

Conclusions and analysis

Many of the values provided were patterns since they made similar combinations only that they had different letters in question, and when calculating the Shannon entropy it gave us a similar value, this event occurred for both motif sizes of 6 and 8, What differentiated them was that the entropy of 8 could take some slightly higher values, since it had more possible combinations, and if the size was increased the same thing would happen, the entropy would increase, and otherwise the entropy would decrease since not many possible combinations could be made.

In this case, the values of 1.79 were taken for the motifs of size 6 for the following reason, taking into account that the lower the entropy implied that a letter was repeated much more than desired, and as increasing the entropy there were more possibilities of combinations, if we took values equal to or greater than 1.79, two possible cases were going to be taken in which the entropy could be greater, when this was 1.79 and 1.92, and 1.92 is the maximum entropy

For a similar reason, the value of 1.92 was taken, as it had even more possibilities of entropy, its maximum entropy could be the value of 2, so the number of possibilities of entropy increased, in this case values equal to or greater than 1.92, which were the two possible cases of maximum entropy that motifs of size 8 could take when they were 1.92 and 2.0

Considerations

Making the Shannon entropy was not completely difficult since we already had the formula at hand to apply it, although it was a little tedious to think of some way to obtain the values

And personally, the part that I consider the most expensive was making the filter, since I was not sure how it could be done and also the size loop was modified to be able to give the filter correctly