1. install.packages(“caret”)
2. library('caret')
3. library(tidyverse)
4. library(readr)
5. library(ROCR)
6. library(PerformanceAnalytics)
7. library(e1071)
8. library(caret)
9. library(gbm)
10. library(corrplot)
11. library(ggcorrplot)
12. library(MASS)
13. library(rpart)
14. library(caTools)
15. library(naivebayes)
16. library(class)
17. library(ISLR)
18. library(glmnet)
19. library(Hmisc)
20. library(funModeling)
21. library(pROC)
22. library(randomForest)
23. library(klaR)
24. library(scales)
25. library(cluster)
26. library(factoextra)
27. library(DataExplorer)
28. library(ClustOfVar)
29. library(GGally)
30. heart <- read.csv("heart.csv", sep = ',', header = FALSE)
31. str(heart)
32. head(heart)
33. plot\_missing(heart)
34. data2 <- heart %>% mutate(sex = if\_else(sex == 1, "MALE", "FEMALE"),fbs = if\_else(fbs == 1, ">120", "<=120"), exang = if\_else(exang == 1, "YES" ,"NO"), cp = if\_else(cp == 1, "ATYPICAL ANGINA", if\_else(cp == 2, "NON-ANGINAL PAIN", "ASYMPTOMATIC")),restecg = if\_else(restecg == 0, "NORMAL", if\_else(restecg == 1, "ABNORMALITY", "PROBABLE OR DEFINITE")),slope = as.factor(slope), ca = as.factor(ca),thal = as.factor(thal),target = if\_else(target == 1, "YES", "NO")) %>% mutate\_if(is.character, as.factor) %>% dplyr::select(target, sex, fbs, exang, cp, restecg, slope, ca, thal, everything())
35. summary(data2)
36. boxplot(data2[,10:14])
37. ggplot(data2, aes(x=data2$target, fill=data2$target)) + geom\_bar() + xlab("Heart Disease") + ylab("Count") + ggtitle("Analysis of Presence and Absence of Heart Disease") + scale\_fill\_discrete(name = "Heart Disease", labels = c("Absence", "Presence"))
38. data2 %>% group\_by(ï..age) %>% count() %>% filter(n > 10) %>% ggplot()+geom\_col(aes(ï..age, n), fill = "navyblue")+ggtitle("Age Analysis") + xlab("Age")+ ylab("AgeCount")
39. ggplot(data2, aes(cp, fill = target))+ geom\_bar(position = "fill")+ggtitle("cp")
40. data2 %>%ggplot(aes(x=ï..age,fill=sex))+geom\_histogram()+xlab("Age") +ylab("Number")+guides(fill = guide\_legend(title = "Gender"))
41. data2 %>%ggplot(aes(x=ï..age,y=chol,color=sex, size=chol))+geom\_point(alpha=0.7)+xlab("Age") +ylab("Cholestoral")+guides(fill = guide\_legend(title = "Gender"))
42. data2 %>%ggplot(aes(x=sex,y=trestbps))+geom\_boxplot(fill="darkorange")+xlab("Sex")+ ylab("BP")+facet\_grid(~cp)
43. data2 %>%ggplot(aes(x=sex,y=chol))+geom\_boxplot(fill="#D55E00")+xlab("Sex")+ylab("Chol")+facet\_grid(~cp)
44. intrain <- createDataPartition(y = heart$V14, p= 0.7, list = FALSE)
45. training <- heart[intrain,]
46. testing <- heart[-intrain,]
47. dim(training);
48. dim(testing);
49. anyNA(heart)
50. summary(heart)
51. training[["V14"]] = factor(training[["V14"]])
52. trctrl <- trainControl(method = "repeatedcv", number = 10, repeats = 3)
53. svm\_Linear <- train(V14 ~., data = training, method = "svmLinear", trControl=trctrl, preProcess = c("center", "scale"), tuneLength = 10)
54. svm\_Linear
55. test\_pred <- predict(svm\_Linear, newdata = testing)
56. test\_pred
57. confusionMatrix(table(test\_pred, testing$V14))