




Data Science Notes by Sarowar Ahmed



Chapter: Probability Theory



Topic: Probability basics

 Hey there, GitHub family! Today, let's embark on a journey into the fascinating world of Probability Theory, breaking it down so that it's easily digestible for everyone, regardless of age or background. Ready to explore how likely events are to happen? Let's dive in!

 **What is Probability?**

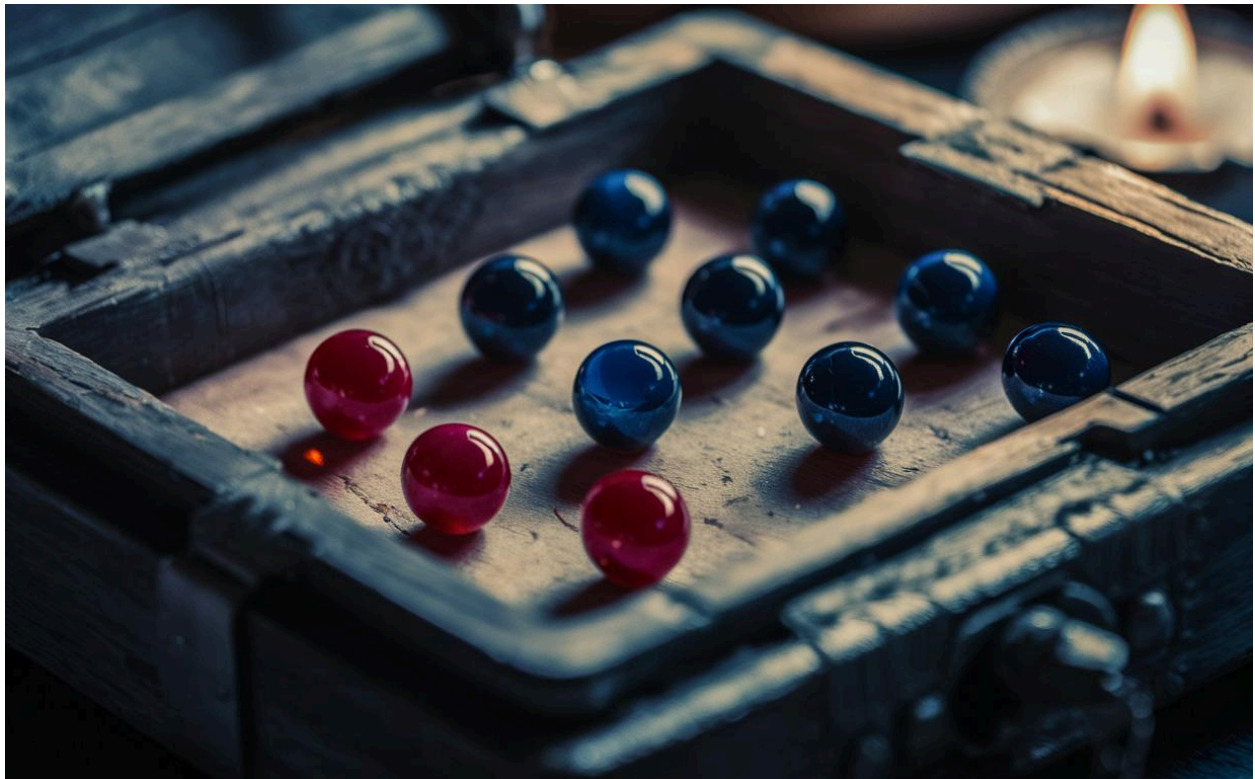
Probability helps us measure the likelihood that something will happen. It's like guessing the chance of rain on a cloudy day or pulling a red marble from a bag of mixed colors without looking.

📏 Basic Probability Formula:

The formula for probability is surprisingly straightforward:

- Probability (P)=Number of favorable outcomes/Total number of outcomes

🎨 Visualization:



📊 Example to Illustrate Probability:

- Imagine a box filled with 10 marbles, 3 of which are red and 7 are blue.

Let's calculate the probability of drawing a red marble from the box.

- Total number of outcomes (total marbles): 10

- Number of favorable outcomes (red marbles): 3

So, the probability of picking a red marble would be:

$$P(\text{Red Marble}) = 3/10 = 0.3$$

This means there's a 30% chance of picking a red marble from the box..

Why Probability Matters:

Understanding probability gives us a way to predict the likelihood of various events, from the mundane to the complex. Whether it's forecasting weather, assessing risks in business decisions, or simply betting on a game, probability forms the backbone of countless decisions we make every day.

Whether you're analyzing student grades, customer satisfaction scores, or even employee performance metrics, understanding percentiles can provide deep insights into the distribution and relative positioning of data points.

Got any questions about Probability basics!? Feel free to ask me via LinkedIn! Let's keep learning together.

[My LinkedIn](#)

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