CS Salary

Harrison Grogan

5/1/2021

ABSTRACT

My project is about Computer Science Salaries and what the difference is into how much you are paid. This is important because it is never a bad idea to educate yourself on how certain aspects of your line of work are decided. I saw someone answer someone else's question about whether age has anything to do with people losing their jobs in the Computer Science field. The person went on to explain that a lot of Computer Science workers lose their job around 50, not due to ageism, but due to people just slacking off and not keeping up with their programming skills. My research question is: Is there any link to how someone is paid when it comes to their age and gender? I got my data from a website called Data USA. I analyzed my data through and I found that age has little to do with whether or not someone keeps their job.

Introduction

My name is Harrison Grogan and I did my R project over the differences in Salary when it comes to age. I want to find out if there are true differences in pay.

Literature Review

Another post that I read through talked about how people in the Computer Science field are not fired based solely on their age, but rather their skill wearing down and slacking off. One aspect that I am planning to address in the future is how your location effects your salary. My research question is: Is there any link to how someone is paid when it comes to their age?

Data

The application that I used to download the data is called ParseHub. ParseHub is a really good application when it comes to data mining. It's easy to use and very fast. The way to use ParseHub is by putting the link to the page/website you want to data mine from and then you select the data, but you don't select the data one-by-one, you select two pieces of data and it auto fills the rest for you, then when you're ready you can download it into a csv file and transfer it to R.

Methodology

After I read my csv file into R, I then proceed to check the contents of the file and noticed that there were a few columns there that I did not need, so I began by taking the columns out using the subset function with -c(...). Then I proceeded to analyze the data using scatterplot graphs and some bar charts, but the bar charts weren't very helpful so I stuck with the scatterplots. I used the lm() function to create a linear model and look over the data there. I also used the step function to create a step model too.

Results

As mentioned earlier in Abstact, the results that I found weren't too shocking after the article that I read. Age doesn't have much to do with getting salary decreased or being fired, it's more just people getting old and being sick of working in the Computer Science field.

Implications

I did not find anyone that would be a true researcher in this topic.

Conclusion

What I have achieved is showing that age does not have a factor on people losing their jobs. If you keep your skills sharpened and try not to slack off, then you will probably have a long career in Computer Science.

References

Walsh B T. (2015). Is it true that computer science people only have good jobs till the age of 35-40? Quora. https://www.quora.com/Is-it-true-that-computer-science-people-only-have-good-jobs-till-the-age-of-35-40

##N/A. (2019). Computer Science. Data USA. https://datausa.io/profile/cip/computer-science-110701#demographics

##Williams H. (March 29, 2019). Ageism in tech: the not-so-invisible age limit developers face. https://bdtechtalks.com/2019/03/29/ageism-in-tech-age-limit-software-developers-face/https://bdtechtalks.com/2019/03/29/ageism-in-tech-age-limit-software-developers-face/

```
salaryAge <- read_csv("C:/Users/groga/OneDrive/Desktop/Workforce_Age.csv")
```

```
##
## -- Column specification --------------------------------------------------------
## cols(
##   `ID Age` = col_double(),
##   Age = col_double(),
##   `ID Year` = col_double(),
##   Year = col_double(),
##   `ID Workforce Status` = col_logical(),
```

```
##   `Workforce Status` = col_logical(),
##   `Total Population` = col_double(),
##   `Total Population MOE Appx` = col_double(),
##   `Average Wage` = col_double(),
##   `Average Wage Appx MOE` = col_double(),
##   `Record Count` = col_double(),
##   CIP2 = col_character(),
##   `ID CIP2` = col_double(),
##   share = col_double()
## )
```

```
salaryAge
```

```
## # A tibble: 324 x 14
##    `ID Age`   Age `ID Year`  Year `ID Workforce Status` `Workforce Status`
##       <dbl> <dbl>     <dbl> <dbl> <lgl>                 <lgl>
##  1       20    20      2019  2019 TRUE                  TRUE
##  2       21    21      2019  2019 TRUE                  TRUE
##  3       22    22      2019  2019 TRUE                  TRUE
##  4       23    23      2019  2019 TRUE                  TRUE
##  5       24    24      2019  2019 TRUE                  TRUE
##  6       25    25      2019  2019 TRUE                  TRUE
##  7       26    26      2019  2019 TRUE                  TRUE
##  8       27    27      2019  2019 TRUE                  TRUE
##  9       28    28      2019  2019 TRUE                  TRUE
## 10       29    29      2019  2019 TRUE                  TRUE
## # ... with 314 more rows, and 8 more variables: Total Population <dbl>,
## #   Total Population MOE Appx <dbl>, Average Wage <dbl>,
## #   Average Wage Appx MOE <dbl>, Record Count <dbl>, CIP2 <chr>, ID CIP2 <dbl>,
## #   share <dbl>
```

```
salaryAge_df = subset(salaryAge, select = -c(`ID Age`, `ID Year`, `Workforce Status`, `Record Count`, C
salaryAge_df
```

```
## # A tibble: 324 x 3
##      Age `Total Population` `Average Wage`
##    <dbl>              <dbl>          <dbl>
##  1    20               1718         58053.
##  2    21               5682         32310.
##  3    22              23899         31881.
##  4    23              45486         48923.
##  5    24              40960         61719.
##  6    25              64725         68733.
##  7    26              63287         70502.
##  8    27              60986         74096.
##  9    28              57810         76344.
## 10    29              67395         81090.
## # ... with 314 more rows
```

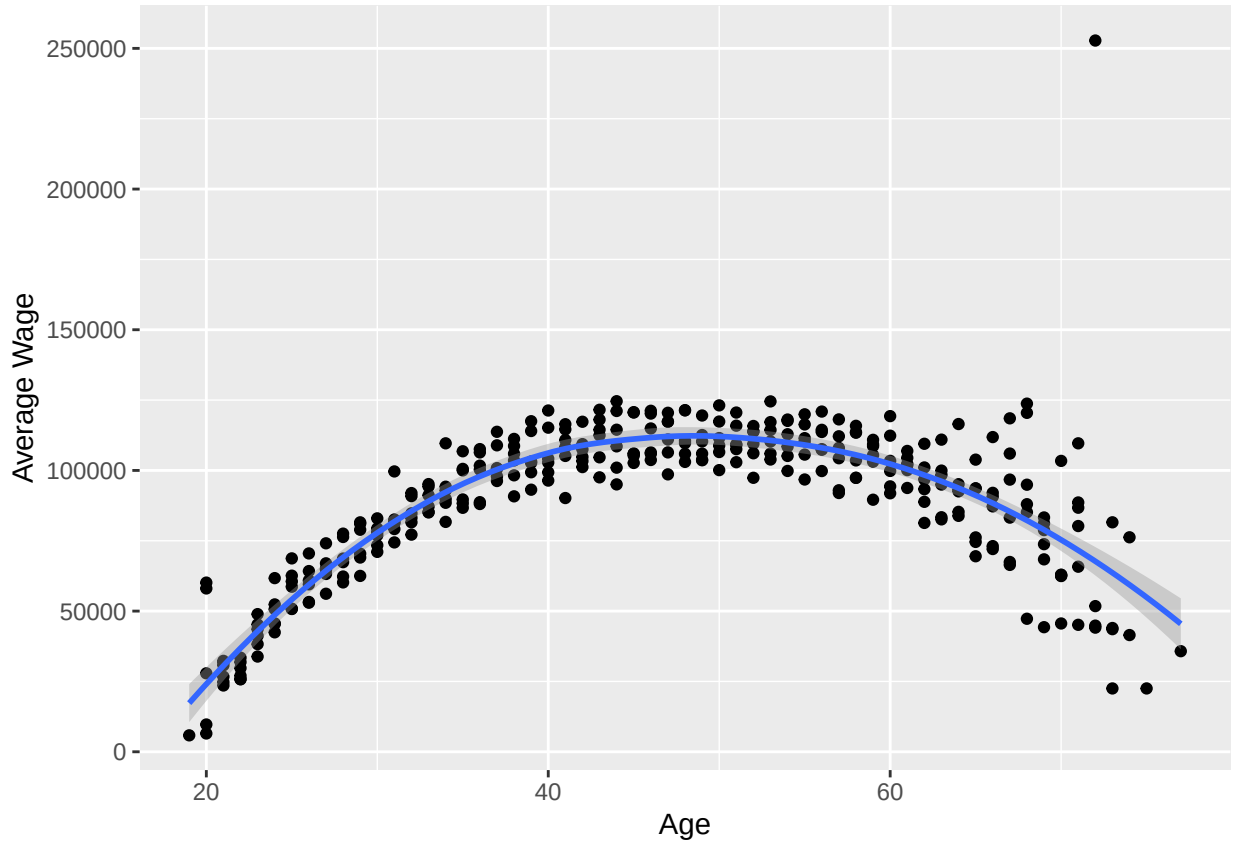
```
lapply(salaryAge_df, FUN=summary)
```

```
## $Age
```

```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   19.00   33.00   46.50   46.53   60.00   77.00
##
## $`Total Population`
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     293   11758   42003   35346   52577   77218
##
## $`Average Wage`
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    5844   74019   96793   89194  108644  252793
```

```
ggplot(salaryAge_df, aes(x = Age, y = `Average Wage`)) + geom_point() + stat_smooth()
```

```
## `geom_smooth()` using method = 'loess' and formula 'y ~ x'
```




```
lin <- lm(`Average Wage` ~ Age ,salaryAge_df)
summary(lin)
```

```
##
## Call:
## lm(formula = `Average Wage` ~ Age, data = salaryAge_df)
##
## Residuals:
##    Min     1Q Median     3Q    Max
```

```
## -83915 -14645   6079  17615 148180
##
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept) 61027.64    4592.63   13.29  < 2e-16 ***
## Age           605.36      93.56    6.47 3.64e-10 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 26350 on 322 degrees of freedom
## Multiple R-squared:  0.1151, Adjusted R-squared:  0.1123
## F-statistic: 41.87 on 1 and 322 DF,  p-value: 3.638e-10
```

```
predicted_salary = 605.4*22 + 61027
predicted_salary
```

```
## [1] 74345.8
```