Heart <- read.csv("C:/Users/Rahul/Downloads/Heart.csv")

View(Heart)

names(Heart)

# investigating structure of data #

str(Heart)

Heart <- Heart[,-1]

HeartDataTraining <- Heart[1:250,]

HeartDataTesting <- Heart[251:303,]

# Logistic Model(Model1) of AHD v/s all other predictor variables #

Model1 <- glm(AHD ~ Sex + ChestPain + RestBP + Chol + Fbs + MaxHR + ExAng + Oldpeak + Slope + Ca, data = HeartDataTraining, family = 'binomial')

summary(Model1)

# Logistic model (Model2) of AHD v/s Sex, ChestPain, RestBP and Ca #

Model2 <- glm(AHD ~ Sex + ChestPain + RestBP + Ca, data = HeartDataTraining, family = 'binomial')

summary(Model2)

# Logistic model (Model3) of AHD v/s Sex, ca and chestpain #

Model3 <- glm(AHD ~ Sex + Ca + ChestPain, data = HeartDataTraining, family = 'binomial')

summary(Model3)

# Logistic model (Model4) of AHD v/s ca and chestpain #

Model4 <- glm(AHD ~ ChestPain + Ca, data = HeartDataTraining, family = 'binomial')

summary(Model4)

# Logistic model (Model5) of AHD v/s chestpain and sex #

Model5 <- glm(AHD ~ Sex + ChestPain, data = HeartDataTraining, family = 'binomial')

summary(Model5)

# Logistic model (Model6) of AHD v/s ca and sex #

Model6 <- glm(AHD ~ Sex + Ca, data = HeartDataTraining, family = 'binomial')

summary(Model6)

# Logistic model (Model7) of AHD v/s Sex #

Model7 <- glm(AHD ~ Sex, data = HeartDataTraining, family = 'binomial')

summary(Model7)

# Logistic model (Model8) of AHD v/s RestBP #

Model8 <- glm(AHD ~ RestBP, data = HeartDataTraining, family = 'binomial')

summary(Model8)

# Logistic model (Model9) of AHD v/s ca #

Model9<- glm(AHD ~ Ca, data = HeartDataTraining, family = 'binomial')

summary(Model9)

# Logistic model (Model10) of AHD v/s chestpain #Model2 <- glm(AHD ~ Sex + ChestPain + RestBP + Ca, data = HeartDataTraining, family = 'binomial')

Model10 <- glm(AHD ~ ChestPain, data = HeartDataTraining, family = 'binomial')

summary(Model10)

# Probability of AHD=1(Yes) given values of predictor variables #

ProbModel1<-predict(Model1, HeartDataTraining, type="response")

ProbModel1[1:10]

ProbModel2<-predict(Model2, HeartDataTraining, type="response")

ProbModel2[1:10]

ProbModel3<-predict(Model3, HeartDataTraining, type="response")

ProbModel3[1:10]

ProbModel4<-predict(Model4, HeartDataTraining, type="response")

ProbModel4[1:10]

ProbModel5<-predict(Model5, HeartDataTraining, type="response")

ProbModel5[1:10]

ProbModel6<-predict(Model6, HeartDataTraining, type="response")

ProbModel6[1:10]

ProbModel7<-predict(Model7, HeartDataTraining, type="response")

ProbModel7[1:10]

ProbModel8<-predict(Model8, HeartDataTraining, type="response")

ProbModel8[1:10]

ProbModel9<-predict(Model9, HeartDataTraining, type="response")

ProbModel9[1:10]

ProbModel10<-predict(Model10, HeartDataTraining, type="response")

ProbModel10[1:10]

contrasts(HeartDataTraining$AHD) #To check values of Binary Response variable

#Checking Error rate

PredModel1=rep("0",53)

PredModel1[ProbModel1 > 0.5]="1"

head(PredModel1)