July 28, 2023

The results below are generated from an R script.

```
Call:
lm(formula = earn ~ age, data = heights_df)

Residuals:
   Min     1Q Median     3Q    Max
-25098 -12622  -3667   6883 177579

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept) 19041.53    1571.26  12.119  < 2e-16 ***
age            99.41      35.46   2.804  0.00514 **
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 19420 on 1190 degrees of freedom
Multiple R-squared:  0.006561,Adjusted R-squared:  0.005727
F-statistic:  7.86 on 1 and 1190 DF,  p-value: 0.005137

## Number of observation
library(plyr)
n <- NROW(heights_df$earn)
## Number of regression parameters
p <- 2
## Corrected Degrees of Freedom for Model (p-1)
dfm <- p - 1
## Degrees of Freedom for Error (n-p)
dfe <- n - p
## Corrected Degrees of Freedom Total:   DFT = n - 1
dft <- n - 1

## Mean of Squares for Model:   MSM = SSM / DFM
msm <- ssm/dfm
## Mean of Squares for Error:   MSE = SSE / DFE
mse <- sse/dfe
## Mean of Squares Total:   MST = SST / DFT
mst <- sst/dft
## F Statistic F = MSM/MSE
f_score <- msm/mse

## Adjusted R Squared R2 = 1 - (1 - R2)(n - 1) / (n - p)
adjusted_r_squared <- 1-(1-r_squared)(dft)/(dfe)
```

```
## Calculate the p-value from the F distribution
p_value <- pf(f_score, dfm, dft, lower.tail=F)

## Error:  <text>:6:12:  unexpected numeric constant
## 5:  Residuals:
## 6:     Min    1
##                ^
```

The R session information (including the OS info, R version and all packages used):

```
sessionInfo()

## R version 4.3.0 (2023-04-21 ucrt)
## Platform: x86_64-w64-mingw32/x64 (64-bit)
## Running under: Windows 11 x64 (build 22621)
##
## Matrix products: default
##
##
## locale:
## [1] LC_COLLATE=English_United States.utf8  LC_CTYPE=English_United States.utf8
## [3] LC_MONETARY=English_United States.utf8 LC_NUMERIC=C
## [5] LC_TIME=English_United States.utf8
##
## time zone: America/New_York
## tzcode source: internal
##
## attached base packages:
## [1] stats     graphics  grDevices utils     datasets  methods   base
##
## other attached packages:
## [1] plyr_1.8.8    readr_2.1.4   ggplot2_3.4.2
##
## loaded via a namespace (and not attached):
##  [1] crayon_1.5.2     vctrs_0.6.3      knitr_1.43       cli_3.6.1          xfun_0.39
##  [6] rlang_1.1.1      highr_0.10       generics_0.1.3   bit_4.0.5          glue_1.6.2
## [11] labeling_0.4.2   colorspace_2.1-0 hms_1.1.3        scales_1.2.1       fansi_1.0.4
## [16] grid_4.3.0       evaluate_0.21    munsell_0.5.0    tibble_3.2.1       tzdb_0.4.0
## [21] lifecycle_1.0.3  compiler_4.3.0   dplyr_1.1.2      Rcpp_1.0.10        pkgconfig_2.0.3
## [26] rstudioapi_0.14  farver_2.1.1     R6_2.5.1         tidyselect_1.2.0   utf8_1.2.3
## [31] parallel_4.3.0   vroom_1.6.3      pillar_1.9.0     magrittr_2.0.3     bit64_4.0.5
## [36] tools_4.3.0      withr_2.5.0      gtable_0.3.3

Sys.time()

## [1] "2023-07-28 15:30:50 EDT"
```