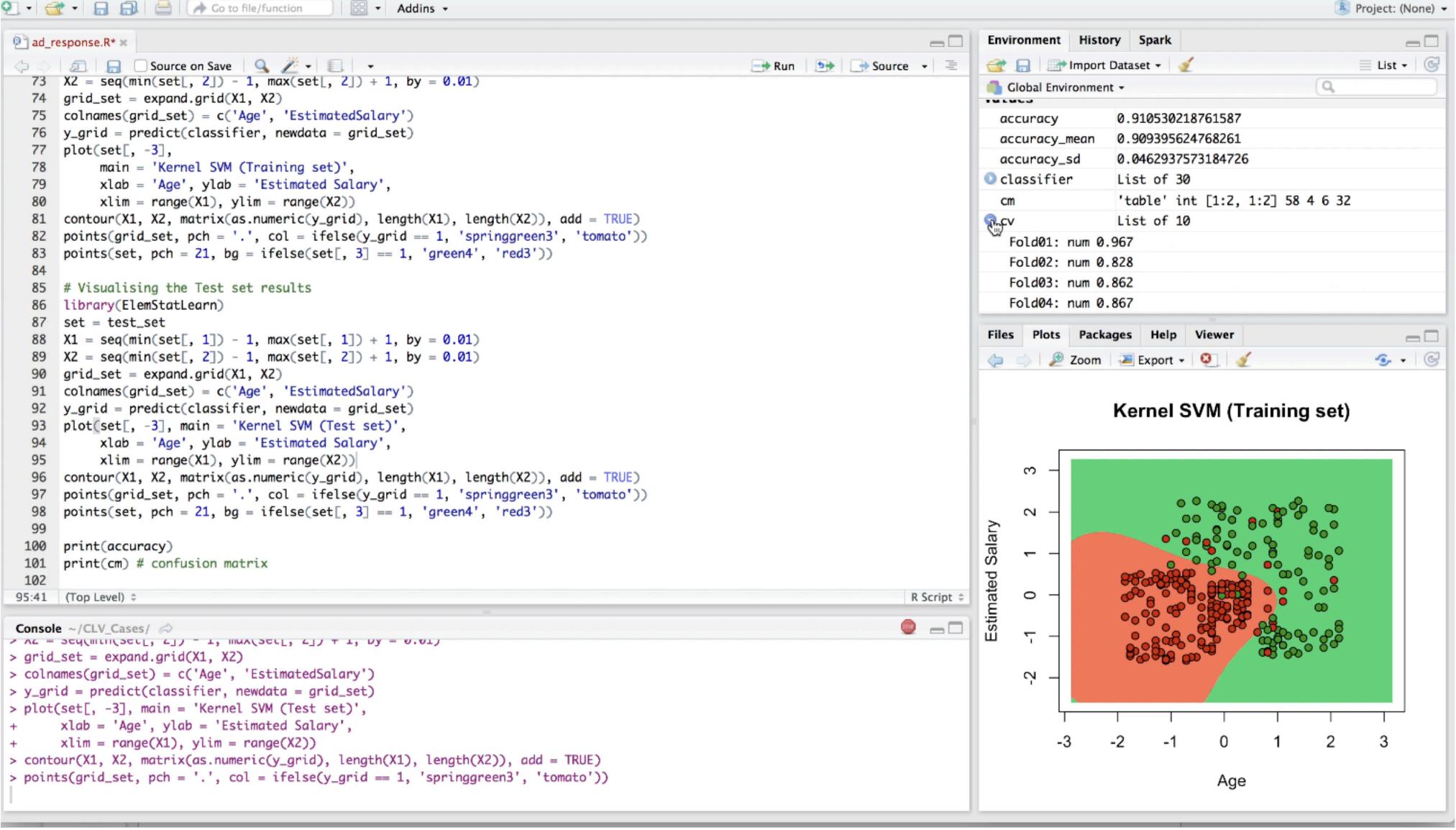
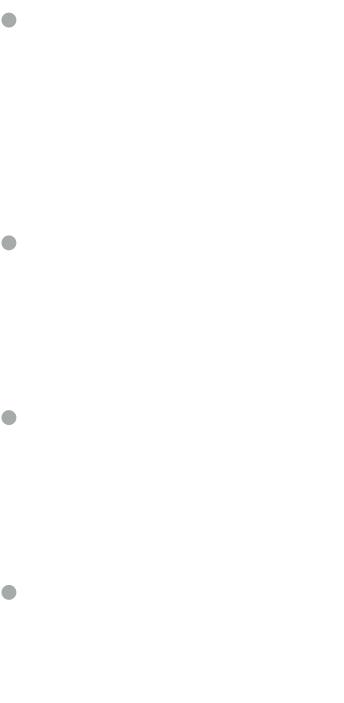
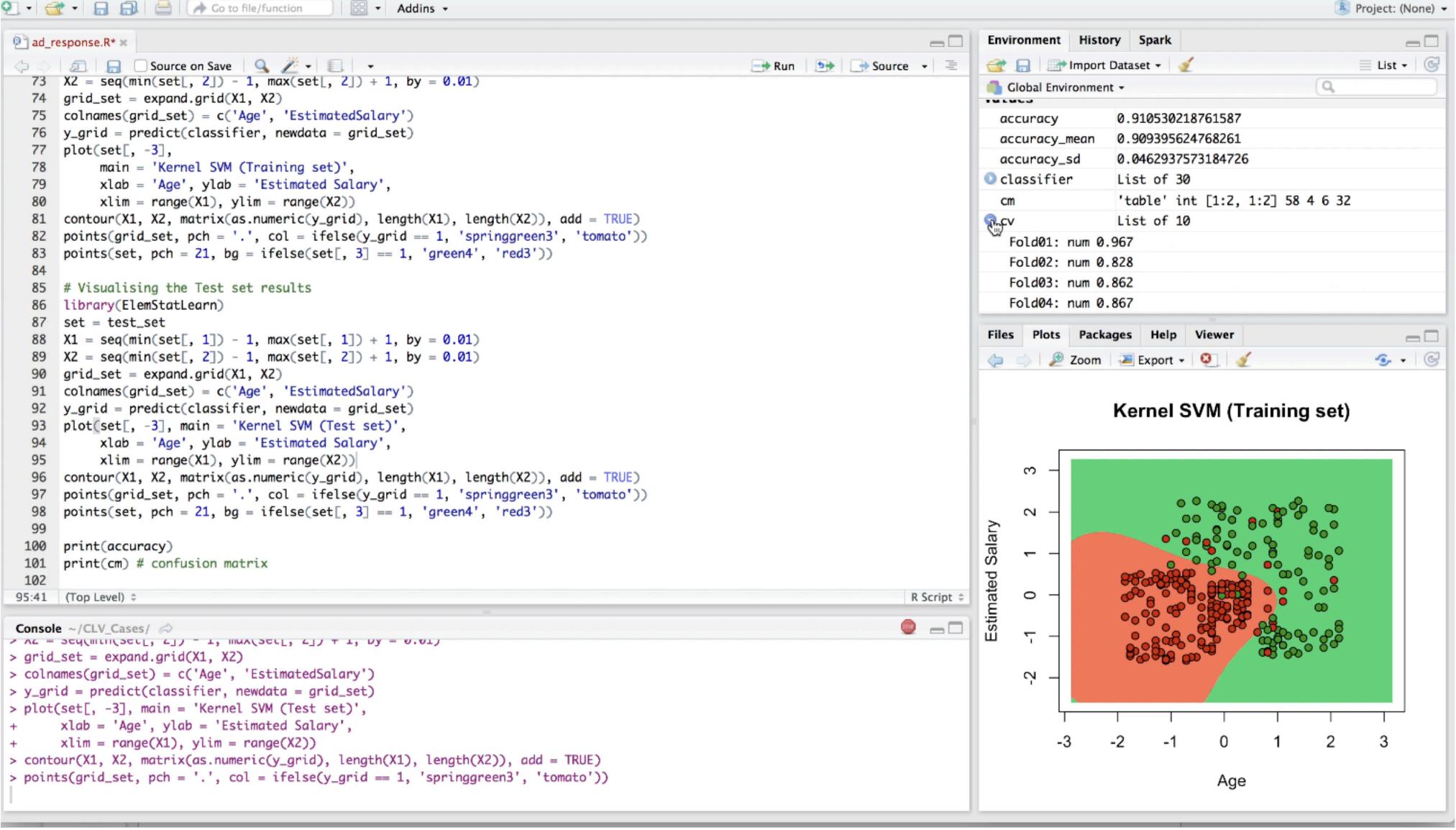
Prof. Dr. Jan Kirenz

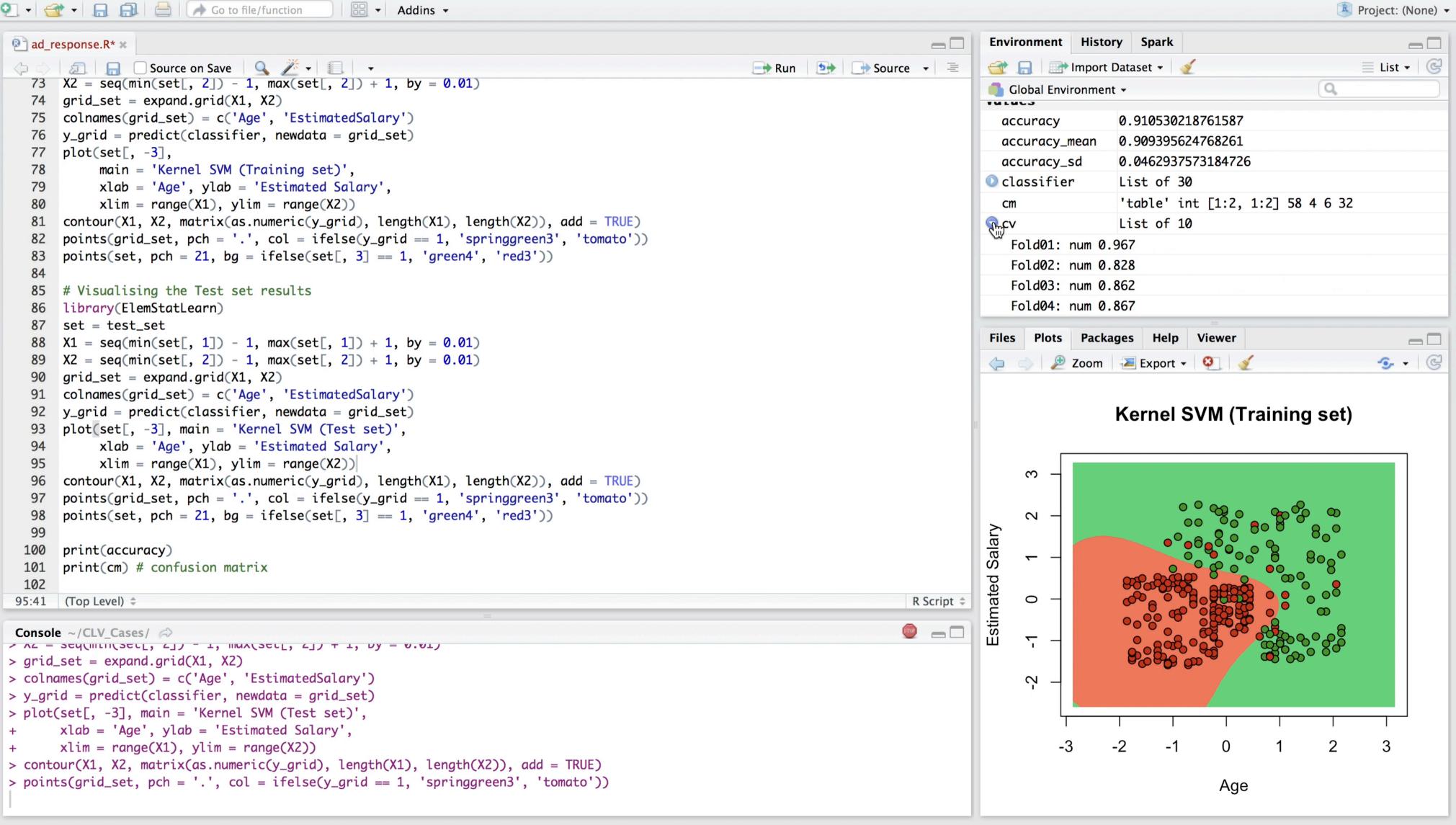








RStudio



OFFER/CONTACT-OPTIMIZATION WITH SVM

- Task: Identify users who are open to an specific offer
- Data: Ad-click of Social Network Users
- Model: Kernel Support Vector Machine (SVM)
- Validation: k-Fold Cross
 Validation

```
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Project: (None) •
                                                                                                                                 Environment History Spark
 ad_response.R* :

List → G
        Source - =
                                                                                                                                 武 📊 🔛 Import Dataset 🕶 🧃
   73 X2 = seq(min(set[, 2]) - 1, max(set[, 2]) + 1, by = 0.01)
                                                                                                                                Global Environment •
   74 grid_set = expand.grid(X1, X2)
   75 colnames(grid_set) = c('Age', 'EstimatedSalary')
                                                                                                                                                 0.910530218761587
                                                                                                                                  accuracy
   76 y_grid = predict(classifier, newdata = grid_set)
                                                                                                                                                 0.909395624768261
                                                                                                                                  accuracy_mean
       plot(set[, -3],
                                                                                                                                                 0.0462937573184726
                                                                                                                                  accuracy_sd
            main = 'Kernel SVM (Training set)',
                                                                                                                                classifier
                                                                                                                                                 List of 30
            xlab = 'Age', ylab = 'Estimated Salary',
            xlim = range(X1), ylim = range(X2))
                                                                                                                                                 'table' int [1:2, 1:2] 58 4 6 32
   81 contour(X1, X2, matrix(as.numeric(y_grid), length(X1), length(X2)), add = TRUE)
                                                                                                                                                 List of 10
       points(grid_set, pch = '.', col = ifelse(y_grid == 1, 'springgreen3', 'tomato'))
                                                                                                                                   Fold01: num 0.967
       points(set, pch = Z1, bg = ifelse(set[, 3] == 1, 'green4', 'red3'))
                                                                                                                                   Fold02: num 0.828
                                                                                                                                   Fold03: num 0.862
    85 # Visualising the Test set results
                                                                                                                                   Fold04: num 0.867
       library(ElemStatLearn)
       set = test_set
                                                                                                                                           Packages Help
          = seq(min(set[, 1]) - 1, max(set[, 1]) + 1, by = 0.01)
           = seq(min(set[, 2]) - 1, max(set[, 2]) + 1, by = 0.01)
                                                                                                                                        grid_set = expand.grid(X1, X2)
    91 colnames(grid_set) = c('Age', 'EstimatedSalary')
                                                                                                                                                Kernel SVM (Training set)
   92 y_grid = predict(classifier, newdata = grid_set)
       plot(set[, -3], main = 'Kernel SVM (Test set)',
            xlab = 'Age', ylab = 'Estimated Salary',
            xlim = range(X1), ylim = range(X2))
                                                                                                                                     3
       contour(X1, X2, matrix(as.numeric(y_grid), length(X1), length(X2)), add = TRUE)
       points(grid_set, pch = '.', col = ifelse(y_grid == 1, 'springgreen3', 'tomato'))
       points(set, pch = 21, bg = ifelse(set[, 3] == 1, 'green4', 'red3'))
                                                                                                                                     7
                                                                                                                               Salary
   99
   100
       print(accuracy)
       print(cm) # confusion matrix
                                                                                                                                Estimated
  102
                                                                                                                      R Script
                                                                                                                                     0
 95:41
       (Top Level) $
                                                                                                                     _ _ _
 > AL = SEM(HILLINGSELL, ALL) - I, HUAN(SELL, ALL) T I, DY = W.WI)
 > grid_set = expand.grid(X1, X2)
> colnames(grid_set) = c('Age', 'EstimatedSalary')
                                                                                                                                     7
> y_grid = predict(classifier, newdata = grid_set)
> plot(set[, -3], main = 'Kernel SVM (Test set)',
       xlab = 'Age', ylab = 'Estimated Salary',
       xlim = range(X1), ylim = range(X2))
> contour(X1, X2, matrix(as.numeric(y_grid), length(X1), length(X2)), add = TRUE)
> points(grid_set, pch = '.', col = ifelse(y_grid == 1, 'springgreen3', 'tomato'))
                                                                                                                                                              Age
```

R FOR DATA SCIENCE

Natural Language Processing