Stat 410 | Salary Project Report ¶

Rachel, Abdullah, Gustavo

Importing Data & Data Cleaning

In [1]:
```
salary = read.csv('Salary Data.csv')
str(salary)
```

```
'data.frame':   375 obs. of  6 variables:
 $ ï..Age            : int  32 28 45 36 52 29 42 31 26 38 ...
 $ Gender            : Factor w/ 3 levels "","Female","Male": 3 2 3 2 3 3 2 3
2 3 ...
 $ Education.Level   : Factor w/ 4 levels "","Bachelor's",..: 2 3 4 2 3 2 3 2
2 4 ...
 $ Job.Title         : Factor w/ 175 levels "","Account Manager",..: 161 19 1
32 103 24 83 95 106 84 152 ...
 $ Years.of.Experience: num  5 3 15 7 20 2 12 4 1 10 ...
 $ Salary            : int  90000 65000 150000 60000 200000 55000 120000 8000
0 45000 110000 ...
```

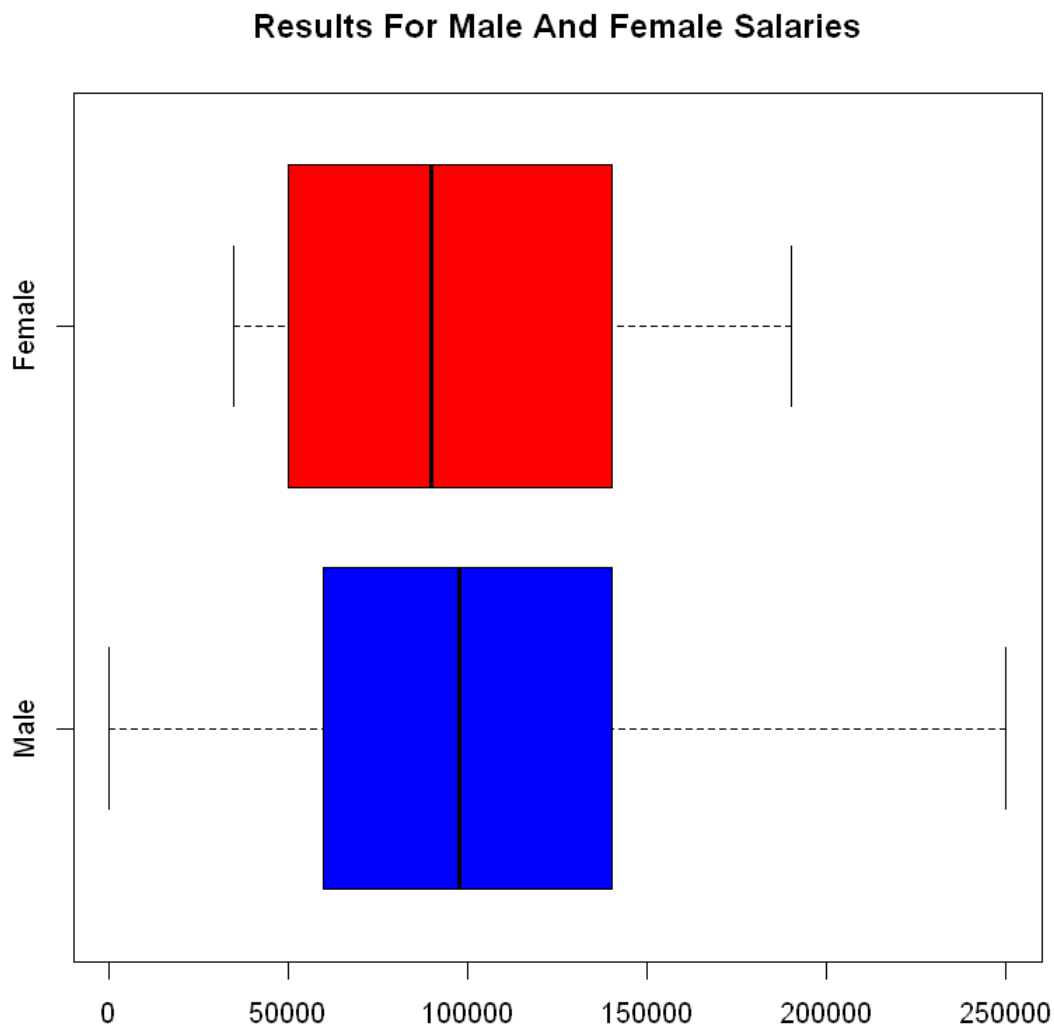
In [2]:
```
salary$Age = salary$ï..Age

salary = subset(salary, select = -c(ï..Age))

str(salary)
```

```
'data.frame':   375 obs. of  6 variables:
 $ Gender            : Factor w/ 3 levels "","Female","Male": 3 2 3 2 3 3 2 3
2 3 ...
 $ Education.Level   : Factor w/ 4 levels "","Bachelor's",..: 2 3 4 2 3 2 3 2
2 4 ...
 $ Job.Title         : Factor w/ 175 levels "","Account Manager",..: 161 19 1
32 103 24 83 95 106 84 152 ...
 $ Years.of.Experience: num  5 3 15 7 20 2 12 4 1 10 ...
 $ Salary            : int  90000 65000 150000 60000 200000 55000 120000 8000
0 45000 110000 ...
 $ Age               : int  32 28 45 36 52 29 42 31 26 38 ...
```

Exploratory Data Analysis

In [3]:
```
male = salary$Salary[salary$Gender == 'Male']
fem = salary$Salary[salary$Gender == 'Female']
```

In [4]:
```
boxplot(male, fem, main = 'Results For Male And Female Salaries',
        names = c('Male','Female'), col = c( 'blue', 'red'), border = 'black',
        horizontal = TRUE)
```



In [5]:
```
levels(salary$Education.Level[])
```

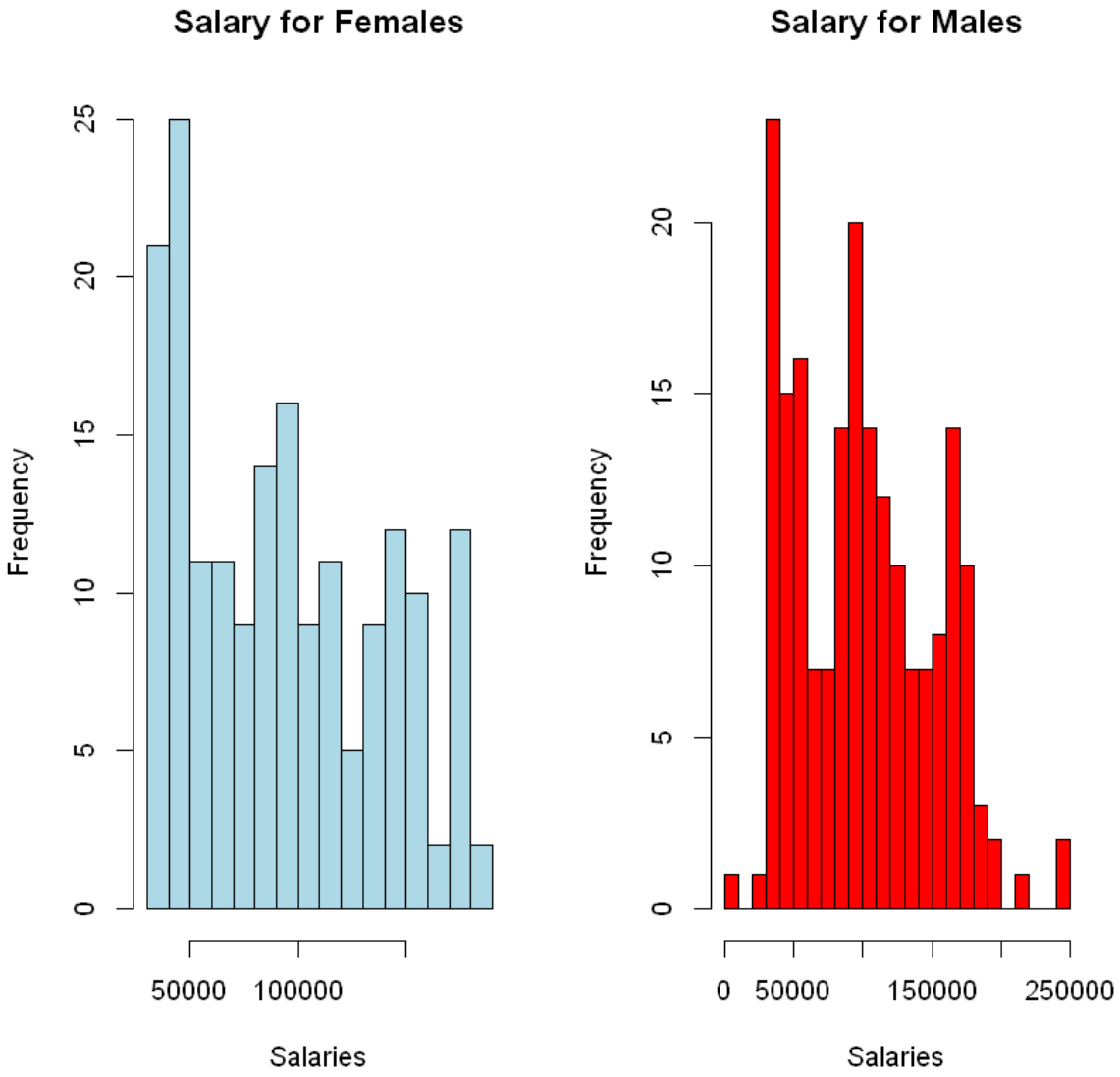
" 'Bachelor\'s' 'Master\'s' 'PhD'

In [6]:

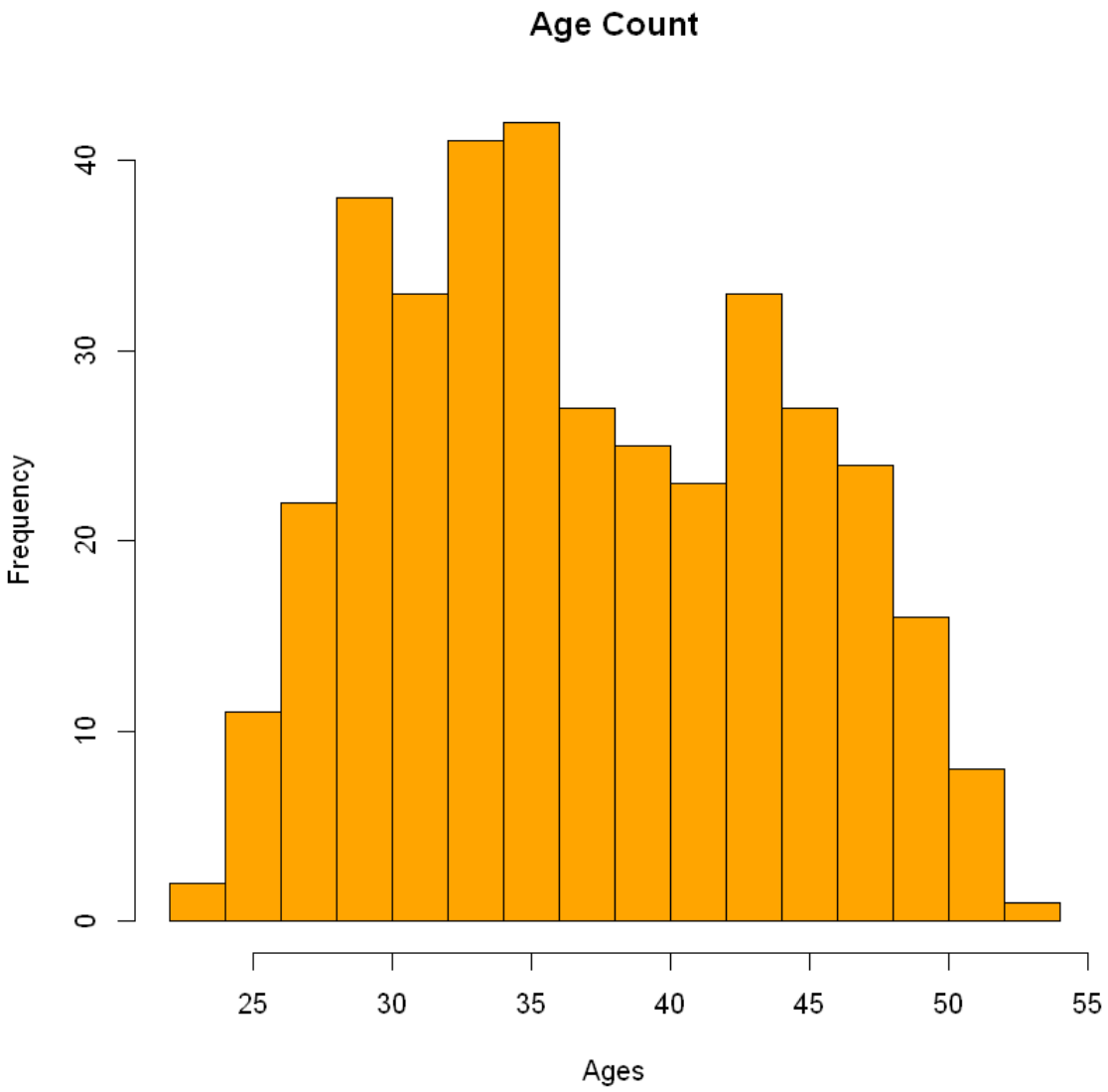
```
x = salary$Years.of.Experience
y = salary$Salary

plot(x,y, type = 'n',
     main = 'Salary v Education Level',
     xlab = 'Experience Years', ylab = 'Salary',
     bty = 'l', las = 1, cex.axis = .8,
     tcl = -0.2)

points(x = salary$Years.of.Experience[salary$Education.Level == "Bachelor's"],
       y = salary$Salary[salary$Education.Level == "Bachelor's"],
       pch = 16, col = 'deepskyblue')
points(x = salary$Years.of.Experience[salary$Education.Level == "Master\'s"],
       y = salary$Salary[salary$Education.Level == "Master\'s"],
       pch = 16, col = 'magenta')
points(x = salary$Years.of.Experience[salary$Education.Level == "PhD"],
       y = salary$Salary[salary$Education.Level == "PhD"],
       pch = 16, col = 'green')
points(x = salary$Years.of.Experience[salary$Education.Level == ''],
       y = salary$Salary[salary$Education.Level == ''],
       pch = 16, col = 'blue')

leg_cols = c("deepskyblue", "magenta", "green", "blue")
leg_sym = c(16, 16, 16, 16)
leg_lab = c("Bachelor's", "Master\'s'", "PhD", "na")

legend('topleft',
       col = leg_cols, pch = leg_sym,
       legend = leg_lab, bty = "n",
       title = "Education Levels")
```


Salary v Education Level
Education Levels
Bachelor's
Master's'
PhD
na
250000
200000
150000
100000
50000
0
Salary
0
5
10
15
20
25
Experience Years

In [7]:
```
layout(matrix(1:2, 1, 2))
hist(fem, main = "Salary for Females", col = "lightblue", xlab = "Salaries", br
     freq = TRUE)
hist(male, main = "Salary for Males", col = "red", xlab = "Salaries", breaks =
     freq = TRUE)
```



In [8]:
```
hist(salary$Age, main = "Age Count", col = 'orange', xlab = "Ages", ylab = "Fre
     breaks = 20, freq = TRUE)
```



Statistical Analysis

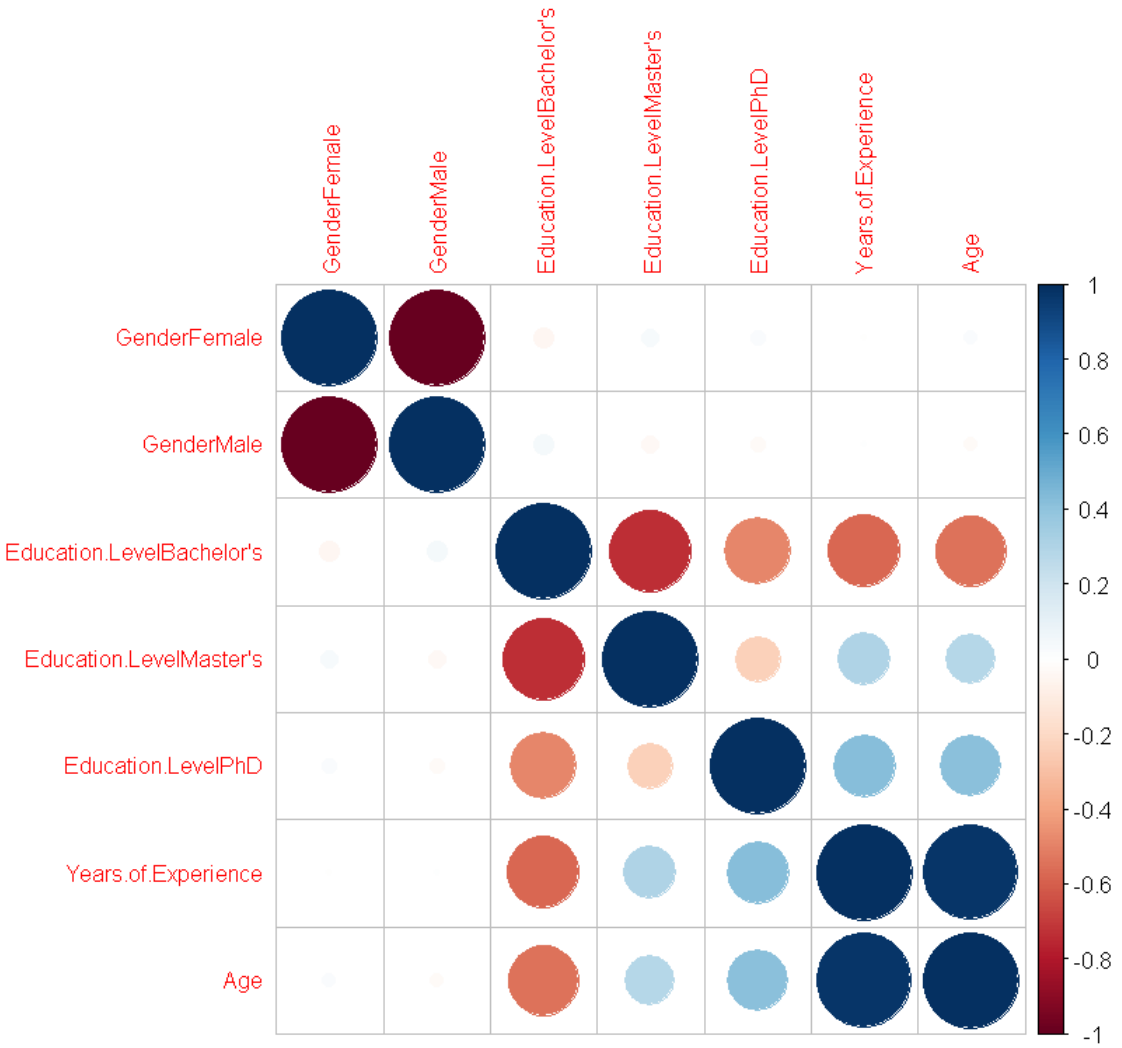
In [9]:
```
age_form = Salary ~ Gender + Education.Level + Years.of.Experience + Age
form = Salary ~ Gender + Education.Level + Years.of.Experience
```

In [10]:
```
X = model.matrix(form, data = salary)
X[1,]

age_X = model.matrix(age_form, data = salary)
```

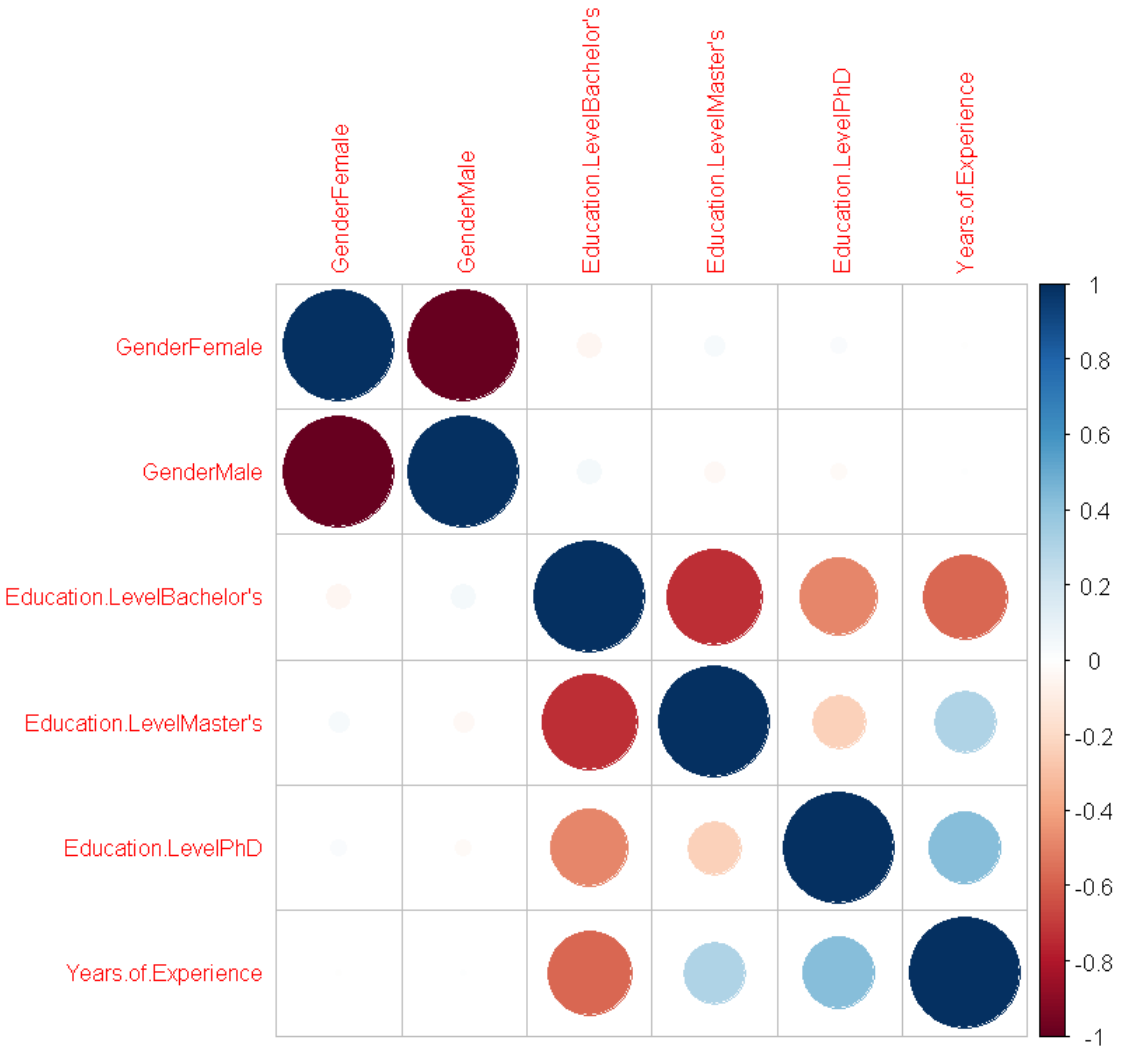
(Intercept)	1
GenderFemale	0
GenderMale	1
Education.LevelBach…	1
Education.LevelMast…	0
Education.LevelPhD	0
Years.of.Experience	5

In [11]:
```
library(corrplot)
corrplot(cor(age_X[,-1]), tl.cex = .8)
```

```
corrplot 0.92 loaded
```

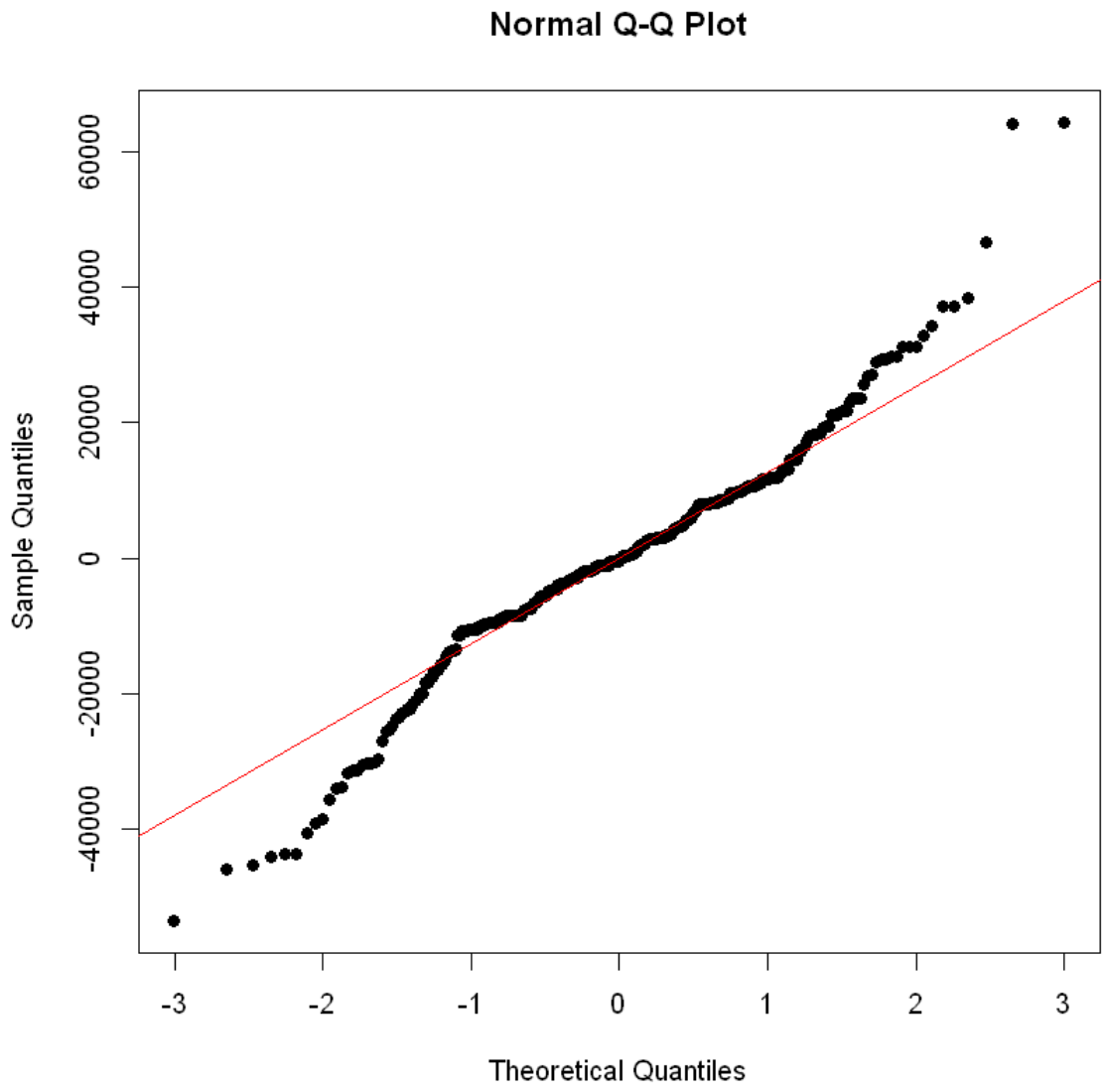


In [12]:
```
library(corrplot)
corrplot(cor(X[,-1]), tl.cex = .8)
```



In [13]:
```
fit = lm(form, data = salary)
agefit = lm(age_form, data = salary)
```

In [14]:
```
qqnorm(fit$residuals, pch = 16)
qqline(fit$residuals, col = 'red')
```

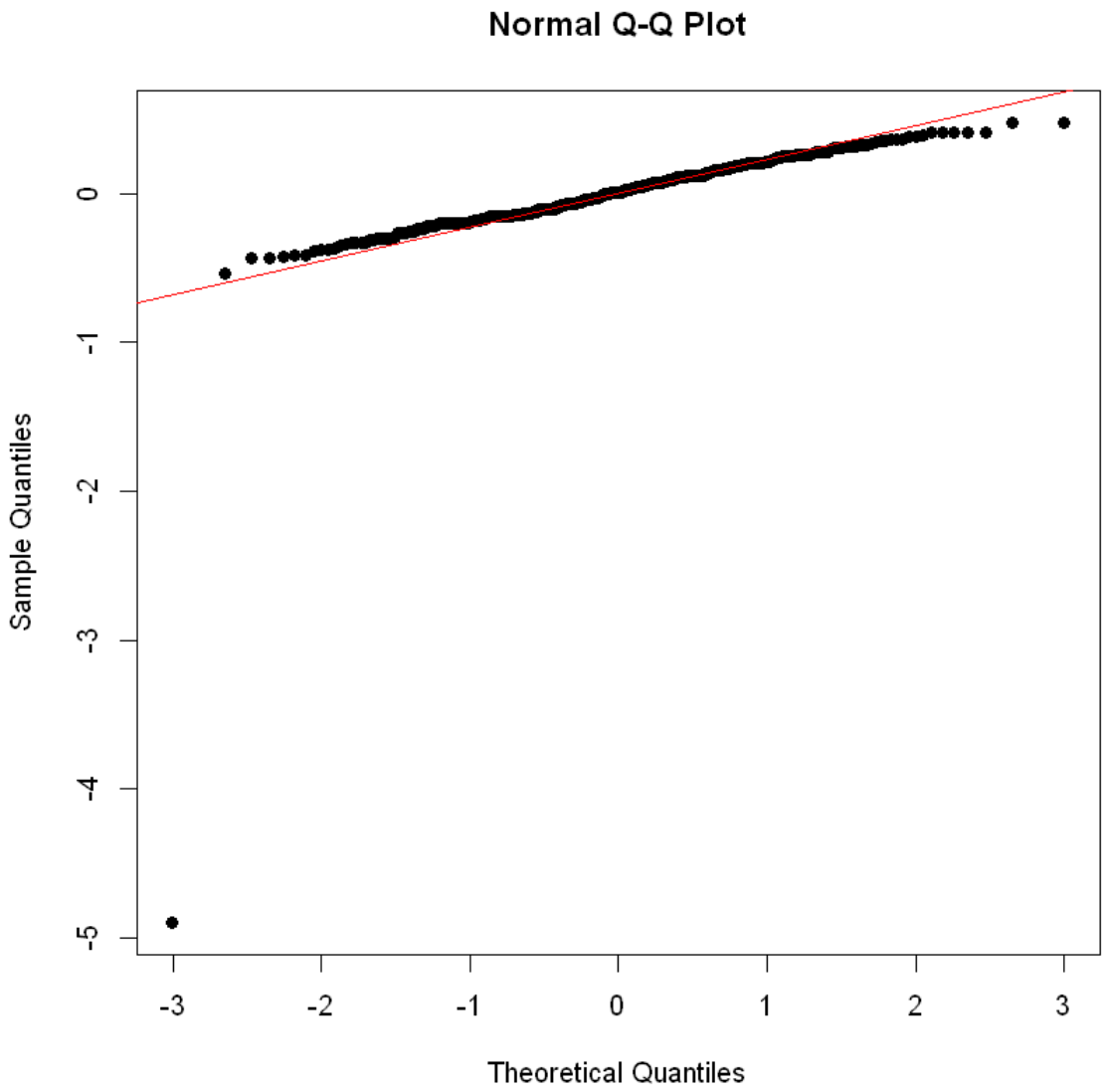


- We can see that the data is not normal enough to contain normality of residuals so we will attempt to Transform the data by taking the Log() of our salary response

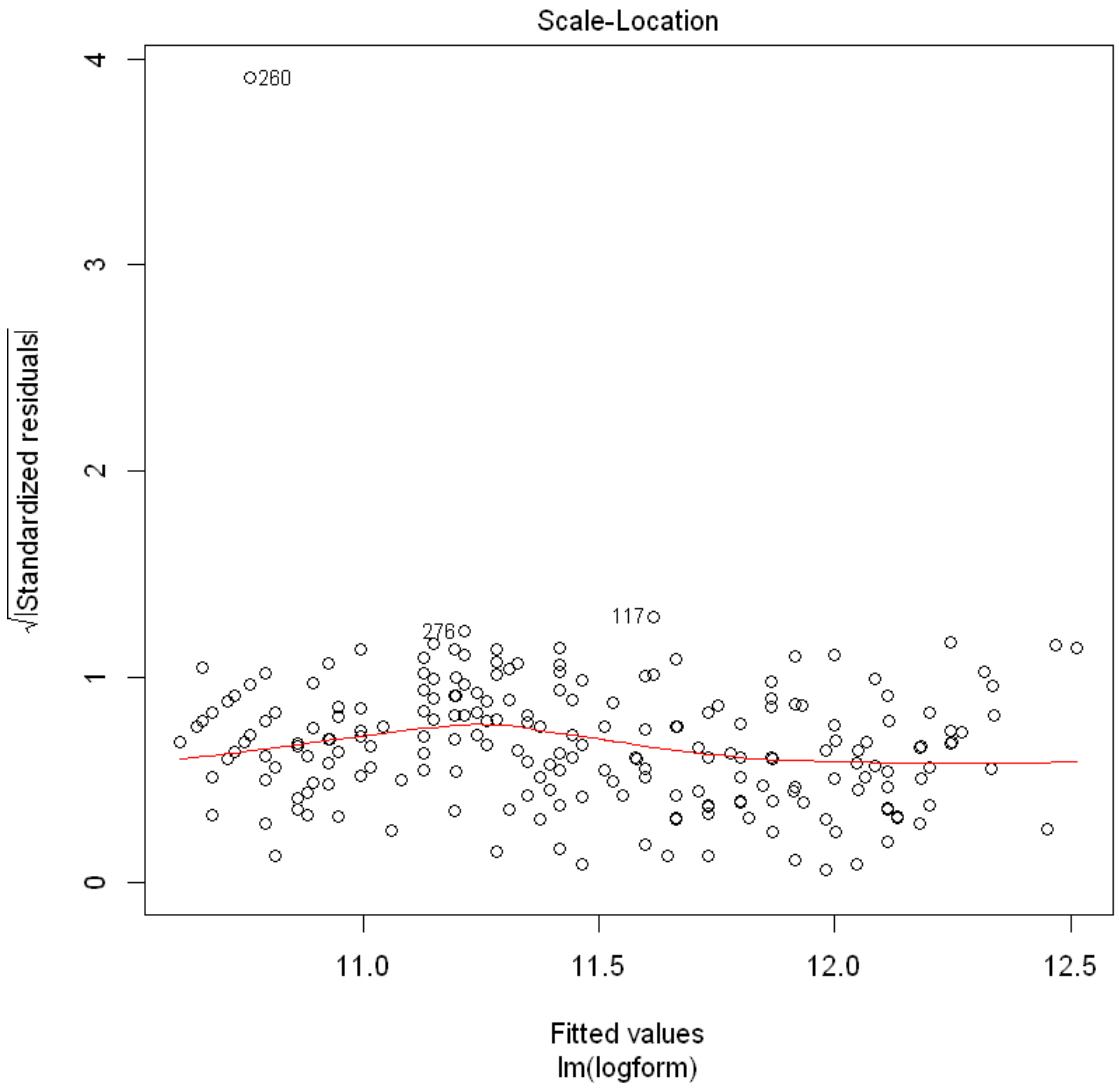
In [15]:
```
logform = log(Salary) ~ Gender + Education.Level + Years.of.Experience
age_log_form = log(Salary) ~ Gender + Education.Level + Years.of.Experience + Ag
```

In [16]:
```
lfit = lm(logform, data = salary)
age_lfit = lm(age_log_form, data = salary)
```

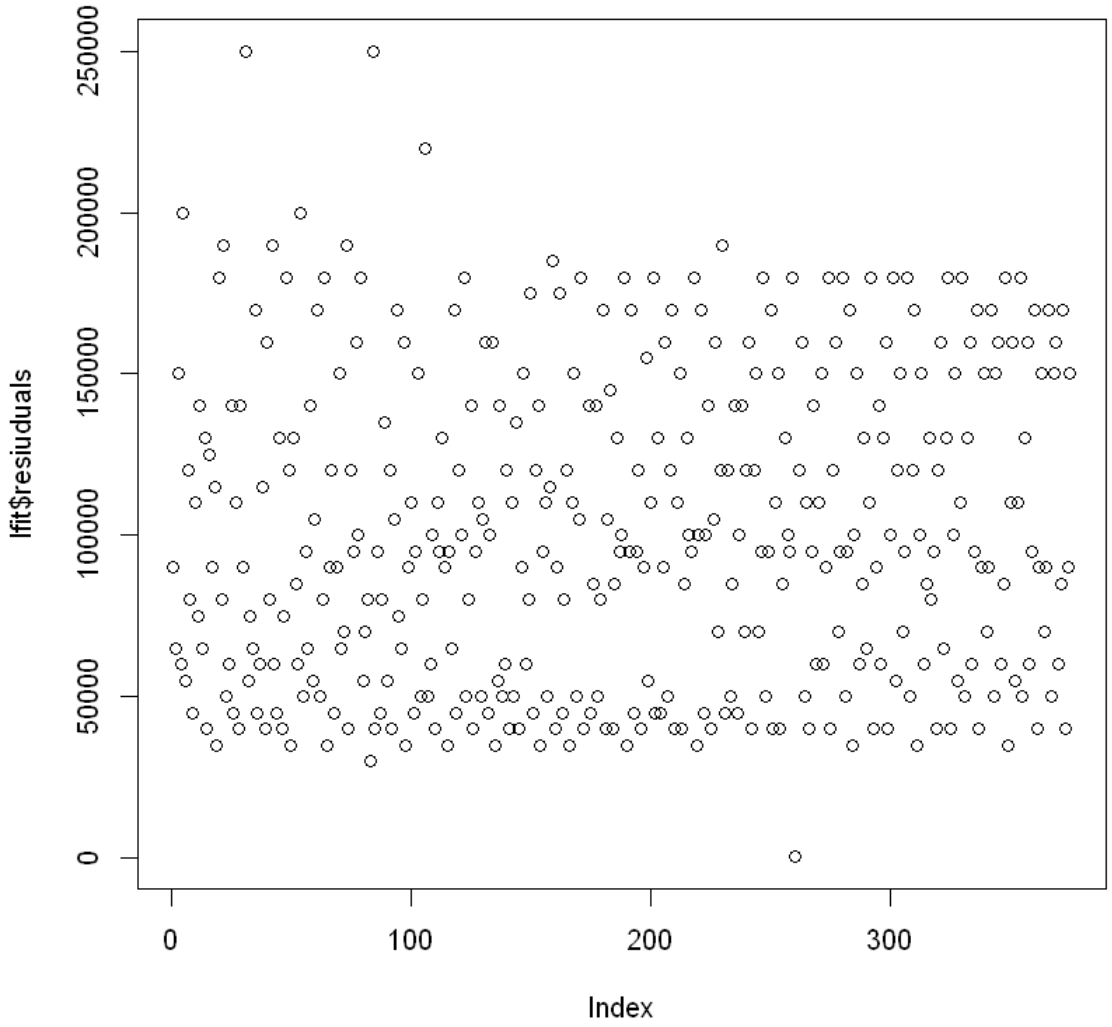
In [17]:
```
qqnorm(lfit$residuals, pch =16)
qqline(lfit$residuals, col = 'red')
```



In [18]:
```
plot(lfit, which = 3)
```



In [19]:
```
plot(salary$Salary, lfit$resiuduals)
```



In [20]:
```
summary(age_lfit)
```

```
Call:
lm(formula = age_log_form, data = salary)

Residuals:
    Min      1Q  Median      3Q     Max 
-4.9327 -0.1280 -0.0031  0.1393  0.4445 

Coefficients:
                        Estimate Std. Error t value Pr(>|t|)    
(Intercept)              9.47930    0.31552  30.043  < 2e-16 ***
GenderMale               0.06118    0.03316   1.845 0.065838 .  
Education.LevelMaster's  0.20142    0.04374   4.605  5.7e-06 ***
Education.LevelPhD       0.20106    0.05860   3.431 0.000670 ***
Years.of.Experience      0.02182    0.01286   1.697 0.090512 .  
Age                      0.04198    0.01161   3.616 0.000341 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.3169 on 367 degrees of freedom
  (2 observations deleted due to missingness)
Multiple R-squared:  0.7159,    Adjusted R-squared:  0.7121 
F-statistic:   185 on 5 and 367 DF,  p-value: < 2.2e-16
```

In [21]:
```
summary(lfit)
```

```
Call:
lm(formula = logform, data = salary)

Residuals:
    Min      1Q  Median      3Q     Max 
-4.9023 -0.1462  0.0057  0.1603  0.4795 

Coefficients:
                         Estimate Std. Error t value Pr(>|t|)    
(Intercept)             10.613363   0.035331 300.396  < 2e-16 ***
GenderMale               0.046497   0.033443   1.390  0.16526    
Education.LevelMaster's  0.181446   0.044096   4.115 4.79e-05 ***
Education.LevelPhD       0.183966   0.059363   3.099  0.00209 ** 
Years.of.Experience      0.066933   0.003177  21.065  < 2e-16 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.322 on 368 degrees of freedom
  (2 observations deleted due to missingness)
Multiple R-squared:  0.7058,    Adjusted R-squared:  0.7026 
F-statistic: 220.7 on 4 and 368 DF,  p-value: < 2.2e-16
```

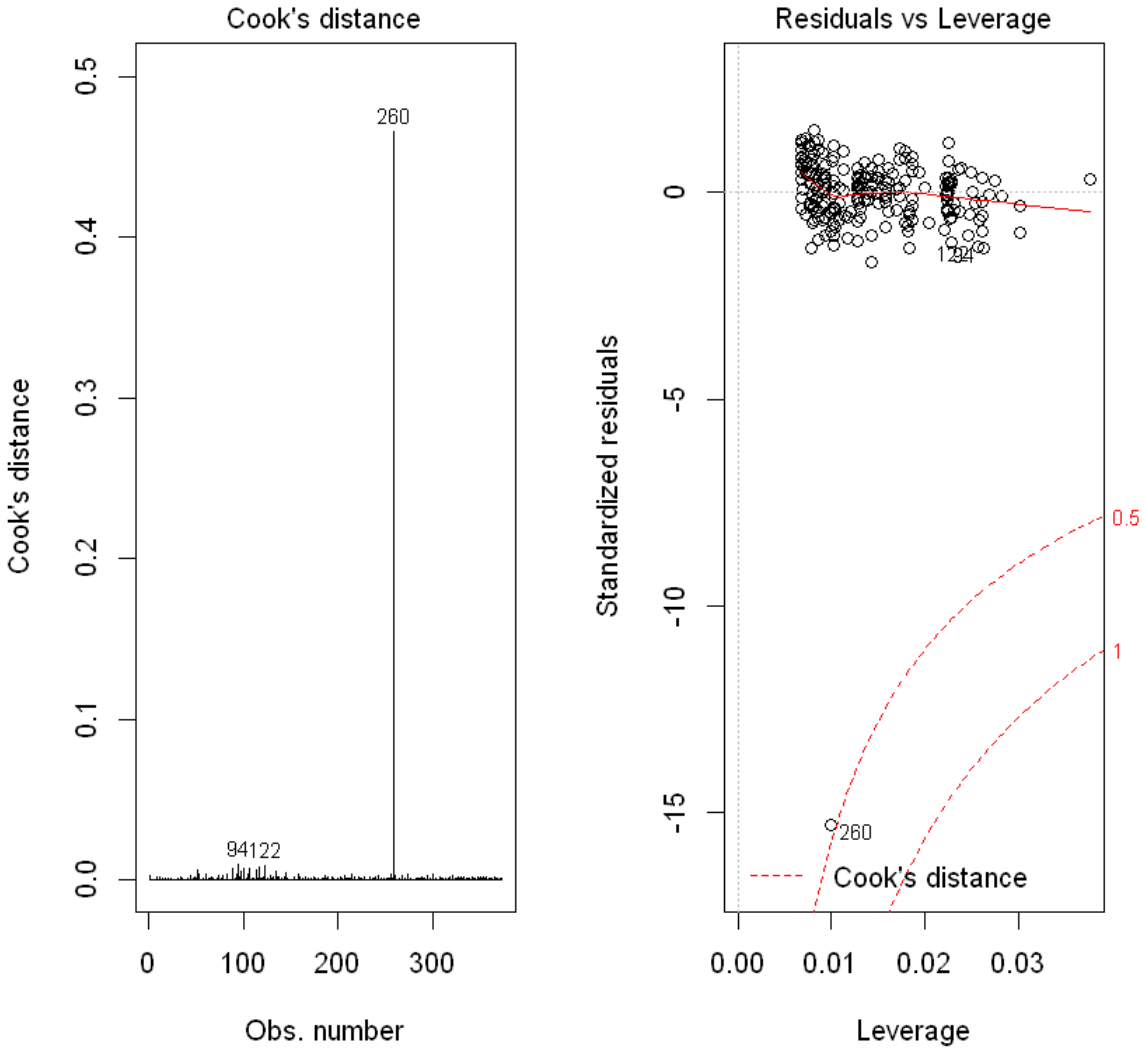
In [22]:
```
confint(age_lfit, level = .95)
```

	2.5 %	97.5 %
(Intercept)	8.858846279	10.09976267
GenderMale	-0.004025752	0.12637640
Education.LevelMaster's	0.115405674	0.28743033
Education.LevelPhD	0.085815481	0.31629535
Years.of.Experience	-0.003462775	0.04711255
Age	0.019151193	0.06480510

In [23]:
```
confint(lfit, level = .95)
```

	2.5 %	97.5 %
(Intercept)	10.54388645	10.68283944
GenderMale	-0.01926598	0.11226081
Education.LevelMaster's	0.09473426	0.26815819
Education.LevelPhD	0.06723237	0.30069877
Years.of.Experience	0.06068464	0.07318103

In [24]:
```
layout(matrix(1:2, 1, 2))
plot(lfit, which = 4:5)
```



In [25]:

```
male_master = data.frame(Gender = "Male",
                         Education.Level = "Master's",
                         Years.of.Experience = seq(0,25))
male_bachelor = data.frame(Gender = "Male",
                         Education.Level = "Bachelor's",
                         Years.of.Experience = seq(0,25))


age_male_master = data.frame(Gender = "Male",              #new data frame wit
                        Education.Level = "Master's",
                        Years.of.Experience = seq(0,25),
                        Age = 35)

age_male_bachelor = data.frame(Gender = "Male",            #new data framewith
                         Education.Level = "Bachelor's",
                         Years.of.Experience = seq(0,25),
                         Age = 35)

#prediction with Age variable
male_bach_pred = exp(predict(lfit, newdata = male_bachelor, interval = "predict
male_mast_pred = exp(predict(lfit, newdata = male_master, interval = "predictio

#predictions with age variable included for bachelors and masters
age_male_bach_pred = exp(predict(age_lfit, newdata = age_male_bachelor, interva
age_male_mast_pred = exp(predict(age_lfit, newdata = age_male_master, interval
```

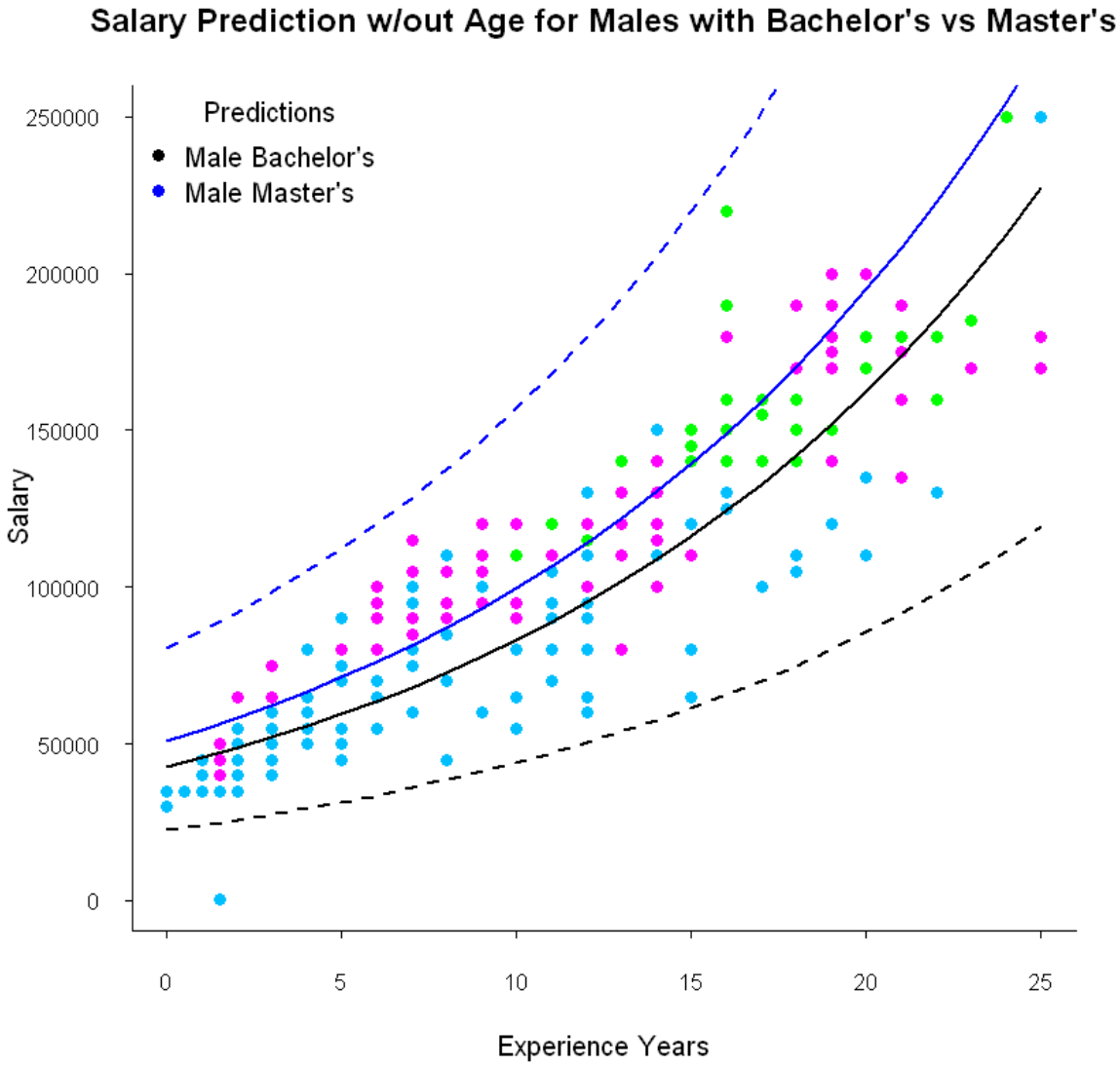
In [26]:

```
x = salary$Years.of.Experience
y = salary$Salary
ExpSeq = seq(0,25)

plot(x,y, type = 'n',
     main = "Salary Prediction w/Age for Males with Bachelor's vs Master's",
     xlab = 'Experience Years', ylab = 'Salary',
     bty = 'l', las = 1, cex.axis = .8,
     tcl = -0.2)

points(x = salary$Years.of.Experience[salary$Education.Level == "Bachelor's"],
       y = salary$Salary[salary$Education.Level == "Bachelor's"],
       pch = 16, col = 'deepskyblue')
points(x = salary$Years.of.Experience[salary$Education.Level == "Master\'s"],
       y = salary$Salary[salary$Education.Level == "Master\'s"],
       pch = 16, col = 'magenta')
points(x = salary$Years.of.Experience[salary$Education.Level == "PhD"],
       y = salary$Salary[salary$Education.Level == "PhD"],
       pch = 16, col = 'green')

lines(x = ExpSeq, y = age_male_bach_pred[,'fit'], col = 'black', lwd = 2)
lines(x = ExpSeq, y = age_male_bach_pred[,'upr'], col = 'black', lwd = 2, lty =
lines(x = ExpSeq, y = age_male_bach_pred[,'lwr'], col = 'black', lwd = 2, lty =

lines(x = ExpSeq, y = age_male_mast_pred[,'fit'], col = 'blue', lwd = 2)
lines(x = ExpSeq, y = age_male_bach_pred[,'upr'], col = 'blue', lwd = 2, lty = 
lines(x = ExpSeq, y = age_male_bach_pred[,'lwr'], col = 'black', lwd = 2, lty =

leg_cols = c("black", "blue")
leg_sym = c(16, 16)
leg_lab = c("Male Bachelor's", "Male Master's")

legend('topleft',
       col = leg_cols, pch = leg_sym,
       legend = leg_lab, bty = "n",
       title = "Predictions")
```


Salary Prediction w/Age for Males with Bachelor's vs Master's
Predictions
Male Bachelor's
Male Master's
250000
200000
150000
100000
50000
0
Salary
0
5
10
15
20
25
Experience Years

In [27]:

```
x = salary$Years.of.Experience
y = salary$Salary
ExpSeq = seq(0,25)

plot(x,y, type = 'n',
     main = "Salary Prediction w/out Age for Males with Bachelor's vs Master's",
     xlab = 'Experience Years', ylab = 'Salary',
     bty = 'l', las = 1, cex.axis = .8,
     tcl = -0.2)

points(x = salary$Years.of.Experience[salary$Education.Level == "Bachelor's"],
       y = salary$Salary[salary$Education.Level == "Bachelor's"],
       pch = 16, col = 'deepskyblue')
points(x = salary$Years.of.Experience[salary$Education.Level == "Master\'s"],
       y = salary$Salary[salary$Education.Level == "Master\'s"],
       pch = 16, col = 'magenta')
points(x = salary$Years.of.Experience[salary$Education.Level == "PhD"],
       y = salary$Salary[salary$Education.Level == "PhD"],
       pch = 16, col = 'green')

lines(x = ExpSeq, y = male_bach_pred[,'fit'], col = 'black', lwd = 2)
lines(x = ExpSeq, y = male_bach_pred[,'upr'], col = 'black', lwd = 2, lty = 2)
lines(x = ExpSeq, y = male_bach_pred[,'lwr'], col = 'black', lwd = 2, lty = 2)

lines(x = ExpSeq, y = male_mast_pred[,'fit'], col = 'blue', lwd = 2)
lines(x = ExpSeq, y = male_bach_pred[,'upr'], col = 'blue', lwd = 2, lty = 2)
lines(x = ExpSeq, y = male_bach_pred[,'lwr'], col = 'black', lwd = 2, lty = 2)

leg_cols = c("black", "blue")
leg_sym = c(16, 16)
leg_lab = c("Male Bachelor's", "Male Master's")

legend('topleft',
       col = leg_cols, pch = leg_sym,
       legend = leg_lab, bty = "n",
       title = "Predictions")
```



In [28]:

```
fem_bachelor = data.frame(Gender = "Female",
                          Education.Level = "Bachelor's",
                          Years.of.Experience = seq(0,25))

#data frame with age variable for females
fem_bachelor = data.frame(Gender = "Female",
                          Education.Level = "Bachelor's",
                          Years.of.Experience = seq(0,25),
                          Age = 35)

fem_bach_pred = exp(predict(lfit, newdata = fem_bachelor, interval = "predictio

#prediction for females with agw variable included
age_fem_bach_pred = exp(predict(age_lfit, newdata = fem_bachelor, interval = "p
```

In [29]:

```
x = salary$Years.of.Experience
y = salary$Salary
ExpSeq = seq(0,25)

plot(x,y, type = 'n',
     main = "Salary Prediction w/Age for Males vs Females with Bachelor's",
     xlab = 'Experience Years', ylab = 'Salary',
     bty = 'l', las = 1, cex.axis = .8,
     tcl = -0.2)

points(x = salary$Years.of.Experience[salary$Education.Level == "Bachelor's"],
       y = salary$Salary[salary$Education.Level == "Bachelor's"],
       pch = 16, col = 'deepskyblue')
points(x = salary$Years.of.Experience[salary$Education.Level == "Master\'s"],
       y = salary$Salary[salary$Education.Level == "Master\'s"],
       pch = 16, col = 'magenta')
points(x = salary$Years.of.Experience[salary$Education.Level == "PhD"],
       y = salary$Salary[salary$Education.Level == "PhD"],
       pch = 16, col = 'green')
points(x = salary$Years.of.Experience[salary$Education.Level == ''],
       y = salary$Salary[salary$Education.Level == ''],
       pch = 16, col = 'blue')

lines(x = ExpSeq, y = age_male_bach_pred[,'fit'], col = 'black', lwd = 2)
lines(x = ExpSeq, y = age_male_bach_pred[,'upr'], col = 'black', lwd = 2, lty =
lines(x = ExpSeq, y = age_male_bach_pred[,'lwr'], col = 'black', lwd = 2, lty =

lines(x = ExpSeq, y = age_fem_bach_pred[,'fit'], col = 'orange', lwd = 2)
lines(x = ExpSeq, y = age_fem_bach_pred[,'upr'], col = 'orange', lwd = 2, lty =
lines(x = ExpSeq, y = age_fem_bach_pred[,'lwr'], col = 'orange', lwd = 2, lty =

leg_cols = c("orange", "blue")
leg_sym = c(16, 16)
leg_lab = c("Female Bachelor's", "Male Bachelor's")

legend('topleft',
       col = leg_cols, pch = leg_sym,
       legend = leg_lab, bty = "n",
       title = "Predictions")
```


Salary Prediction w/Age for Males vs Females with Bachelor's
Predictions
Female Bachelor's
Male Bachelor's
250000
200000
150000
100000
50000
0
Salary
0
5
10
15
20
25
Experience Years

In [30]:

```
x = salary$Years.of.Experience
y = salary$Salary
ExpSeq = seq(0,25)

plot(x,y, type = 'n',
     main = "Salary Prediction w/out Age for Males vs Females with Bachelor's",
     xlab = 'Experience Years', ylab = 'Salary',
     bty = 'l', las = 1, cex.axis = .8,
     tcl = -0.2)

points(x = salary$Years.of.Experience[salary$Education.Level == "Bachelor's"],
       y = salary$Salary[salary$Education.Level == "Bachelor's"],
       pch = 16, col = 'deepskyblue')
points(x = salary$Years.of.Experience[salary$Education.Level == "Master\'s"],
       y = salary$Salary[salary$Education.Level == "Master\'s"],
       pch = 16, col = 'magenta')
points(x = salary$Years.of.Experience[salary$Education.Level == "PhD"],
       y = salary$Salary[salary$Education.Level == "PhD"],
       pch = 16, col = 'green')
points(x = salary$Years.of.Experience[salary$Education.Level == ''],
       y = salary$Salary[salary$Education.Level == ''],
       pch = 16, col = 'blue')

lines(x = ExpSeq, y = male_bach_pred[,'fit'], col = 'black', lwd = 2)
lines(x = ExpSeq, y = male_bach_pred[,'upr'], col = 'black', lwd = 2, lty = 2)
lines(x = ExpSeq, y = male_bach_pred[,'lwr'], col = 'black', lwd = 2, lty = 2)

lines(x = ExpSeq, y = fem_bach_pred[,'fit'], col = 'orange', lwd = 2)
lines(x = ExpSeq, y = fem_bach_pred[,'upr'], col = 'orange', lwd = 2, lty = 2)
lines(x = ExpSeq, y = fem_bach_pred[,'lwr'], col = 'orange', lwd = 2, lty = 2)

leg_cols = c("orange", "blue")
leg_sym = c(16, 16)
leg_lab = c("Female Bachelor's", "Male Bachelor's")

legend('topleft',
       col = leg_cols, pch = leg_sym,
       legend = leg_lab, bty = "n",
       title = "Predictions")
```


Salary Prediction w/out Age for Males vs Females with Bachelor's
Predictions
Female Bachelor's
Male Bachelor's
250000
200000
150000
100000
50000
0
Salary
0
5
10
15
20
25
Experience Years

In [31]:
```
forSection = log(Salary) ~ Age + Years.of.Experience + Education.Level
forSect = step(lm(forSection, data = salary),
               scope = list(upper = log(Salary) ~ Age + Years.of.Experience + E
                            lower = log(Salary) ~ 1), direction = "both")
```

```
Start:  AIC=-849.9
log(Salary) ~ Age + Years.of.Experience + Education.Level

                       Df Sum of Sq    RSS     AIC
+ Job.Title           173   24.4318 12.764 -902.85
+ Gender                1    0.3418 36.854 -851.35
<none>                              37.196 -849.90
- Years.of.Experience   1    0.3817 37.578 -848.10
- Age                   1    1.1719 38.368 -840.33
- Education.Level       2    2.2597 39.456 -831.91

Step:  AIC=-902.85
log(Salary) ~ Age + Years.of.Experience + Education.Level + Job.Title

                       Df Sum of Sq    RSS     AIC
- Education.Level       2    0.0415 12.806 -905.64
- Years.of.Experience   1    0.0006 12.765 -904.83
<none>                              12.764 -902.85
+ Gender                1    0.0387 12.726 -901.98
- Age                   1    0.4268 13.191 -892.58
- Job.Title           173   24.4318 37.196 -849.90

Step:  AIC=-905.64
log(Salary) ~ Age + Years.of.Experience + Job.Title

                       Df Sum of Sq    RSS     AIC
- Years.of.Experience   1    0.0101 12.816 -907.34
<none>                              12.806 -905.64
+ Gender                1    0.0282 12.778 -904.46
+ Education.Level       2    0.0415 12.764 -902.85
- Age                   1    0.4027 13.209 -896.09
- Job.Title           173   26.6501 39.456 -831.91

Step:  AIC=-907.34
log(Salary) ~ Age + Job.Title

                       Df Sum of Sq    RSS     AIC
<none>                              12.816 -907.34
+ Gender                1    0.0316 12.784 -906.26
+ Years.of.Experience   1    0.0101 12.806 -905.64
+ Education.Level       2    0.0510 12.765 -904.83
- Age                   1    2.8522 15.668 -834.39
- Job.Title           173   27.7076 40.524 -823.95
```

In [32]:
```
addmodel = log(Salary) ~ Gender + Education.Level + Years.of.Experience + Gende
```

In [33]:
```
addfit = lm(addmodel, data = salary)
```

In [34]:
```
summary(addfit)
```

```
Call:
lm(formula = addmodel, data = salary)

Residuals:
    Min      1Q  Median      3Q     Max 
-4.8891 -0.1442  0.0015  0.1639  0.4776 

Coefficients:
                               Estimate Std. Error t value Pr(>|t|)    
(Intercept)                   10.632737   0.045440 233.994  < 2e-16 ***
GenderMale                     0.011598   0.061347   0.189  0.85015    
Education.LevelMaster's        0.181213   0.044130   4.106 4.96e-05 ***
Education.LevelPhD             0.185293   0.059439   3.117  0.00197 ** 
Years.of.Experience            0.064985   0.004283  15.172  < 2e-16 ***
GenderMale:Years.of.Experience 0.003482   0.005129   0.679  0.49770    
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.3223 on 367 degrees of freedom
  (2 observations deleted due to missingness)
Multiple R-squared:  0.7062,    Adjusted R-squared:  0.7022 
F-statistic: 176.4 on 5 and 367 DF,  p-value: < 2.2e-16
```

In [35]:
```
beta = coef(addfit)
beta
```

(Intercept)	10.6327372465597
GenderMale	0.0115980400473509
Education.LevelMast...	0.181213011323071
Education.LevelPhD	0.185293240442821
Years.of.Experience	0.0649848093594483
GenderMale:Years.of....	0.00348168197868601

In [36]:
```
male_addframe = data.frame(Gender = "Male",
                           Education.Level = "Bachelor's",
                           Years.of.Experience = seq(0,25))

fem_addframe = data.frame(Gender = "Female",
                          Education.Level = "Bachelor's",
                          Years.of.Experience = seq(0,25))

male_addpred = exp(predict(addfit, newdata = male_addframe, interval = "predict
fem_addpred = exp(predict(addfit, newdata = fem_addframe, interval = "predictio
```

In [37]:

```
plot(x,y, type = 'n',
     main = "Salary Prediction for Males vs Females with Bachelor's",
     xlab = 'Experience Years', ylab = 'Salary',
     bty = 'l', las = 1, cex.axis = .8,
     tcl = -0.2)

points(x = salary$Years.of.Experience[salary$Education.Level == "Bachelor's"],
       y = salary$Salary[salary$Education.Level == "Bachelor's"],
       pch = 16, col = 'deepskyblue')
points(x = salary$Years.of.Experience[salary$Education.Level == "Master\'s"],
       y = salary$Salary[salary$Education.Level == "Master\'s"],
       pch = 16, col = 'magenta')
points(x = salary$Years.of.Experience[salary$Education.Level == "PhD"],
       y = salary$Salary[salary$Education.Level == "PhD"],
       pch = 16, col = 'green')
points(x = salary$Years.of.Experience[salary$Education.Level == ''],
       y = salary$Salary[salary$Education.Level == ''],
       pch = 16, col = 'blue')

lines(x = ExpSeq, y = male_addpred[,'fit'], col = 'black', lwd = 2)
lines(x = ExpSeq, y = male_addpred[,'upr'], col = 'black', lwd = 2, lty = 2)
lines(x = ExpSeq, y = male_addpred[,'lwr'], col = 'black', lwd = 2, lty = 2)

lines(x = ExpSeq, y = fem_addpred[,'fit'], col = 'orange', lwd = 2)
lines(x = ExpSeq, y = fem_addpred[,'upr'], col = 'orange', lwd = 2, lty = 2)
lines(x = ExpSeq, y = fem_addpred[,'lwr'], col = 'orange', lwd = 2, lty = 2)
```


Salary Prediction for Males vs Females with Bachelor's
250000
200000
150000
100000
50000
0
Salary
0
5
10
15
20
25
Experience Years

In [ ]: