

Mental Health

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R Markdown

This is an R Markdown document for analysing the Mental Health Services Survey Data.

```
## Mental Health Services Survey Data
data <- read.table('https://umich.instructure.com/files/330381/download?
download_frd=1', header = T)
str(data)
```

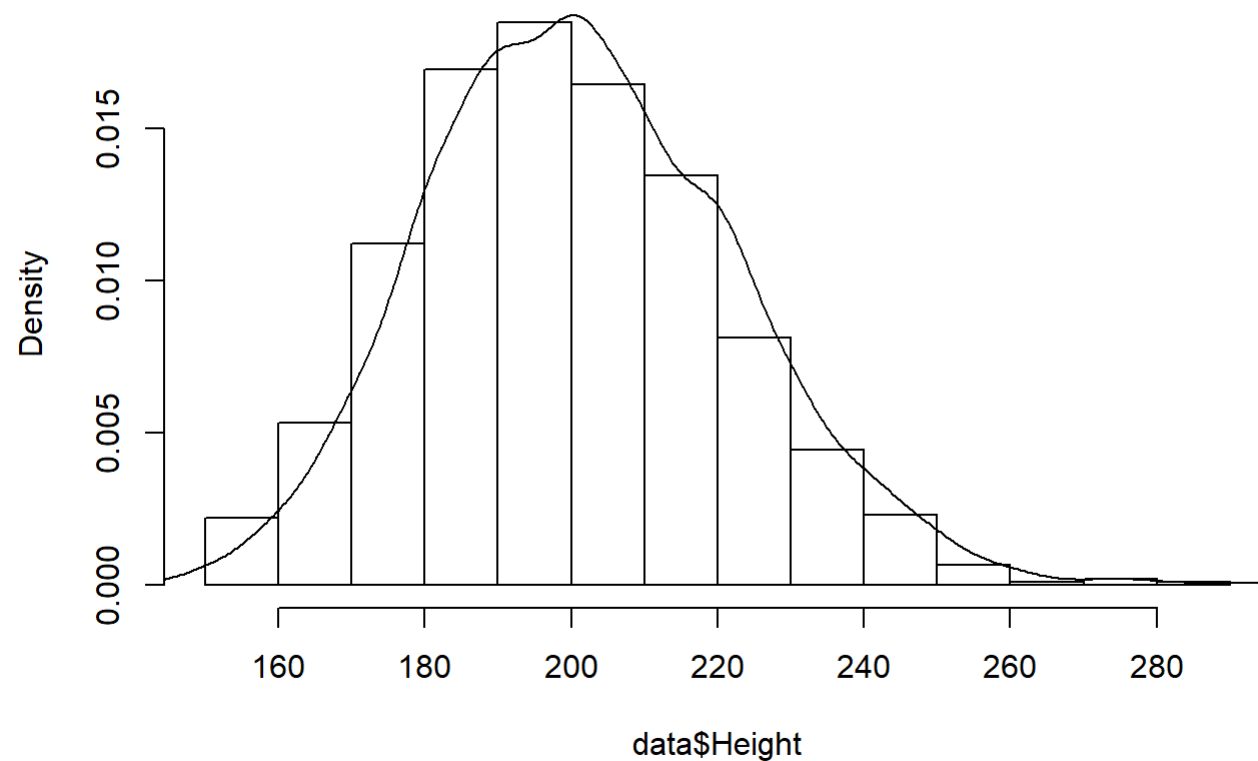
```
## 'data.frame': 1034 obs. of 6 variables:
## $ Name : Factor w/ 1032 levels "A.J._Burnett",...: 13 795 818 629 200 135 732 718 67 23 ...
## $ Team : Factor w/ 30 levels "ANA","ARZ","ATL",...: 4 4 4 4 4 4 4 4 4 4 ...
## $ Position: Factor w/ 9 levels "Catcher","Designated_Hitter",...: 1 1 1 3 3 6 7 9 9 4 ...
## $ Height : int 74 74 72 72 73 69 69 71 76 71 ...
## $ Weight : int 180 215 210 210 188 176 209 200 231 180 ...
## $ Age : num 23 34.7 30.8 35.4 35.7 ...
```

Preparation the data

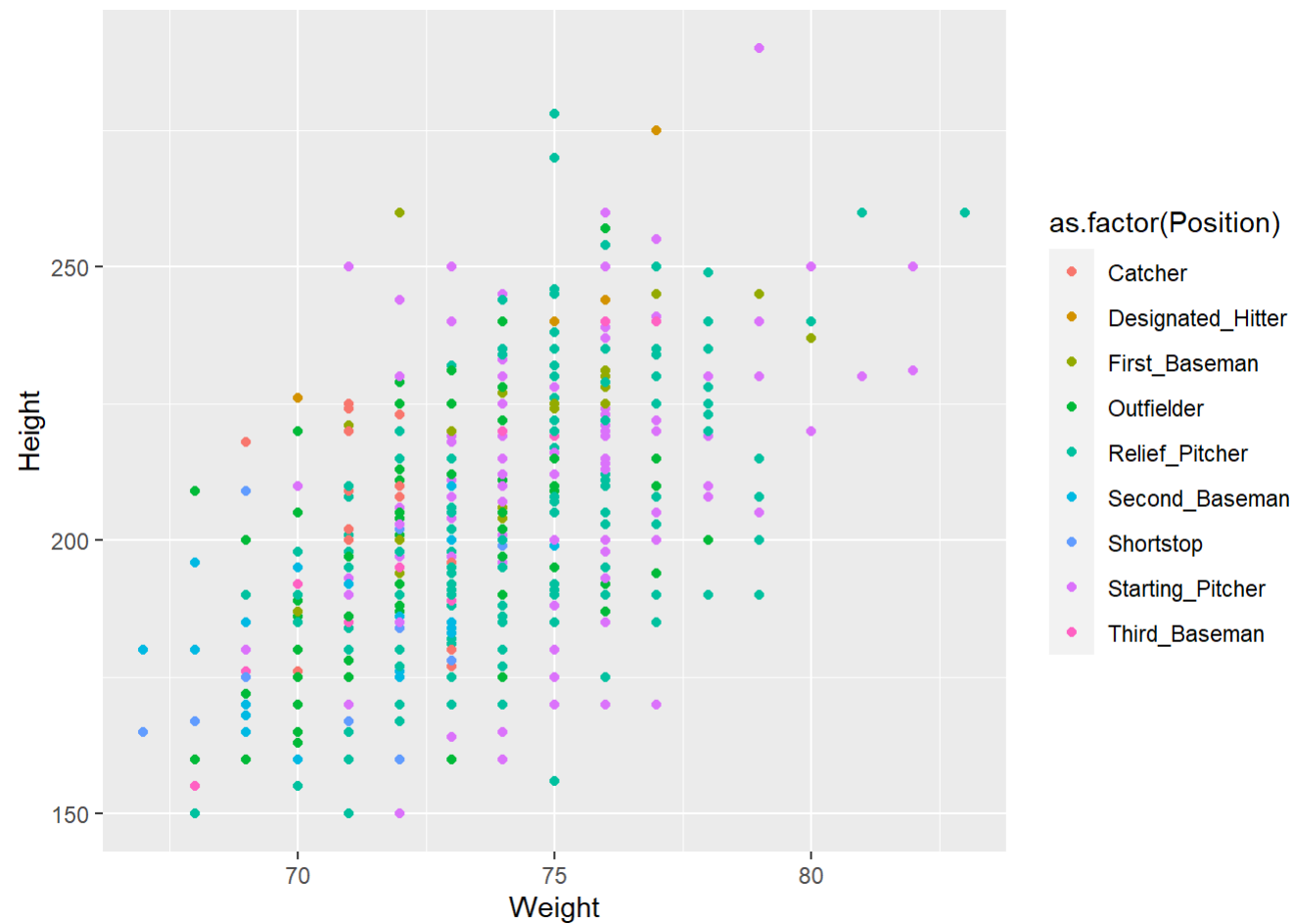
```
#data$Team <- as.factor(data$Team)
#data$Position <- as.factor(data$Position)
names(data)[4] <- "Weight"
names(data)[5] <- "Height"
data <- data[,-1] # remove the names

hist(data$Height, freq = F,
      main = "Histogram of Height")
lines(density(data$Height))
```

Histogram of Height



```
## Registered S3 methods overwritten by 'tibble':  
##   method      from  
##   format.tbl  pillar  
##   print.tbl   pillar
```

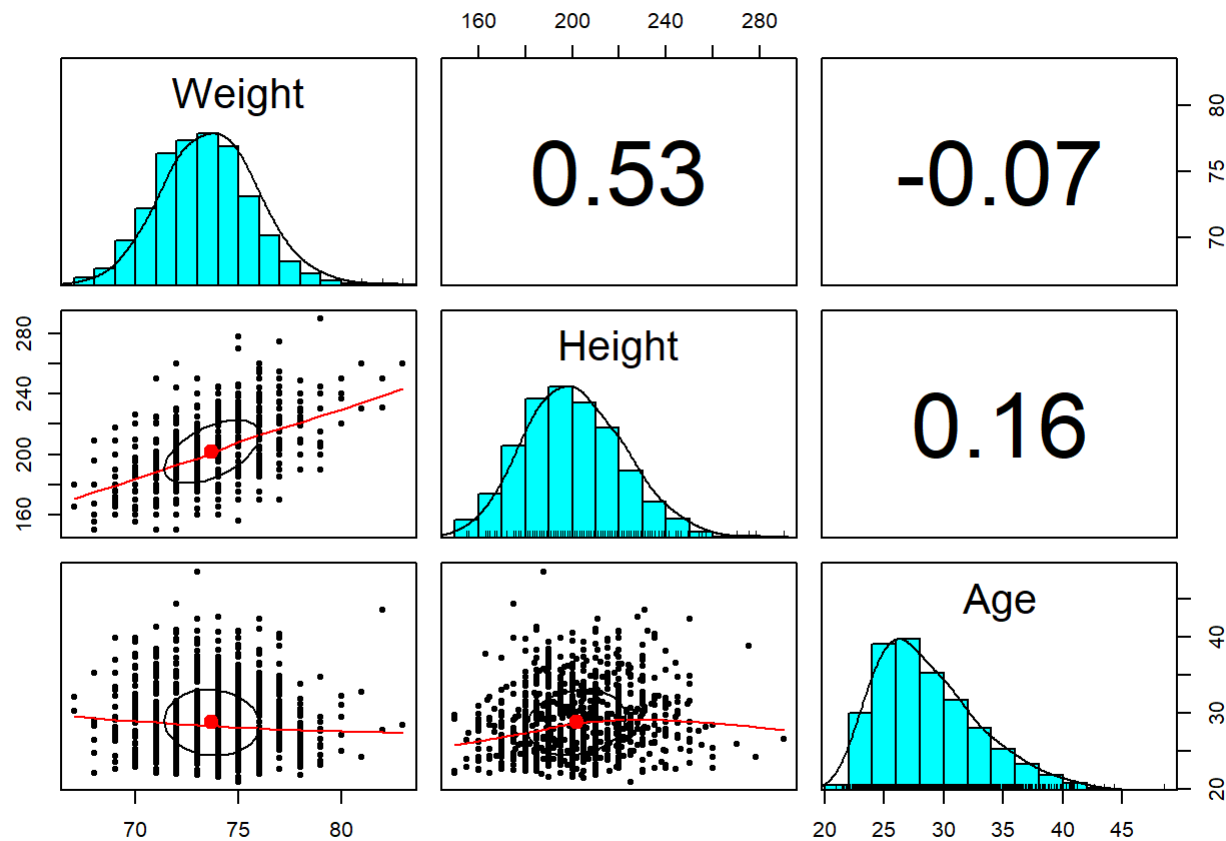


```
#install.packages("psych")
library(psych)
```

```
##
## Attaching package: 'psych'
```

```
## The following objects are masked from 'package:ggplot2':
##
##    %+%, alpha
```

```
pairs.panels(data[, c("Weight", "Height", "Age")])
```



```
fit <- lm(Height~., data = data)
summary(fit)
```

```
##
## Call:
## lm(formula = Height ~ ., data = data)
##
## Residuals:
```

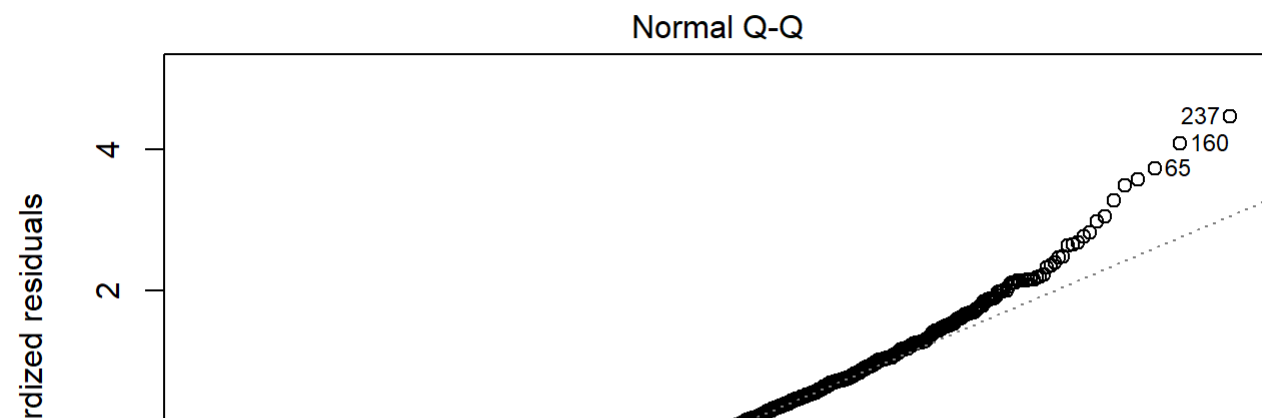
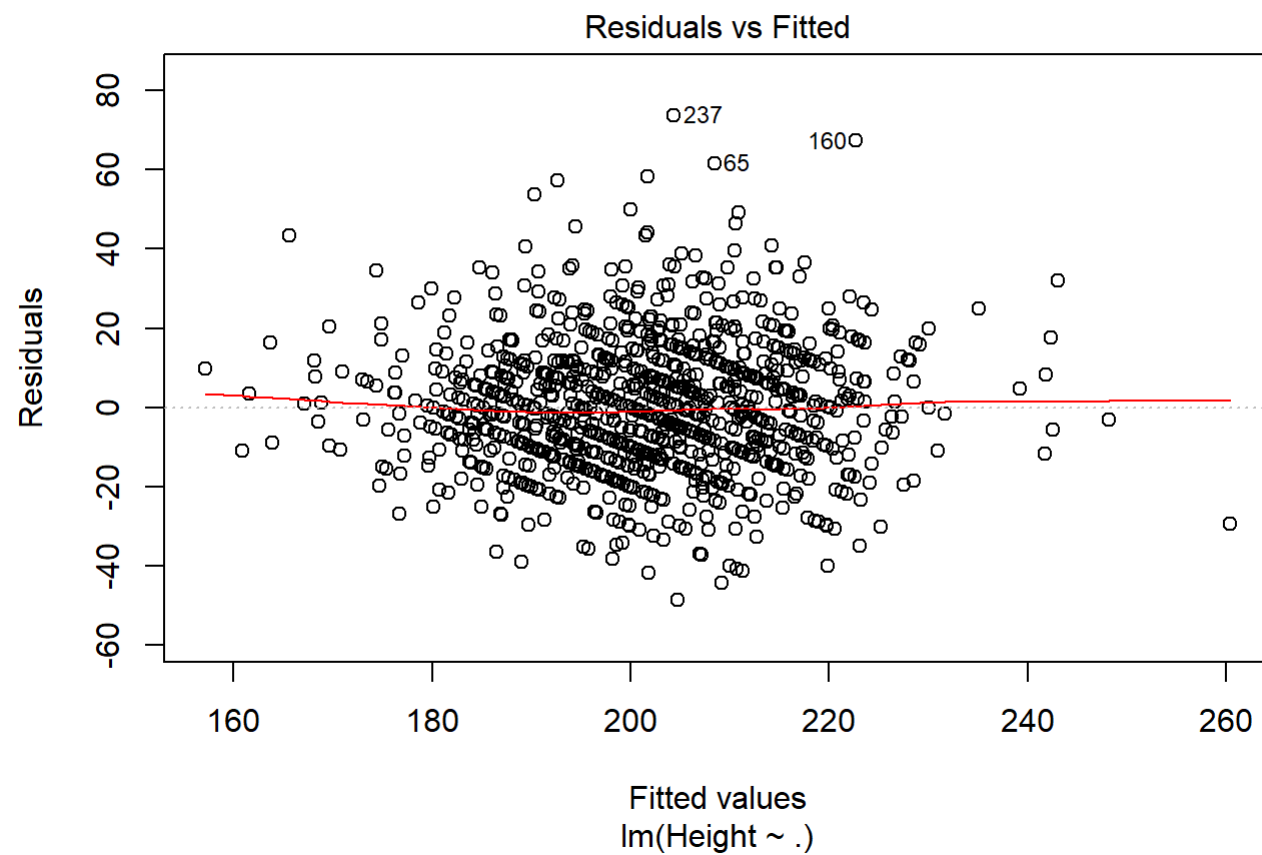
	Min	1Q	Median	3Q	Max
	-48.692	-10.909	-0.778	9.858	73.649

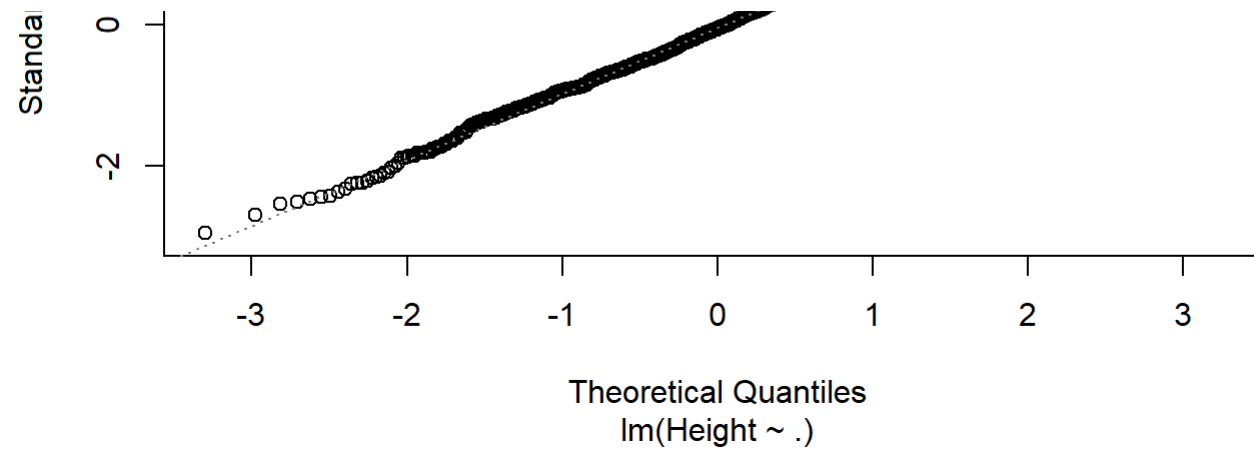
```
##
## Coefficients:
```

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	-164.9995	19.3828	-8.513	< 2e-16 ***
TeamARZ	7.1881	4.2590	1.688	0.091777 .
TeamATL	-1.5631	3.9757	-0.393	0.694278
TeamBAL	-5.3128	4.0193	-1.322	0.186533
TeamBOS	-0.2838	4.0034	-0.071	0.943492
TeamCHC	0.4026	3.9949	0.101	0.919749
TeamCIN	2.1051	3.9934	0.527	0.598211
TeamCLE	-1.3160	4.0356	-0.326	0.744423
TeamCOL	-3.7836	4.0287	-0.939	0.347881
TeamCWS	4.2944	4.1022	1.047	0.295413
TeamDET	2.3024	3.9725	0.580	0.562326
TeamFLA	2.6985	4.1336	0.653	0.514028
TeamHOU	-0.6808	4.0634	-0.168	0.866976
TeamKC	-4.7664	4.0242	-1.184	0.236525
TeamLA	2.8598	4.0817	0.701	0.483686
TeamMIN	2.1269	4.0947	0.519	0.603579
TeamMLW	4.2897	4.0243	1.066	0.286706
TeamNYM	-1.9736	3.9493	-0.500	0.617370
TeamNYY	1.7483	4.1234	0.424	0.671655
TeamOAK	-0.5464	3.9672	-0.138	0.890474
TeamPHI	-6.8486	3.9949	-1.714	0.086778 .
TeamPIT	4.3023	4.0210	1.070	0.284890
TeamSD	2.6133	4.0915	0.639	0.523148
TeamSEA	-0.9147	4.0516	-0.226	0.821436
TeamSF	0.8411	4.0520	0.208	0.835593
TeamSTL	-1.1341	4.1193	-0.275	0.783132
TeamTB	-2.6616	4.0944	-0.650	0.515798
TeamTEX	-0.7695	4.0283	-0.191	0.848556
TeamTOR	1.3943	4.0681	0.343	0.731871

```
## TeamWAS          -1.7555      4.0038  -0.438  0.661142
## PositionDesignated_Hitter    8.9037      4.4533   1.999  0.045842 *
## PositionFirst_Baseman        2.4237      3.0058   0.806  0.420236
## PositionOutfielder          -6.2636      2.2784  -2.749  0.006084 **
## PositionRelief_Pitcher       -7.7695      2.1959  -3.538  0.000421 ***
## PositionSecond_Baseman     -13.0843      2.9638  -4.415  1.12e-05 ***
## PositionShortstop          -16.9562      3.0406  -5.577  3.16e-08 ***
## PositionStarting_Pitcher    -7.3599      2.2976  -3.203  0.001402 **
## PositionThird_Baseman       -4.6035      3.1689  -1.453  0.146613
## Weight                4.7175      0.2563  18.405  < 2e-16 ***
## Age                   0.8906      0.1259   7.075  2.82e-12 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 16.78 on 994 degrees of freedom
## Multiple R-squared:  0.3858, Adjusted R-squared:  0.3617
## F-statistic: 16.01 on 39 and 994 DF,  p-value: < 2.2e-16
```

```
plot(fit, which = 1:2)
```





```
library(rpart.plot)
```

```
## Loading required package: rpart
```

```
library(rpart)
data.tree <- rpart(Weight~Height + Age, data = data)

rpart.plot(data.tree, fallen.leaves = T, digit = 2,
            type = 3, cex=0.8)
```