THE REAL LIFE APPLICATIONS OF PROBABILITY IN MATHEMATICS

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Abstract - Probability means the mathematical chance that something might happen, is used in numerous day-to-day applications, including in weather forecasts, Sports Strategies, Insurance Options, Games and Recreational Activities, Making Business. Probability theory is applied in life, where the life in risk management and in trade on financial markets It is mostly important for citizens to understand how probability assessments are made, and how they contribute to decisions. The large insurance corporations are probably the only corporations that devise their entire business strategy around probability. Another significant application of probability theory in everyday life is reliability. Probability and the ability to understand and estimate the likelihood of any different combination of outcomes versus one another are very important in real life.

Keywords - Probability, Chances, Equally liked, Samples, Possibility, Uncertain.

I. INTRODUCTION

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.

## II. MEANING OF PROBABILITY

Probability is used to describe random or chances of events to occur. Everyday we are faced with probability statements involving the words.
Let us consider the experiment of rolling a single fair die. The result of the experiment is observing the number that shows up. Thus, this experiment may show any number from through six. The set of all possible outcomes { 1,2,3,4,5,6} is called the sample space.

It is a measure of how often a particular event will happen if something is done repeatedly. If an event is certain to happen then its probability is 1. If an event is not certain to happen then its probability is 0. Probability is always between 0 and 1.

III. PROBABILITY BASICS

Probability of picking a red marble out of a bowl with 2 red and 8 green - there are 2 OUTCOMES that are red.

There are 2 outcomes that are red

THERE ARE 10 POSSIBLE OUTCOMES

p(red) = 2 divided by 10

p(red) = .20
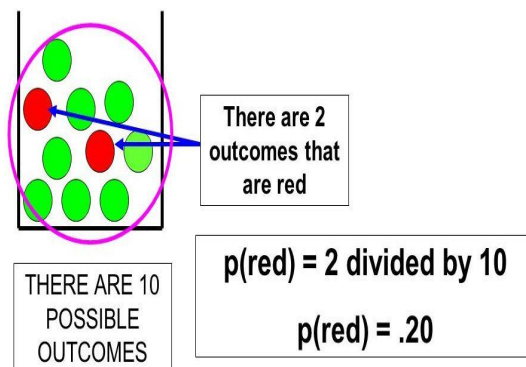
IV. EVENT AND PROBABILITY

An event is some specified result that may or may not occur when an experiment is performed.
For example, in an experiment of tossing a coin once, the coin landing with heads facing up is an event, since it may or may not be occur.

The probability of an event is a measure of the likelihood of its occurrence.

V. PROBABILITY CHANCES

There is a good probability of rain today.
Synonyms will be like:
- Possibility
- Likelihood
- Odds
- Expectation

VI. EXAMPLES

- If you draw a card from a standard deck of cards, what is the probability of not drawing a spade?
- In a certain population, 10% of the people atre rich, 5% are famous, and 3% are both rich and famous. A person is randomly selected from this population. What is the chance that the person is
    > not rich?
        >Rich but not famous?
        >Either rich or famous?

VII. MODERN USES OF PROBABILITY

In the twenty first century probability is used to control the flow of traffic through a highway system, a telephone interchange, or a computer processor. To find the genetic makeup of individuals or populations, figure out the energy states of subatomic particles. Estimate the spread of rumours, and predict the rate of return in risky investments.


VIII. APPLICATIONS

At first only a few people had smart phones, then within only a few years, it seems that everybody has an iPhone or similar.
Example: The Growth in Smart Phone usage has been Exponential.
Governments apply probabilistic methods in environmental regulation, where it is called pathway analysis.
A good example is the effect of the perceived probability of any widespread Middle East conflict on oil prices—which have ripple effects in the economy as a whole.
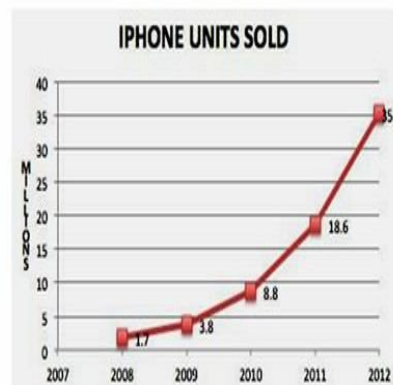
IX. POSSIBLE OUTCOMES

The result of a random experiment is called OUTCOME.

- Tossing a coin and getting up head or tail is an outcome.
- Throwing a dice and getting a number between 1 to 6 is also an outcome.

CONCLUSION

To calculate probability for continuous distribution, we use integral calculus. Normal distribution, which appeared in the explanation about deviation value, is an example representative of continuous probability distribution.

Here I have taken up familiar and simple subjects, but probability theory in recent years has been applied in various fields such as economics, engineering, and so on. Through this essay, I would be pleased if you gained, even if just a little, an interest in probability theory.

REFERENCES

[1] Kahneman D. Slovic P. & Tversky A.(eds). Judgement under Uncertainty: Heuristics and Biases. Cambridge University Press, (1982)

[2] Lee PM, 'Bayesian Statistics: An Introduction, 2nd Edn' , Arnold, London UK, 1997.Quite a good account of Bayesian statistics, but still not for the feint hearted (Lindley's book is better for beginners)

[3] Lindley DV, 'Making Decisions' , John Wiley and Sons, 1985.Something of a classic book. Argues that Bayesian probability is the natural basis for decision making in all walks of life.

[4] Wilson A.G. Cognitive Factors Affecting Subjective Probability Assessment. Institute of Statistics and Decision Sciences Discussion Paper No. 94-02. Duke University, Durham, USA (1994).

[5] Wright G. & Ayton P. (eds). Subjective Probability. John Wiley & Sons Ltd., (1994).

[6] William Feller, "An Introduction to Probability Theory and Its Applications", (Vol 1), 3rd Ed, (1968), Wiley,

[7] Kendall's Advanced Theory of Statistics, Volume 1: Distribution Theory", Alan Stuart and Keith Ord, 6th Ed, (2009).

[8] Finetti, Bruno de (1970). "Logical foundations and measurement of subjective probability". Acta Psychologica.**34**: 129–145.

[9] Singh, Laurie (2010) "Whither Efficient Markets? Efficient Market Theory and Behavioral Finance". The Finance Professionals' Post, 2010.

[10] Gao, J.Z.; Fong, D.; Liu, X. (April 2011). "Mathematical analyses of casino rebate systems for VIP gambling".International Gambling Studies. **11** (1): 93.

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