Data Engineer Assignment Intern - PrimeData

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Question 8

Assume that you are a rector of a university and you want to show to the public a statistics report for examinees in your university entrance exam, what is the best graph to use. Please justify your decision.

Solution:

The graph to use depends on your purpose:

- If you want to show scores of all the examinees for each subject, the histogram is suitable because it can give statistical information about distribution, skewness,...

- If you want to show average scores to be accepted to school over years, a line chart is suitable because it allowed you to see the trend over the time

Question 9

We have three identical six-sided dice. We roll one dice first and the remaining two dice after that. What is the probability that the point obtained in the first roll is greater than the sum of the points obtained in the second roll.

Solution:

Each dice has 6 posibilities, so the total posibilities of roll three dice is: $6^3 = 216$.
To obtain the point of first dice > the sum of second and third dice, we have cases:

- If first dice $= 1 \Rightarrow$ NA

- First dice $= 2 \Rightarrow$ NA

- First dice $= 3 \Rightarrow (1, 1) \Rightarrow 1$ possibility

- First dice $= 4 \Rightarrow (1, 1); (1, 2); (2, 1) \Rightarrow 3$ possibilities

- First dice $= 5 \Rightarrow (1, 1); (1, 2); (2, 1); (2, 2); (1, 3); (3, 1) \Rightarrow 6$ possibilities

- First dice $= 6 \Rightarrow (1, 1); (1, 2); (2, 1); (2, 2); (1, 3); (3, 1); (1, 4); (4, 1); (2, 3); (3, 2) \Rightarrow 10$ possibilities

In total, we have 20 possibilities, so the probability that the point obtained in the first roll is greater than the sum of the points pbtained in the second roll is $\dfrac{20}{216} \simeq 0.0926$