IDS 702

Logistic Regression Diagnostics

Assessing a model

Assumptions

Model fit

Predictions

Recall estimation

Assessing a logistic regression model

Assumptions

Model fit

Predictions

```
pumpmod <- glm(factor(Class)~Major_Axis_Length+Area+Perimeter+Solidity,</pre>
                   data=pumpkin,family="binomial")
par(mfrow=c(2,2))
plot(pumpkin$Major_Axis_Length,predict(pumpmod))
plot(pumpkin$Area,predict(pumpmod))
plot(pumpkin$Perimeter,predict(pumpmod))
plot(pumpkin$Solidity,predict(pumpmod))
                                                            predict(pumpmod)
                                                                                               predict(pumpmod)
                                                                                                         60000
                                                                                                                 100000
                                                                                                                          140000
                                                                     350
                                                                                 550
                                                                                       650
                                                                           450
                                                                   pumpkin$Major_Axis_Length
                                                                                                             pumpkin$Area
                                                            predict(pumpmod)
                                                                                               predict(pumpmod)
                                                                         1100 1300 1500
                                                                                                       0.92 0.94 0.96 0.98
```

pumpkin\$Perimeter

pumpkin\$Solidity

Appropriate metrics for logistic regression

• $Deviance = -2ln(\hat{L})$

• $AIC = 2p - 2ln(\hat{L})$

. McFadden's pseudo $R^2=1-\frac{LL_{mod}}{LL_0}$