

ACTIVIDAD #1

Tipo actividad: video and related activities : Probability: “Types of Distributions”

Word Search game about probability distributions.

3) Socialize some key vocabulary about the video below "Probability: Types of Distributions"

1. **Discrete Distributions:** Sets of outcomes with a finite number of possibilities, such as rolling a die or picking a card, and following specific probability distributions.

2. **Bernoulli Distribution:** A probability distribution for events with only two possible outcomes (true or false), where any event with two outcomes can be transformed into a Bernoulli event.

3. **Poisson Distribution:** A probability distribution used to test the unusual frequency of events occurring within a given interval, especially when the frequency changes.

4. **Normal Distribution:** A continuous probability distribution resembling a bell curve, often observed in natural events, where most outcomes cluster around the mean, and extreme values are less frequent.

5. **Chi-Squared Distribution:** An asymmetric continuous probability distribution, typically used in Hypothesis Testing to assess goodness of fit, consisting of non-negative values and starting from 0 on the left.

4) Watch the video: "Probability: Types of Distributions"

[Probability: Types of Distributions](#)

5) Matching heading activity about the previous video.

Match the headings with their corresponding statements:

Column A: Headings

1. "Introduction to Probability Distributions"
2. "Bernoulli and Binomial Distributions"
3. "Logistic Distribution for Forecast Analysis"
4. "Discrete Distributions: Equiprobable Outcomes"
5. "Student's T Distribution for Limited Data"
6. "Chi-Squared Distribution in Hypothesis Testing"
7. "Exponential Distribution in Rapidly Changing Events"
8. "Poisson Distribution for Event Frequency"
9. "Continuous Distributions and Normal Distribution"

Column B: Statements

- a. "In this lecture, we are going to talk about various types of probability distributions and what kind of events they can be used to describe."
- b. "So, we looked at problems relating to drawing cards from a deck or flipping a coin. Both examples show events where all outcomes are equally likely."
- c. "The outcomes of many events in nature closely resemble this distribution, hence the name "Normal"."
- d. "Now, if we carry out a similar experiment several times in a row we are dealing with a Binomial Distribution."
- e. "We use it when we want to test out how unusual an event frequency is for a given interval."
- f. "One thing to remember is that since we are dealing with continuous outcomes, the probability distribution would be a curve as opposed to unconnected individual bars."
- g. "Sometimes, we have limited data for events that resemble a Normal distribution. In those cases, we observe the Student's-T distribution."
- h. "The Exponential distribution is usually present when we are dealing with events that are rapidly changing early on."
- i. "We often find it useful in forecast analysis when we try to determine a cut-off point for a successful outcome."

6) Complete sentences based on the transcript of the video.

Instructions: Match each incomplete sentence with the correct completion.

Incomplete Sentences:

1. In this lecture we are going to talk about various types of probability distributions...
2. Certain distributions share features, so we group them into types.
3. Some, like rolling a die or picking a card, have a finite number of outcomes.
4. They follow continuous distributions.
5. Before we get into the specifics, you need to know the proper notation we implement when...
6. We will get an overview of them and then we will devote a separate lecture to each one.
7. Both examples show events where all outcomes are equally likely.
8. Then there are events with only two possible outcomes – true or false.
9. Any event with two outcomes can be transformed into a Bernoulli event.
10. Imagine we are required to elect a captain for our college sports team.

Answer Options:

- A. We start off by writing down the variable name for our set of values, followed by the “tilde” sign.
- B. They follow discrete distributions.
- C. The team consists of 7 native students and 3 international students.
- D. They follow a Bernoulli Distribution, regardless of whether one outcome is more likely to occur.
- E. It sounds like it hits the expected notes.
- F. If you like roots music and are interested in female hip-hop artists, you can get a short documentary on the self-representation of women in hip-hop.
- G. The outcomes are very different.
- H. This is superseded by a capital letter depicting the type of the distribution and some characteristics of the dataset in parenthesis.
- I. The outcomes for each iteration are two, but we have many iterations.
- J. For each one, we will focus on an important aspect of it or when it is used.

7) True/ False questions about the video "Probability: Types of Distributions".

True/False Statements:

1. The outcomes of events like rolling a die or picking a card follow continuous distributions.
2. The Bernoulli Distribution is suitable only for events where one outcome is more likely to occur.
3. The Poisson Distribution is used to test how unusual an event frequency is for a given interval.
4. The Chi-Squared distribution often mirrors real-life events and is commonly used in forecasting analysis.

5. The Logistic distribution is useful in forecast analysis to determine the likelihood of scoring points in a competitive e-sport like Dota 2.