezplot(f,[4.5 8 2 4]);
set(h2,'Color','m','LineWidth',2)
axis([4.5 8 2 4])
xlabel('Sepal Length')
ylabel('Sepal Width') title('{\bf Classification with Fish
   Training Data}')
```