

## Appendix A

### R-code script for CHD data using logistic regression and CART classifications

```
# 'REG2_CHD.R'
# Compare predicted values from regression and regression trees

setwd("/Users/jack_mcardle/ATI_EDM/Programs/Data")
CHD_HL <- read.table("chd_hl.dat", header=FALSE)
names(CHD_HL) <- c("GROUP", "YEARSAGE", "CHD")
attach(CHD_HL)

#Simple linear regression

REG1 <- lm(CHD ~ YEARSAGE)
summary(REG1)
plot(REG1, which=2)
YHAT.REG1 <- predict(REG1)
PRED.REG1 <- cor(YHAT.REG1, CHD)**2
PRED.REG1

# Simple Logistic regression
REG2 <- glm(CHD ~ YEARSAGE, family=binomial())
summary(REG2)
exp(REG2$coefficients)
plot(REG2, which=2)
x <- predict(REG2)
YHAT.REG2 <- exp(x)/(1+exp(x))
plot(YHAT.REG2, YEARSAGE)
table(YHAT.REG2, CHD)
PRED.REG2 <- cor(YHAT.REG2, CHD)**2
PRED.REG2

# Newer Regression Tree 2
library(party)
CART2 <- ctree(CHD ~ YEARSAGE)
plot(CART2)
YHAT.CART2 <- predict(CART2)
table(YHAT.CART2, CHD)
plot(YHAT.CART2, CHD)
plot(YHAT.REG2, YHAT.CART2)
PRED.CART2 <- cor(YHAT.CART2, CHD)**2
PRED.CART2
```