# Special Task Changes:

RNGversion('3.5.1')

library(readr)

library(partykit)

women = read.csv2("C:/Users/oskar/OneDrive/Universitet/Linköping Universitet/År4/Machine learning/Special tasks/Women.csv")

# I had to change 2 things to make this Special task work.

# 1. Fisrtly i assumed that the x/y was the name of the columns of the data going into the fit function.   
# which I passed into the formula when calling lm() in the fit function as:

# "y ~ x^2". I came to learn that thats not the case. Instead I get y and x variables separate and I

# have to combined dem into a dataframe to generate my model by lm(). My changed fit function:

fit<-function(y, x, start = NULL, weights = NULL, offset = NULL, ...){

#combind the seperate data for y(Blood.systolic) and x(height and weight)

xy=cbind(x[,(2:3)],y)

# convert it to a dataframe

data=data.frame(xy)

names(data) = c("height", "weight", "Blood.systolic") #changed this to make it easy to understand

model=lm(Blood.systolic~.^2, data=data)

return(model)

}

# 2. Second, my code produced another result because of my formula was stated wrong.

# I had the formula as : "1 | height + weight". It was supposed to be:

# Blood.systolic~height+weight | height+weight.

# New formula implemented below:

tree\_mob <- mob(Blood.systolic ~ height+weight | height + weight

, data = women, fit = fit, control = mob\_control(minsize=5000))

# Code below this point did not change.

#plot Tree

plot(tree\_mob)

#Create grid, form values on height and weight:

grid = matrix(0, ncol = 100, nrow = 100) #rows corosponds to height

height = 111:210 #110-210 Dim=100

weight = 31:130 #30-130 Dim = 100

colnames(grid) = weight

rownames(grid) = height

#predict Blood.systolic for grid values.

for (i in 1:length(height)){

data = data.frame(rep(height[i], length(weight)),weight )

names(data) = c("height", "weight")

grid[i, ] = predict(tree\_mob, newdata = data, type="response")

}

library(reshape2)

library(ggplot2)

data = melt(grid)

ggplot(data,aes(x=Var1, y=Var2) ) +

geom\_raster(aes(fill = value)) +

#scale\_fill\_gradient(low="grey90", high="red") +# Changed(removed) colours and x/y axix to make my

labs(x="Weight", y="Height", title="Grid") # plot look like the correct plot. Otherwise

# it still displays data the same way.