

# stats-101a-project-markdown

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```
#data cleanup
```

```
happiness_data <- read.table("Happiness.txt", header = TRUE)
```

```
head(happiness_data)
```

```
## Household Health OwnHome Instagram Marital Sex Age Children Education
## 3      2      2      0      2      1  1  72      2      16
## 4      4      2      1      0      1  2  43      4      12
## 5      3      1      0      1      1  2  55      2      18
## 6      2      0      1      1      1  2  53      2      14
## 7      3      4      1      0      1  1  50      2      14
## 8      2      2      0      1      1  2  23      3      11
```

```
## JobSat Income WorkHrs Happy
```

```
## 3      0      0      -1      1
## 4      0  5265      -1      2
## 5      3   936      15      1
## 6      0      0      -1      1
## 7      0 164382      -1      2
## 8      2   7605      30      1
```

```
happiness_data$Household[happiness_data$Household == 8 | happiness_data$Household == 9] <- NA
```

```
happiness_data$Health[happiness_data$Health == 8 | happiness_data$Health == 9 | happiness_data$Health == 10] <- NA
```

```
happiness_data$Health[happiness_data$Health == 1] <- 400
```

```
happiness_data$Health[happiness_data$Health == 2] <- 300
```

```
happiness_data$Health[happiness_data$Health == 3] <- 2
```

```
happiness_data$Health[happiness_data$Health == 4] <- 1
```

```
happiness_data$Health[happiness_data$Health == 400] <- 4
```

```
happiness_data$Health[happiness_data$Health == 300] <- 3
```

```
happiness_data$OwnHome[happiness_data$OwnHome == 0 | happiness_data$OwnHome == 8 | happiness_data$OwnHome == 9] <- NA
```

```
happiness_data$Instagram[happiness_data$Instagram == 0 | happiness_data$Instagram == 8 | happiness_data$Instagram == 9] <- NA
```

```
happiness_data$Marital[happiness_data$Marital == 9] <- NA
```

```
happiness_data$Age[happiness_data$Age == 89 | happiness_data$Age == 98 | happiness_data$Age == 99] <- NA
```

```
happiness_data$Children[happiness_data$Children == 8 | happiness_data$Children == 9] <- NA
```

```
happiness_data$Education[happiness_data$Education == 97 | happiness_data$Education == 98 | happiness_data$Education == 99] <- NA
```

```
happiness_data$JobSat[happiness_data$JobSat == 0 | happiness_data$JobSat == 8 | happiness_data$JobSat == 9] <- NA
```

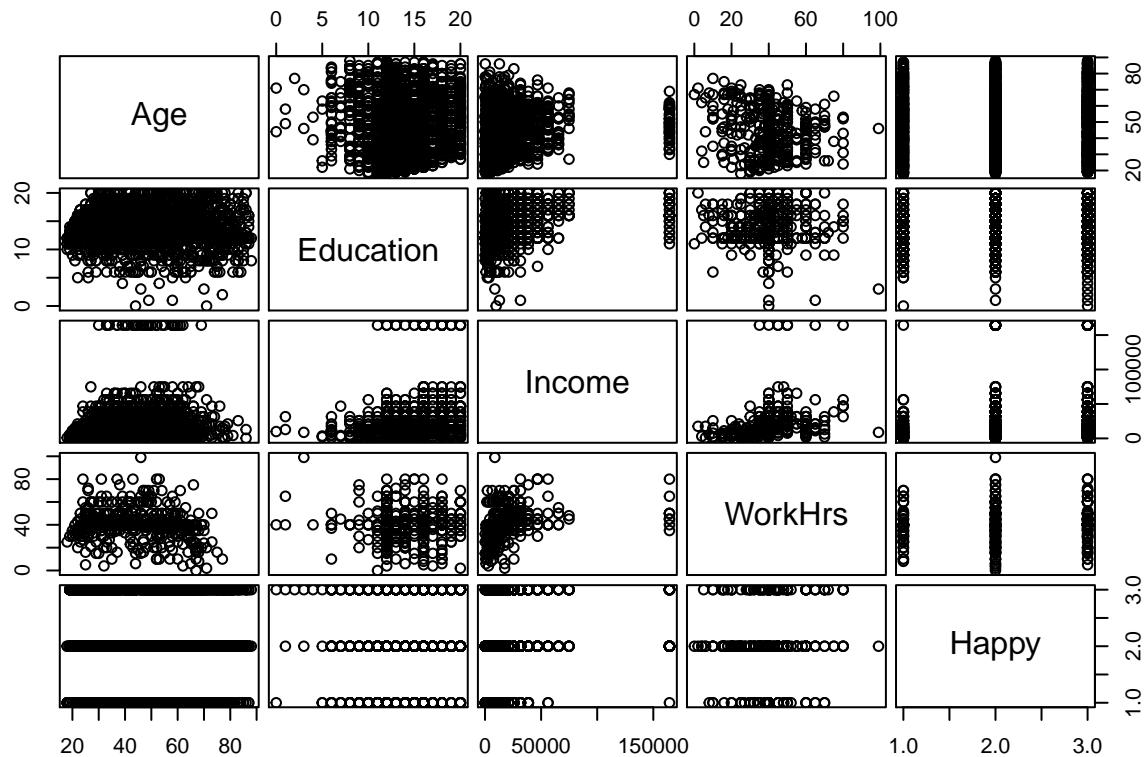
```
happiness_data$Income[happiness_data$Income == 0 | happiness_data$Income == 999998 | happiness_data$Income == 999999] <- NA
```

```
happiness_data$WorkHrs[happiness_data$WorkHrs == -1 | happiness_data$WorkHrs == 998 | happiness_data$WorkHrs == 999] <- NA
```

```
happiness_data$Happy[happiness_data$Happy == 0 | happiness_data$Happy == 8 | happiness_data$Happy == 9] <- NA
```

```
happiness_data$Happy[happiness_data$Happy == 1] <- 100
happiness_data$Happy[happiness_data$Happy == 3] <- 1
happiness_data$Happy[happiness_data$Happy == 100] <- 3

#exploring data
pairs(happiness_data[, -c(1,2,3,4,5,6,8,10)], gap=0.4,cex.labels=1.5)
```

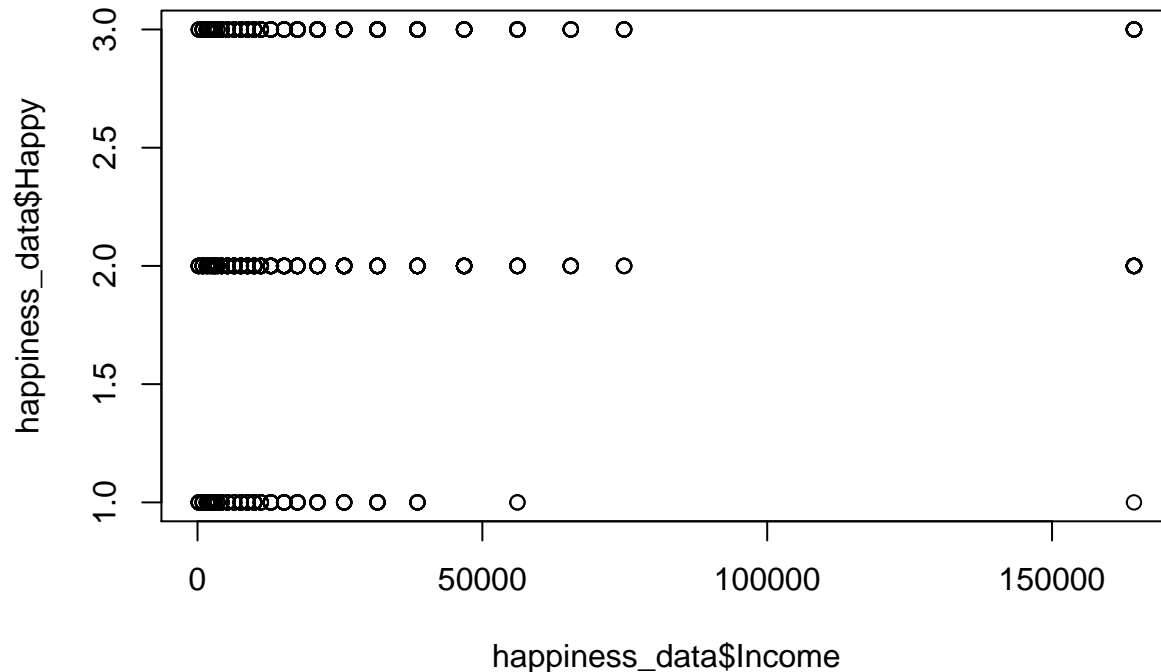


```
m1 <- lm(happiness_data$Happy ~ happiness_data$Age + happiness_data$Education + happiness_data$Income +
happiness_data$WorkHrs)
summary(m1)
```

```
##
## Call:
## lm(formula = happiness_data$Happy ~ happiness_data$Age + happiness_data$Education +
##     happiness_data$Income + happiness_data$WorkHrs)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -1.5164 -0.2267 -0.1453  0.7486  0.9651
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)    1.915e+00  2.240e-01  8.546 3.04e-16 ***
## happiness_data$Age    2.136e-03  2.470e-03   0.865   0.388
## happiness_data$Education -2.974e-03  1.052e-02  -0.283   0.778
## happiness_data$Income  1.950e-06  1.412e-06   1.381   0.168
## happiness_data$WorkHrs  4.098e-03  2.552e-03   1.606   0.109
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
##
## Residual standard error: 0.6347 on 384 degrees of freedom
## (1978 observations deleted due to missingness)
## Multiple R-squared: 0.01724, Adjusted R-squared: 0.007001
## F-statistic: 1.684 on 4 and 384 DF, p-value: 0.1529
```

```
m2 <- lm(happiness_data$Happy ~ happiness_data$Income)
plot(happiness_data$Happy ~ happiness_data$Income)
```



```
summary(m2)
```

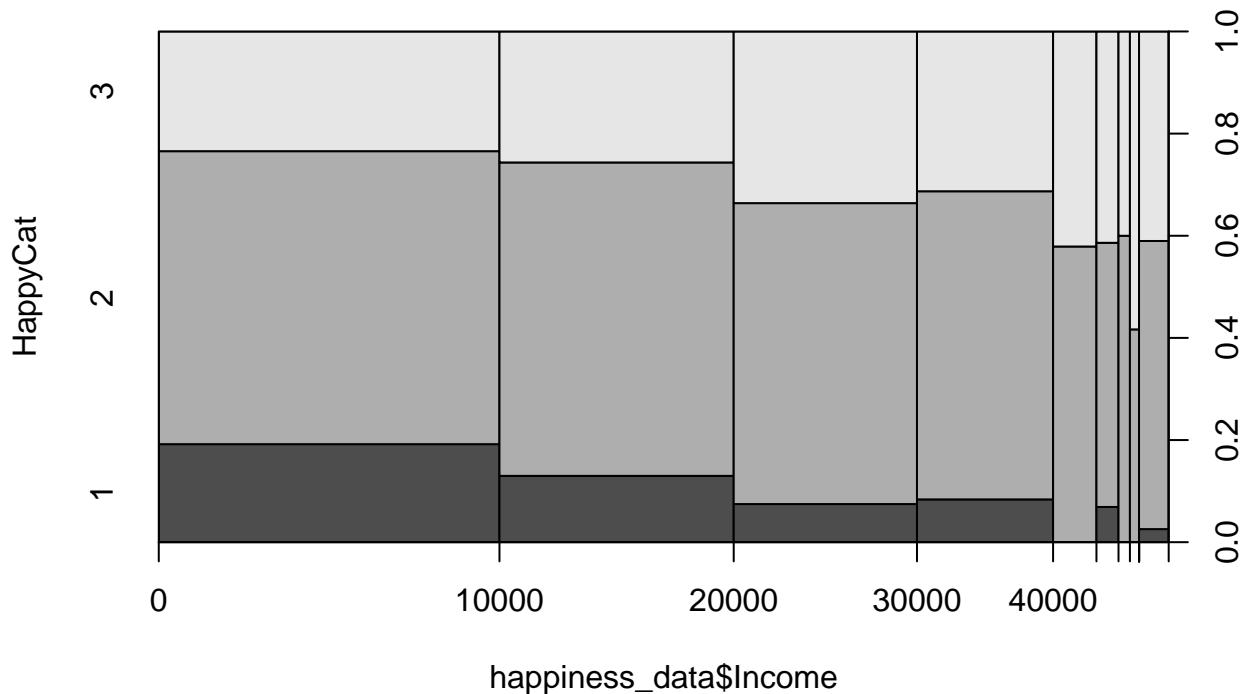
```
##
## Call:
## lm(formula = happiness_data$Happy ~ happiness_data$Income)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -1.6110 -0.1944 -0.1302  0.7579  0.9039
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)    2.095e+00  2.170e-02  96.57  < 2e-16 ***
## happiness_data$Income 3.137e-06  5.852e-07   5.36  9.78e-08 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.6137 on 1326 degrees of freedom
## (1039 observations deleted due to missingness)
## Multiple R-squared: 0.02121, Adjusted R-squared: 0.02047
## F-statistic: 28.73 on 1 and 1326 DF, p-value: 9.783e-08
```

```
#adding factors/levels
```

```
HappyCat <- factor(happiness_data$Happy)
levels(HappyCat)
```

```
## [1] "1" "2" "3"
m4 <- lm(HappyCat ~ happiness_data$Income)

## Warning in model.response(mf, "numeric"): using type = "numeric" with a
## factor response will be ignored
## Warning in Ops.factor(y, z$residuals): '-' not meaningful for factors
#summary(m4)
plot(HappyCat ~ happiness_data$Income)
```



```
m5 <- lm(happiness_data$Income ~ HappyCat)
summary(m5)

##
## Call:
## lm(formula = happiness_data$Income ~ HappyCat)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -27949 -15313  -7123   3407 150848
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)   13534      2238    6.048 1.91e-09 ***
## HappyCat2      9511      2459    3.867 0.000115 ***
## HappyCat3    14650      2666    5.494 4.70e-08 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 28480 on 1325 degrees of freedom
## (1039 observations deleted due to missingness)
## Multiple R-squared:  0.02246,    Adjusted R-squared:  0.02099
```

```
## F-statistic: 15.22 on 2 and 1325 DF, p-value: 2.909e-07
```

```
plot(happiness_data$Income ~ HappyCat)
```

