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IMPORTANCE OF PROBABILITIES IN REAL LIFE

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Abstract

In probability, the calculation of the occurrence of the given event is made which is generally expressed in terms of the number between 1 and 0. Here, certainty is regarded as an event having a probability of 1. For example, the probability of the result of tossing a coin is termed as 1 as there are only two outputs either "head" or "tail" with the assumption that the coin would land flat after tossing.

On the other hand, equal odds of occurring or not occurring are observed in the events when there is a possibility of getting a probability of 0.5. For example, the probability of getting "head" on tossing a coin is found to be 0.5 as there are half chances of resulting this and same can be evaluated in case of getting "tails".

In probability, the term impossibility is used for the events where the probability of zero is observed. For example, in case of tossing the coin, there is zero possibility of landing the coin without facing up either side as practically, we know that the coin faces up either "head" or "tail" after tossing. The current paper highlights the importance of probability in the real life.

KEYWORDS: Probability, Number, Mathematics

INTRODUCTION

The applications of the probability can be seen in the real life. Many business models implement the concept of probability while making the business policies. It is observed that the evaluation of the business policies can be done easily with the help of the concept of probability. After proper utilization of the probability, an increase in the profitability of the business is observed.

Before the implementation of a particular strategy, all the associated risk factors can be eliminated with a proper implementation of the probability function. Hence, the efficiency of the business can be enhanced undoubtfully.

A number of customer services can be made easily with the help of the probability functions. For this purpose, the models of queuing theory are used. Hence, the final efficiency of each and every module of the company can be evaluated and all the negative aspects can be rectified easily.

There are a number of probability models are available which are used by various companies for the designing of the group of policies which automatically alter itself on adding new information in the database so that an environment of the competition can be managed efficiently to handle the risk factors. For this purpose, in some cases, Markov chains are used by the management of the companies for the mathematical analysis of the long-term policies to know which ones would generate the desired results.

In probability, the reliability theory is also used which helps the designers for modeling their products in case of the failure of any of the probability or damage. Also, a scenario analysis can be created with the help of the probability distributions. There are mainly three scenarios are considered i.e. worst-case, likely and best-case.

Some value is contained from the bottom end of the probability distribution in the scenario of the worst-case. On the other hand, a value in the middle of the distribution is contained in the likely scenario. Lastly, the upper end values are included in the best-case scenario.

The usage of the concept of probability can also be seen in the field of weather forecasting where the meteorological department predicts about the behavior of the weather in the coming days. All the forecasts regarding raining, high temperature or lower temperature are done with the help of the probability functions.

In the field of sports, the possibility of winning or losing a team in the future match is analyzed by tracking the previous results and records with the help of the probability method. A number of gaming strategies are made under the concept of probability. For example, by observing the current and previous record of player, the current ranking of the players is finalized by the sports management.

The concept of probability is also used in the traditional games like rummy with the combination of the permutations and combinations. The calculation of getting a particular card is performed with the help of probability.

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Probability theory is a very important subject which can be studied at various mathematical levels. Probability is the foundation of Statistical theory and its applications. . The term “Probability” in Statistics refers to the chances obtained of an event among a large number of possibilities. A collection of well defined is called a set. The objects comprising the set are called elements. Probability is the combination of sets and subsets. The phrase probable is often used in our daily conversation which means likely.

Probability is a measure of the expectation that an event will occur or a statement is true.Probabilities are given a value between 0 (will not occur) and 1 (will occur).The higher theprobability of an event, the more certain we are that the event will occur.A basic understanding of probability makes it possible to understand everything frombatting averages to the weather report or your chances of being struck by lightning! Probability is an important topic in mathematics because the probability of certain events happening - or not happening - can be important to us in the real world.

Probability is the study of random events. It is used in analyzing games of chance, genetics, weather prediction, and a myriad of other everyday events. Statistics is the mathematics we use to collect, organize and interpret numerical data. It is used to describe and analyze sets of test scores, election results, and shoppers’ preferences for particular products.

Probability and statistics are closely linked because statistical data are frequently analyzed to see whether conclusions can be drawn legitimately about a particular phenomenon and also to make predictions about future events. For instance, early election results are analyzed to see if they conform to predictions from pre-election polls and also to predict the final outcome of the election.

Understanding probability and statistics is essential in the modern world, where the print and electronic media are full of statistical information and interpretation. The goal of mathematical instruction in this area should be to make students sensible, critical users of probability and statistics, able to apply their processes and principles to real-world problems.

Students should not think that those people who did not win the lottery yesterday have a greater chance of winning today! They should not believe an argument merely because various statistics are offered. Rather, they should be able to judge whether the statistics are meaningful and are being used appropriately.

Combination and permutation formulas are very useful for solving probability problems.

Imagine a lottery where you pick six numbers from 1-49 and for a winning number, their order matters. Here you must use the formula for permutations to figure out the size of the sample space, which consists of the number of permutations of size k that can be taken from a set of n objects:

$$n\_P\_k = \frac{n!}{(n - k)!}$$

In our problem, we want to find 49_P_6, which is equal to:

$$49\_P\_6 = \frac{49!}{43!} = 10{,}068{,}347{,}520$$

Since only one possible ordering of the six numbers can win the lottery, there is only one favorable outcome. The sample space, however, is quite large because it is equal to 49_P_6, which is roughly 10 billion. This means that the probability of winning the lottery is about 1 in 10 billion.

If we define the lottery in a slightly different way, the probability of winning greatly improves. Suppose you still pick 6 numbers from 1-49, but this time order doesn't matter. Now you can use the formula for combinations to figure out the sample space, which consists of the number of combinations of size k that can be chosen from a set of n objects:

$$n\_C\_k = \frac{n!}{k!\,(n - k)!}$$

In our problem, we want to find 49_C_6, which is equal to:

$$49\_C\_6 = \frac{49!}{6! * 43!} = 13{,}983{,}816$$

Since there is only one combination of six numbers that will win the lottery, there is again only one favorable outcome - so your chances of choosing the winning number are quite slim. However, the sample space has shrunk considerably (by a factor of 1000) because 49_C_6 is only roughly 14 million. The probability of winning this second lottery is 1 in 14 million.

If you picked a different combination of six numbers for each of those 7 million tickets, you'd have 7 million of the possible winning combinations and the numerator of your probability fraction would therefore be 7 million. Given the second lottery, with a sample space of 14 million possible combinations, the probability of winning the lottery is 7 million/14 million, a probability of 50%.

Thus you can see that the more tickets you buy, the better your chances of winning the lottery. However, you need to buy lots and lots of tickets before the number of tickets you hold really makes a difference. Even if you buy 100 tickets (which might cost you $100), your chances of winning would still only be 100/14 million - not even close to a 1% chance.

CONCLUSION

Let's say your favorite baseball player is batting 300. What does this mean?

A batting average involves calculating the probability of a player's getting a hit. The sample space is the total number of at-bats a player has had, not including walks. A hit is a favorable outcome. Thus if in 10 at-bats a player gets 3 hits, his or her batting average is 3/10 or 30%. For baseball stats we multiply all the percentages by 10, so a 30% probability translates to a 300 batting average.

This means that when a Major Leaguer with a batting average of 300 steps up to the plate, he has only a 30% chance of getting a hit - and since most batters hit below 300, you can see how hard it is to get a hit in the Major Leagues!

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