Research On The Relationship Between Minutes Played (MP) And Score Of A NBA Player

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PROPOSAL

1. Research Question

The team will investigate whether a father's height affects the height of his son. Our group noticed that there were many tall people in life whose fathers were very tall; Of course, there are cases where the father is not tall, but the son is tall. So, our team wanted to know how the height of the father affects the height of the son.

2. Background Research

Here are three relevant resources that help us conduct the research. The first one is that is height determined by genetics written by MedlinePlus. It claims that about 80 percent of an individual's height is determined by the DNA sequence variation they have inherited. So, the father's height will definitely affect the son's height. The second one is how much of human height is genetic and how much is due to nutrition published in Scientific American. It indicates that 60 to 80 percent of the difference in height between individuals is determined by genetic factors. So, all the sources point to the son's height being inherited from their father. The third one is about how the father's height influences the son's height published by De Lin Show. She use a regression line to find out that the father's height and the son's height are positively correlated, but only by a correlation coefficient of 0.5.

3. Sampling and experiment design

- Variables: father's height and their son's height
- Type of study: This study is an observational study because we do not design any treatment for the family.
- Data collection: We collect the data through Kaggle. (https://www.kaggle.com/datasets/abhilash04/fathersandsonheight)
- Scope of inference: These data can predict all sons' height with their fathers' height.

4. Exploratory data analysis

	Father (inch)	Son (inch)	Father (cm)	Son (cm)
1				
2	65	59.8	165.1	151.892
3	63.3	63.2	160.8	160.528
4	65	63.3	165.1	160.782
5	65.8	62.8	167.1	159.512
6	61.1	64.3	155.2	163.322
7	63	64.2	160	163.068
8	65.4	64.1	166.1	162.814
9	64.7	64	164.3	162.56
10	66.1	64.6	167.9	164.084
11	67	64	170.2	162.56
12	59	65.2	149.9	165.608
13	62.9	65.4	159.8	166.116
14	63.7	65.7	161.8	166.878
15	64.1	65.4	162.8	166.116
...	...	...	...	...
1065	75.2	73.8	191	187.452
1066	73.1	75.6	185.7	192.024
1067	69.9	77.2	177.5	196.088
1068	65.5	60.1	166.4	152.654
1069	72.6	76.8	184.4	195.072
1070	72.2	66.7	183.4	169.418
1071	63.2	58.8	160.5	149.352
1072	73.3	67.9	186.2	172.466
1073	65.8	61	167.1	154.94
1074	67.7	59.8	172	151.892
1075	67	70.8	170.2	179.832
1076	71.3	68.3	181.1	173.482
1077	71.8	69.3	182.4	176.022
1078	70.7	69.3	179.6	176.022
1079	70.3	67	178.6	170.18

We can F-test whether the linear relationship between the two groups of data is significant, and test the r between the data of each group.

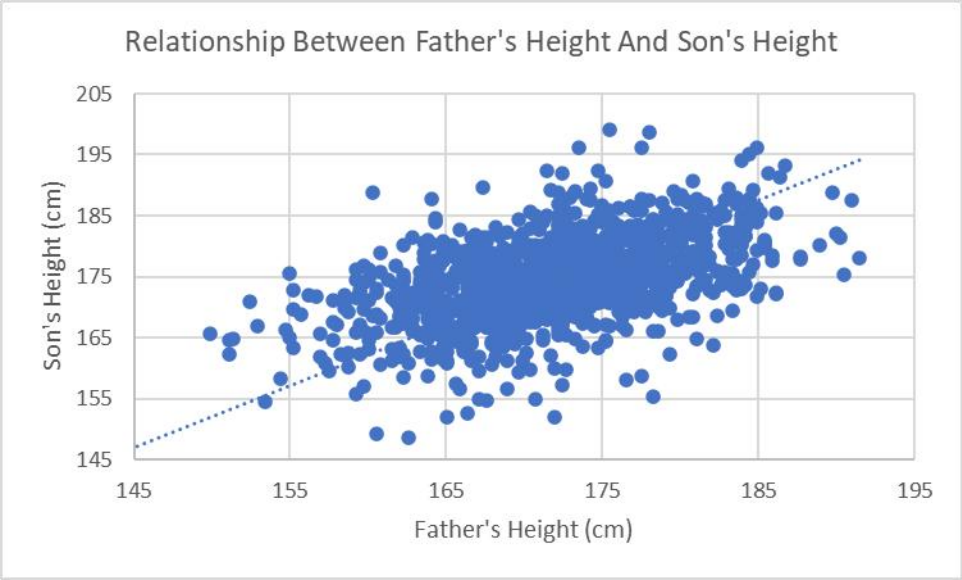
5. Group task assignments and timeline

In this project, Simon was responsible for the introduction, Dennys for the data collection, Lawrence for the methods and conclusions, and Simon for the data analysis and future

recommendations. The research part will be done together. The proposal and data collection will be completed by May 17. The preparatory work (including introduction and methods) should be completed by May 20, and the main research part should be completed by May 22. Finally, it should be completed and reviewed before May 26.

6. Data

The table below gives the heights of fathers and their sons, based on a famous experiment by Karl Pearson around 1903. The number of cases is 1078. Random noise was added to the original data, to produce heights to the nearest 0.1 inch.



7. References

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https://medlineplus.gov/genetics/understanding/traits/height/