Candidate 1 evidence

Introduction

Is There A Significant Difference Between the TV Ratings for WWF Monday Night Raw and WCW Monday Nitro?

Introduction

In the late 1990s, Professional Wrestling was at its peak in popularity, with people like "Stone Cold" Steve Ausitn, The Rock, Bret "The Hitman" Hart, and Hulk Hogan all becoming household names around the world. At the forefront of the Pro-Wrestling industry were two companies; the WWF (World Wrestling Federation), now known as the WWE, and WCW (World Championship Wrestling). Both airing at the same time on Monday nights, this created the greatest rivalry in the history of wrestling. The Monday Night Wars. The Monday Night Wars started in September 1995, when WCW first started airing on live TV, and ended in March 2001, when the WWF purchased WCW. While the Monday Night Wars took place over half a decade, many consider the peak of the Wars to have been between 1998 and 1999, when the WWF started to regain its footing. In this project I will be exploring the difference in TV ratings for both WWF Monday Night Raw and WCW Monday Nitro between June 1998 and June 1999. My research question is, "Is there a significant difference between the TV ratings for WWF Monday Night Raw and WCW Monday Nitro?" The data I am using is continuous numerical and is reliable as I gathered it from Wrestlenomics, a website dedicated to securing data about wrestling shows, including TV ratings, ticket sales, etc. The data is fair and unbiased, as the site gathers official data for all wrestling shows, and has no affiliation with one specific wrestling company. To keep the data as fair as possible, I excluded any ratings for weeks where only one show was broadcast. For example, if Raw was broadcast but Nitro wasn't, then that week's data was not included. This means that only the weeks where both shows were aired are being used, giving a more accurate representation of the data for the rival brands.

Candidate 2 evidence

Introduction

Introduction

AIM: I am investigating if there is a difference in means between the number of goals scored by football teams before and after VAR's addition.

DATA: Each respective footballing league reports the number of goals scored by each team in a league season. This data was accessed from the following websites: https://ligue1.com/en https://www.laliga.com/en-GB https://www.legaseriea.it/en and is numerical. The footballing leagues above must keep track of all records to ensure league winners and positions are accurate making the data accurate and reliable. Furthermore, the data records the seven previous seasons before VAR was added to these leagues and the seven proceeding seasons since its addition.

Candidate 3 evidence

Introduction

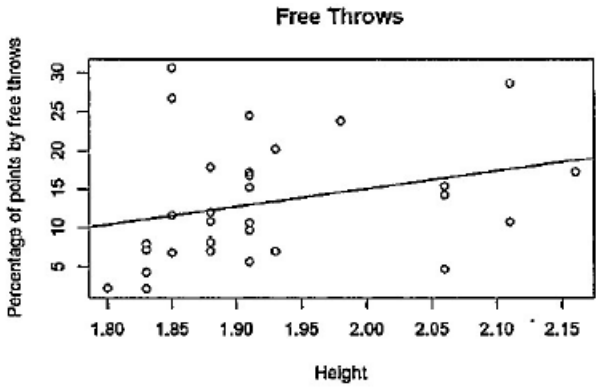
Introduction

In recent years, music streaming has become the primary way in which people consume music. Spotify is one of the biggest streaming platforms worldwide and provides public data on the number of streams each song has received. These stream counts can be used as a measure of popularity and audience reach. Lana Del Rey is an established American singer and songwriter who rose to international fame with her breakthrough single "Video games" in 2011. She is known for her cinematic style, nostalgic themes, and alternative pop sound. Over the course of her career, she has released multiple critically acclaimed albums including Born to Die, Ultraviolence, and Norman F. Rockwell. Lana Del Rey has built a large global fanbase and has received numerous award nominations, including multiple Grammy nominations. Her long standing presence in the music industry and mainstream popularity may contribute to higher streaming figures. Beabadoobee is a Filipino-British singer and songwriter who gained attention in 2017 after her song "Coffee" went viral online. She is associated with indie and alternative rock genres and appeals strongly to a younger audience. She has released albums such as Fake it Flowers and Beatopia. Although she has achieved commercial success and critical recognition, her career is more recent compared to Lana Del Rey's, which may influence overall streaming numbers. Both artists operate within alternative pop/indie genres and have strong online fanbases, making them suitable for comparison. Comparing their streaming figures allows us to investigate whether there is a significant difference in their average number of Spotify streams. The aim of my investigation is to determine whether there is a significant difference between the average number of Spotify streams for the 20 most recently released songs by Lana Del Rey and the 20 most recently released songs by Beabadoobee. The data collected consisted of the number of Spotify streams for each of the 20 most recently released main tracks by each artist. This data is quantitatively discrete as it represents countable values which can only take whole number values. The data collected represents the number of times each song has been streamed on Spotify. A stream is recorded each time a song is played on the platform for at least 30 seconds without being skipped, making it a measure of listener engagement and popularity. The data was collected using the Spotify desktop application, where public stream counts are displayed for each track. Only the 20 most recently released main tracks by each artist were included in the sample. Remixes, live performances and featured appearances were excluded to ensure consistency and fairness. Spotify is a reliable and widely used streaming platform. The stream counts are publicly available and updated regularly. The data can be trusted as Spotify can generally be trusted as a mainstream, reputable service for consuming music and podcasts, with established protocols for safety, security, and content management. However, stream numbers change overtime, meaning results represent a snapshot of the time collection. Only the 20 most recent songs were selected to ensure consistency and fairness between the two artists. However, newer songs naturally have had less time to accumulate streams, which may influence the results.

Candidate 4 evidence

Conclusion

Scatterplot



height effects the how many free throws they have scored this season. The outliers in the source might indicate that is weak correlation between the height of an NBA player and the percentage of points scored by free throws this season as there is a lot of outliers.

Statistics Table

	Height (metres)	Percentage of points scored from free throws this season
Median	1.91	11.6
Inter Quartile Range	0.08	10

Since both Histograms are positively skewed I have used median and Inter Quartile Range. Since the Inter Quartile Range on the height is lower, the height (metres) of NBA players is more consistent than the percentage of points they have scored from free throws this season. In this data the median provides a good sense of what the distribution of data is for both the height(metres) and the percentage of points scored from free throws this season.

As our p-value is less than 0.05 (6.467e-09) we can reject the null hypothesis. Therefore, we can say that there is a statistically significant difference between the height of NBA players and the percentage of points scored by free throws in this season.

Conclusion

In conclusion, when looking at the scatterplot on the relationship between the height of NBA players and the percentage of points they have scored from free throws they suggests that there is no relationship between the height of NBA players and the percentage of points they have scored from free throws this season due to there being a significant difference between the Inter Quartile Range of the height and the percentage of pints they have scored from free throws this season. The descriptive statistics also suggest that there is no correlation between the height of NBA players and the percentage of points they have scored from free throws this season. Because the 95% confidence interval is 95%, we can be 95% confident that there is no correlation between the two. Finally, the t-test also suggests that there is no correlation between the two as we do reject the null hypothesis of that there is no difference between the height of NBA players and the percentage of points they have scored this season. Due to the p-value being less than 0.05, this also provides evidence of that there is no relationship between the height of an NBA player and the percentage of points they have scored this season.

Candidate 5 evidence

Conclusion

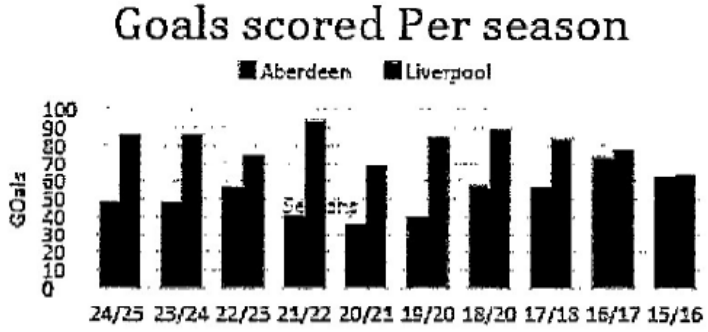


Chart 1 - Chart 1 is a bar chart. The bar chart tells me that Liverpool each season scored more goals than Aberdeen.

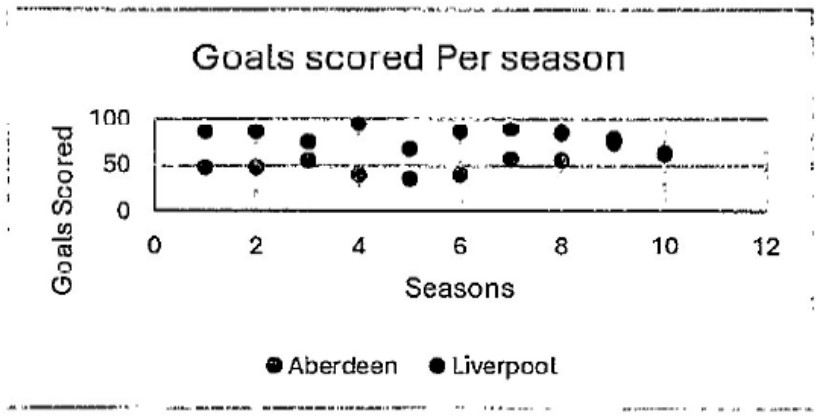


Chart 2 - Chart 2 is a scatter graph. The scatter graph tells me that the number of goals both teams score increased through each season with Liverpool still scoring more. It adds to the first chart because it shows me the increase in goals.

Subject and Impression

Mean

The mean of Aberdeen's goal scored over 10 seasons = 51.8

The mean of Liverpool's goals over 10 seasons = 80.8

This shows that on Average Liverpool Fc scored more goals than Aberdeen because 80.8>51.8

Standard deviation

Aberdeen = 10.93
Liverpool = 8.31

This shows that the amount of goals Liverpool scored where more consistent than Aberdeen as 8.3<10.93

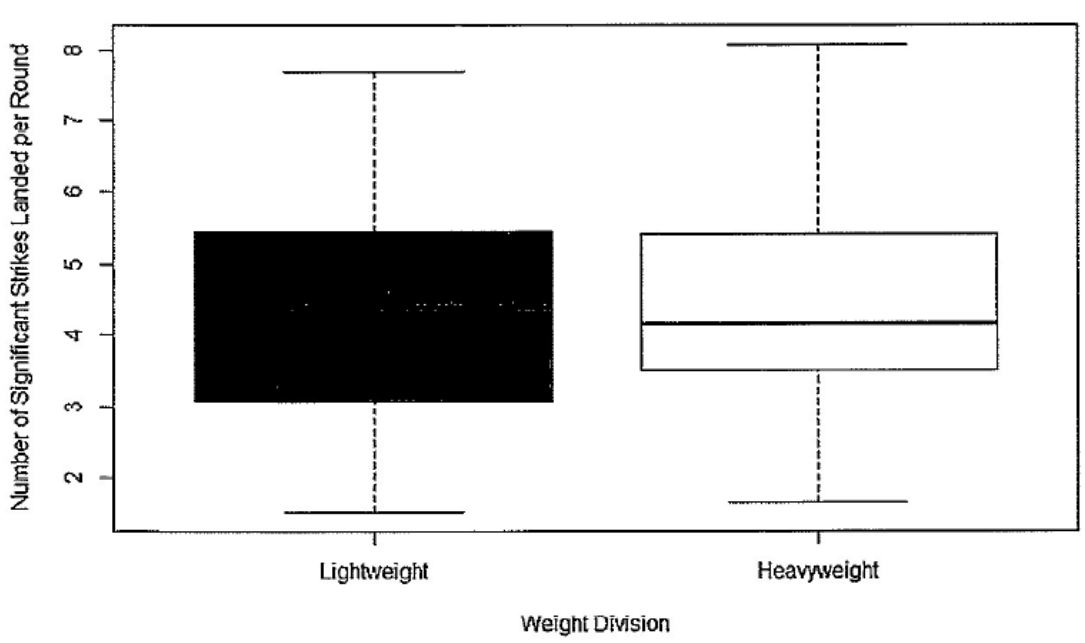
One of the tests I used was a T-test. This test revealed that there was a significant difference in the means of each set of data. This shows that on average Liverpool scored more goals than Aberdeen as they had a higher mean number.

Conclusion

In conclusion on Average an English team, Liverpool score more goals each season on average. The Bar chart supports this by clearing showing that each season over the 10 seasons recorded Liverpool's number of goals was higher. The scatter graph also supports this conclusion by showing that each season Liverpool the amount of goals Liverpool scored increased with them still scoring more goals than Aberdeen. The mean of the goals scored by Liverpool is higher than the mean of goals scored by Aberdeen as 80.8>51.8. This shows that on average over 10 season Liverpool scored more goals. The standard deviation of both teams shows that Liverpool is more consistent at scoring goals than Aberdeen because 8.31<10.93. The P-value being lower than 0.05 shows that there is a real difference between the goals scored by Liverpool and Aberdeen meaning I can reject my Null hypothesis. All these findings show that Liverpool scored more goals each season resulting in a higher Average than Aberdeen.

Candidate 6 evidence

Conclusion



The median number of significant strikes landed per round is about 4.390 for lightweight fighters and about 4.150 for heavyweight fighters. The interquartile range, which measures the spread of the middle 50% of fighters is about 2.3525 for lightweights and 1.8825 for heavyweights. Additionally, lightweights have a minimum of around 1.530 strikes and a maximum of 7.660 strikes. Whereas heavyweights have a minimum of around 1.670 strikes and a maximum of 8.070 strikes.

The median for heavyweights is 4.150, compared to 4.390 for lightweights. This suggests that a lightweight fighter lands slightly more significant strikes per round than a heavyweight.

The spread of the data is slightly different between the two groups. The interquartile range for heavyweights is 1.8825, while for lightweights it is 2.3525. This shows that the middle 50% of lightweight data is more spread out, indicating greater variation.

From the t-test we can see that the p-value is 0.9074. This means that we do not reject the null hypothesis, as the p-value needs to be below 0.05 to show statistical significance. This suggests that there is no statistically significant difference in the mean number of significant strikes landed per round between heavyweight and lightweight fighters.

Confidence Interval

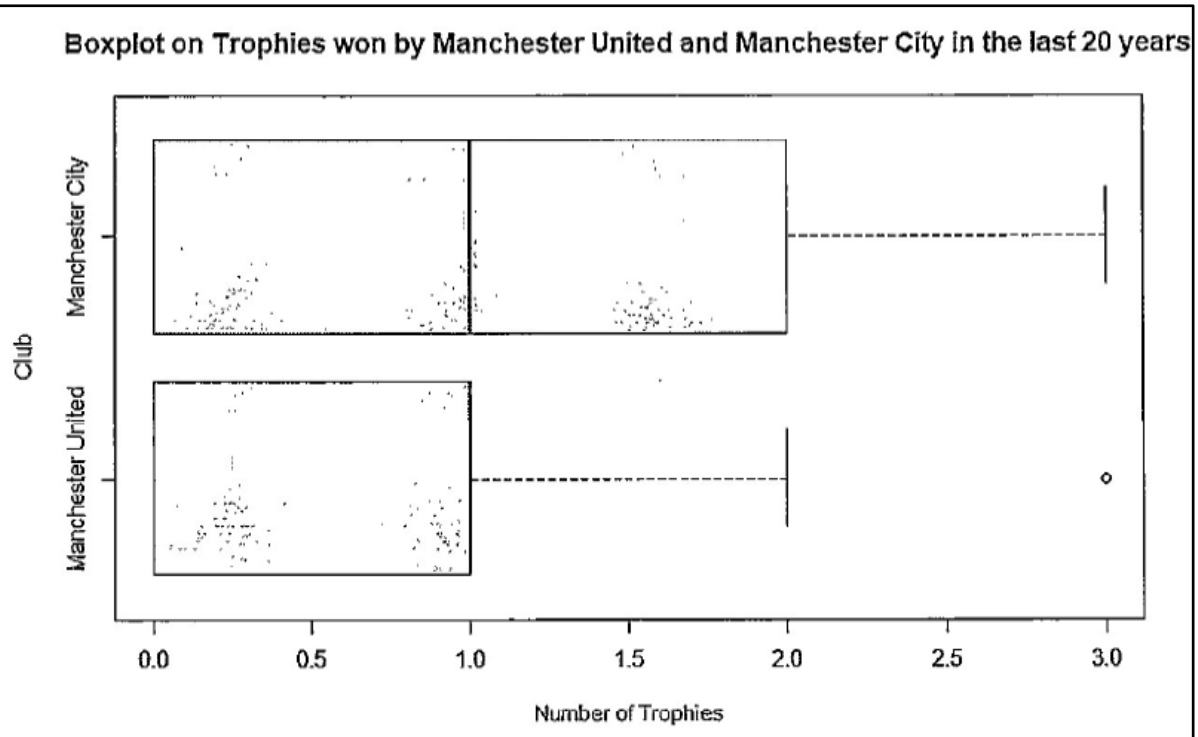
The 95% confidence interval is −0.4212 to 0.3742. Since 0 lies between these two values, which suggests that there may be no real difference between the number of significant strikes landed per round for lightweight and heavyweight fighters.

Conclusion

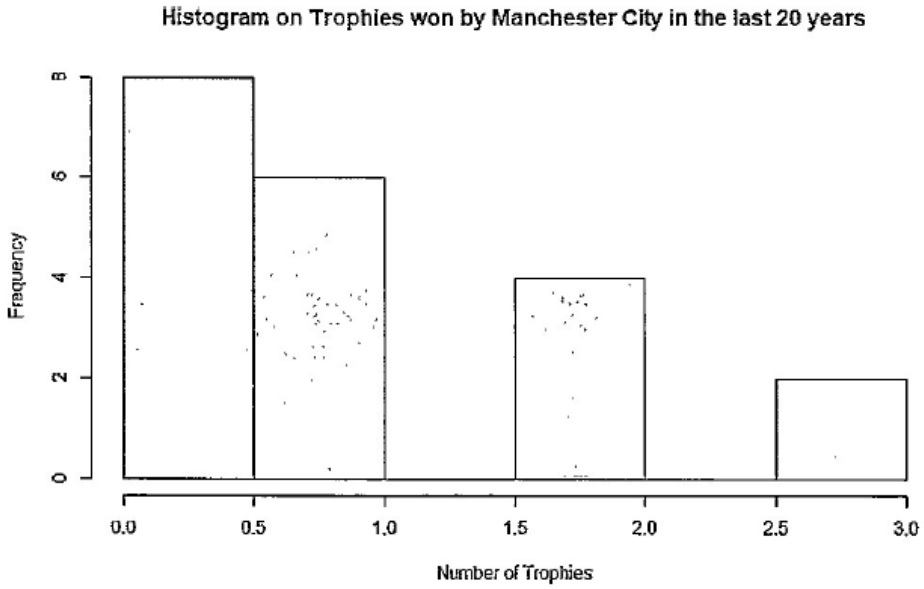
In conclusion, the histograms suggest that the data for both lightweight and heavyweight fighters is normally distributed, as both graphs display a bell-shaped curve. The boxplots also support this as it shows a similar distribution for both weight classes. It also highlights that the medians and spreads are very close. There are no major outliers affecting either group which suggests the data is consistent. Overall, the boxplots indicate that both divisions have a very similar number of significant strikes landed per round. The mean values show that lightweight fighters land slightly more significant strikes per round than heavyweights, but the difference is extremely small. The standard deviations are also very similar which tells us that the variability in striking between the two groups is almost the same. The t-test produced a p-value of 0.9074, which is much greater than 0.05 so we do not reject the null hypothesis. This means the result is not statistically significant and there is not enough evidence to suggest a real difference between the two groups. Overall based on the graphs, descriptive statistics, and results of the t-test it can be concluded that there is no significant difference in the number of significant strikes landed per round between lightweight and heavyweight fighters.

Candidate 7 evidence

Presentation



This boxplot helps display relevant statistics, as it shows a difference in major trophies between the two clubs, with Manchester City winning more but Manchester United being more consistent.



I have used a histogram as it distributes the data of both clubs' major trophies won in the last 20 years.

Both histogram displays are skewed with a tail to the right.

Descriptive Statistics:

Manchester United:

Median	1
IQR	1

Manchester City:

Median	1
IQR	2

Analysis and Interpretation

When comparing the medians, it is clear that the central data point of major trophies won by each club is identical.

I will present an un-paired t.test. Even though my data is skewed, considering that winning major trophies is difficult, it is seen as broadly normal.

Bibliography

Manchester United: https://www.manutd.com/en/history/trophy-room

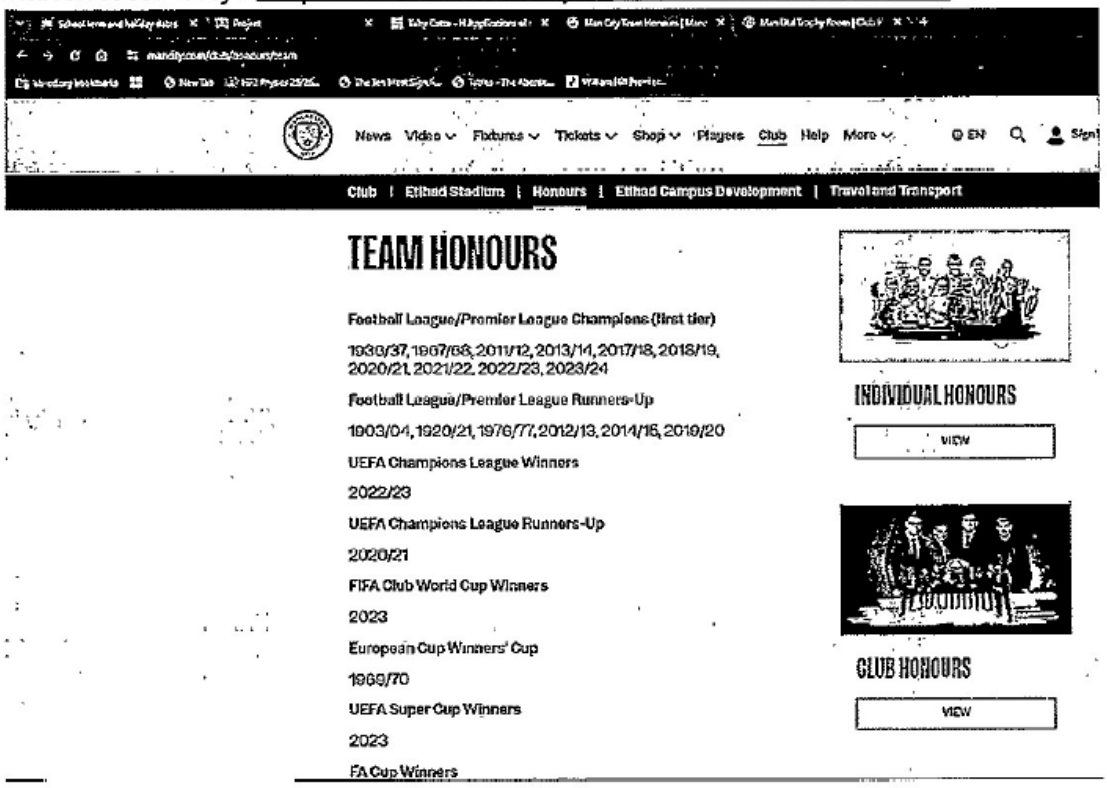








Manchester City: https://www.mancity.com/club/honours/team

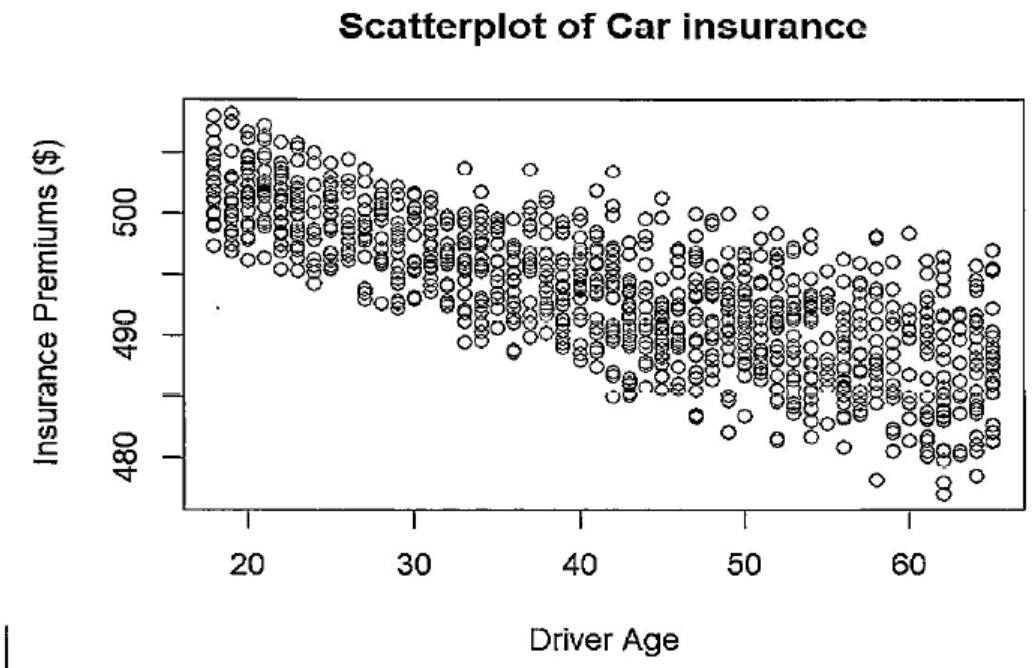


Candidate 8 evidence

Presentation

Subjective impression

Figure 1



This scatterplot shows the relationship between driver age and car insurance premiums. I noticed that the points form a clear downward trend as age increases: Younger drivers tend to pay higher insurance premiums, and as age increases the premiums generally decrease.

The mean insurance premium for the dataset is $493.7423, and the standard deviation is $5.909689, indicating how spread out the premium values are.

- Mean premium = $493.74
- Standard deviation = $5.91
- Median premium = $493.95
- IQR = $8.83
- Sample size = 1000

The dataset has 1000 insurance premiums. The mean premium is $493.74, and the standard deviation is $5.91, showing that most premiums lie close to the average. The median premium is $493.50, which is the middle value of the data. The IQR IS $8.83, meaning that the middle 50% of premiums only vary by about $9.

Analysis and Interpretation

P-value	Confidence Interval
2.2e-16	-0.8002996 -0.7510240

H_0	There is no relationship between driver age and insurance premium.
H_1	There is a relationship between driver age and insurance premium.

To investigate whether driver age is related to insurance premium, used Pearson's correlation test because both variables are numerical, and the scatterplot looked roughly linear.

```
> summary(Insurance.Premium....)
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
  477.1   489.5   493.9   493.7   498.3   508.1


Pearson's product-moment correlation
data:  Driver.Age and Insurance.Premium....
t = -38.974, df = 998, p-value < 2.2e-16
alternative hypothesis: true correlation is not equal to 0
95 percent confidence interval:
 -0.8002996 -0.7510240
sample estimates:
      cor
-0.7768483
```