```r
library(knitr)
```

```
## Warning: package 'knitr' was built under R version 3.5.3
```

```r
library(collegeIncome)

data(college)

head(college)
```

```
##   rank major_code                                 major major_category
## 1    1       2419                   Petroleum Engineering    Engineering
## 2    2       2416            Mining And Mineral Engineering    Engineering
## 3    3       2415                 Metallurgical Engineering    Engineering
## 4    4       2417 Naval Architecture And Marine Engineering    Engineering
## 5    5       2405                    Chemical Engineering    Engineering
## 6    6       2418                     Nuclear Engineering    Engineering
##   total sample_size perc_women p25th median  p75th   perc_men
## 1  2339          36  0.9109326 25000  40000  50000 0.08906743
## 2   756           7  0.5154064 26000  37000  40000 0.48459355
## 3   856           3  0.5942076 26700  45000  60000 0.40579235
## 4  1258          16  0.6521298 26000  35000  45000 0.34787018
## 5 32260         289  0.4179248 31500  62000 109000 0.58207520
## 6  2573          17  0.4305368 23000  44700  50000 0.56946324
##   perc_employed perc_employed_fulltime perc_employed_parttime
## 1     0.9115044              0.9206524              0.1774785
## 2     0.7980501              0.7110092              0.3623853
## 3     0.7871943              0.8833498              0.3387257
## 4     0.8465608              0.9366337              0.1673267
## 5     0.8515625              0.8086363              0.4020061
## 6     0.8474507              0.8756262              0.2040405
##   perc_employed_fulltime_yearround perc_unemployed perc_college_jobs
## 1                        0.7704431      0.08849558         0.6702970
## 2                        0.7093101      0.20194986         0.3867764
## 3                        0.7738366      0.21280567         0.7289116
## 4                        0.6527853      0.15343915         0.2460902
## 5                        0.6852821      0.14843750         0.5867515
## 6                        0.6567727      0.15254929         0.4624782
##   perc_non_college_jobs perc_low_wage_jobs
## 1             0.1821782         0.05544554
## 2             0.5158761         0.21560172
## 3             0.1759983         0.03014828
## 4             0.4107636         0.04323827
## 5             0.3860437         0.11801062
## 6             0.4057592         0.23472949
```

```r
fit <- lm(p25th ~ major_category, college)
summary(fit)
```

```
##
```

```
## Call:
## lm(formula = p25th ~ major_category, data = college)
##
## Residuals:
##    Min     1Q Median     3Q    Max
## -18008  -5616  -2216   4338  57792
##
## Coefficients:
##                                              Estimate Std. Error
## (Intercept)                                   30300.0     2854.3
## major_categoryArts                            -1525.0     4281.5
## major_categoryBiology & Life Science           2157.1     3737.2
## major_categoryBusiness                         6907.7     3796.6
## major_categoryCommunications & Journalism      3700.0     5340.0
## major_categoryComputers & Mathematics         -3754.5     3943.8
## major_categoryEducation                       -4684.4     3638.6
## major_categoryEngineering                     -1637.9     3310.1
## major_categoryHealth                          -1383.3     3864.8
## major_categoryHumanities & Liberal Arts       -4333.3     3684.9
## major_categoryIndustrial Arts & Consumer Services  128.6  4448.2
## major_categoryInterdisciplinary               -7400.0     9466.7
## major_categoryLaw & Public Policy             -2700.0     4943.8
## major_categoryPhysical Sciences                 980.0     4036.6
## major_categoryPsychology & Social Work          766.7     4147.2
## major_categorySocial Science                  -1344.4     4147.2
##                                              t value Pr(>|t|)
## (Intercept)                                   10.615  <2e-16 ***
## major_categoryArts                            -0.356   0.7222
## major_categoryBiology & Life Science           0.577   0.5646
## major_categoryBusiness                         1.819   0.0708 .
## major_categoryCommunications & Journalism      0.693   0.4894
## major_categoryComputers & Mathematics         -0.952   0.3426
## major_categoryEducation                       -1.287   0.1998
## major_categoryEngineering                     -0.495   0.6214
## major_categoryHealth                          -0.358   0.7209
## major_categoryHumanities & Liberal Arts       -1.176   0.2414
## major_categoryIndustrial Arts & Consumer Services 0.029 0.9770
## major_categoryInterdisciplinary               -0.782   0.4356
## major_categoryLaw & Public Policy             -0.546   0.5857
## major_categoryPhysical Sciences                0.243   0.8085
## major_categoryPsychology & Social Work         0.185   0.8536
## major_categorySocial Science                  -0.324   0.7462
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 9026 on 157 degrees of freedom
## Multiple R-squared:  0.1148, Adjusted R-squared:  0.03028
## F-statistic: 1.358 on 15 and 157 DF,  p-value: 0.1746
```

```
fit1 <- lm(median ~ major_category, college)
summary(fit1)
```

```
##
## Call:
## lm(formula = median ~ major_category, data = college)
##
## Residuals:
##    Min     1Q Median     3Q    Max
## -20154  -6800  -2893   4833  60846
##
## Coefficients:
##                                               Estimate Std. Error
## (Intercept)                                    43500.0     3590.8
## major_categoryArts                             -5450.0     5386.2
## major_categoryBiology & Life Science             364.3     4701.5
## major_categoryBusiness                          5653.8     4776.2
## major_categoryCommunications & Journalism      -1500.0     6717.8
## major_categoryComputers & Mathematics          -8781.8     4961.4
## major_categoryEducation                        -5562.5     4577.4
## major_categoryEngineering                      -3106.9     4164.2
## major_categoryHealth                           -3183.3     4862.0
## major_categoryHumanities & Liberal Arts        -8333.3     4635.7
## major_categoryIndustrial Arts & Consumer Services  -3071.4     5595.9
## major_categoryInterdisciplinary               -16000.0    11909.4
## major_categoryLaw & Public Policy              -5700.0     6219.5
## major_categoryPhysical Sciences                -3100.0     5078.2
## major_categoryPsychology & Social Work         -3611.1     5217.3
## major_categorySocial Science                   -4433.3     5217.3
##                                               t value Pr(>|t|)
## (Intercept)                                    12.114   <2e-16 ***
## major_categoryArts                             -1.012   0.3132
## major_categoryBiology & Life Science            0.077   0.9383
## major_categoryBusiness                          1.184   0.2383
## major_categoryCommunications & Journalism      -0.223   0.8236
## major_categoryComputers & Mathematics          -1.770   0.0787 .
## major_categoryEducation                        -1.215   0.2261
## major_categoryEngineering                      -0.746   0.4567
## major_categoryHealth                           -0.655   0.5136
## major_categoryHumanities & Liberal Arts        -1.798   0.0742 .
## major_categoryIndustrial Arts & Consumer Services  -0.549   0.5839
## major_categoryInterdisciplinary                -1.343   0.1811
## major_categoryLaw & Public Policy              -0.916   0.3608
## major_categoryPhysical Sciences                -0.610   0.5424
## major_categoryPsychology & Social Work         -0.692   0.4899
## major_categorySocial Science                   -0.850   0.3968
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 11360 on 157 degrees of freedom
## Multiple R-squared:  0.1054, Adjusted R-squared:  0.01995
## F-statistic: 1.233 on 15 and 157 DF,  p-value: 0.2522
```

```
fit2 <- lm(p75th ~ major_category, college)
summary(fit2)
```

```
##
## Call:
## lm(formula = p75th ~ major_category, data = college)
##
## Residuals:
##    Min     1Q Median     3Q    Max
## -28900 -10000  -3379   6621  66138
##
## Coefficients:
##                                            Estimate Std. Error
## (Intercept)                                 53600.0     4756.2
## major_categoryArts                          -8337.5     7134.3
## major_categoryBiology & Life Science         2614.3     6227.3
## major_categoryBusiness                       5261.5     6326.3
## major_categoryCommunications & Journalism   -3600.0     8898.0
## major_categoryComputers & Mathematics       -9145.5     6571.6
## major_categoryEducation                     -1225.0     6063.0
## major_categoryEngineering                    -220.7     5515.6
## major_categoryHealth                        -2850.0     6439.9
## major_categoryHumanities & Liberal Arts     -7466.7     6140.2
## major_categoryIndustrial Arts & Consumer Services  -2571.4   7412.0
## major_categoryInterdisciplinary            -15600.0    15774.5
## major_categoryLaw & Public Policy           -4200.0     8238.0
## major_categoryPhysical Sciences             -2700.0     6726.3
## major_categoryPsychology & Social Work      -2711.1     6910.6
## major_categorySocial Science               -1044.4     6910.6
##                                            t value Pr(>|t|)
## (Intercept)                                 11.270   <2e-16 ***
## major_categoryArts                          -1.169    0.244
## major_categoryBiology & Life Science         0.420    0.675
## major_categoryBusiness                       0.832    0.407
## major_categoryCommunications & Journalism   -0.405    0.686
## major_categoryComputers & Mathematics       -1.392    0.166
## major_categoryEducation                     -0.202    0.840
## major_categoryEngineering                   -0.040    0.968
## major_categoryHealth                        -0.443    0.659
## major_categoryHumanities & Liberal Arts     -1.216    0.226
## major_categoryIndustrial Arts & Consumer Services  -0.347   0.729
## major_categoryInterdisciplinary             -0.989    0.324
## major_categoryLaw & Public Policy           -0.510    0.611
## major_categoryPhysical Sciences             -0.401    0.689
## major_categoryPsychology & Social Work      -0.392    0.695
## major_categorySocial Science               -0.151    0.880
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 15040 on 157 degrees of freedom
## Multiple R-squared:  0.07071,    Adjusted R-squared:  -0.01808
## F-statistic: 0.7964 on 15 and 157 DF,  p-value: 0.6803
```