# Classical Probability

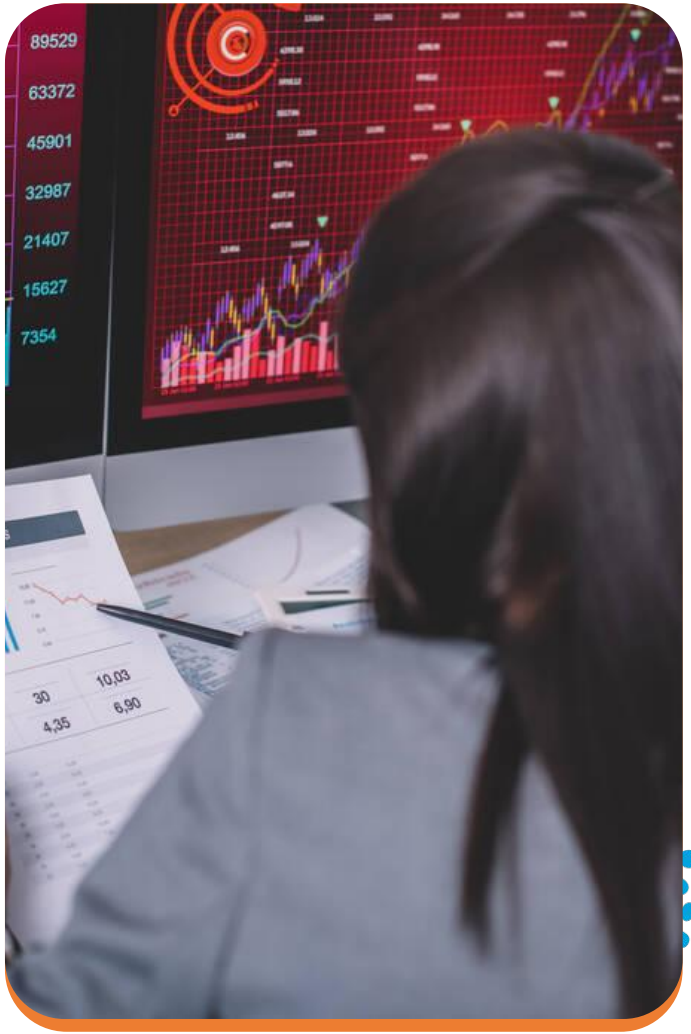
Exploring how classical probability can be applied in data analysis to make informed decisions based on historical data.

# Introduction to Classical Probability

01 Classical probability calculates the chance of something happening by considering all possible outcomes

02 Each outcome is assumed to be equally likely to occur

03 Analogous to flipping a fair coin, where each side has a 50% chance of occurring




# Application in Real Life: Party Supplies Co.

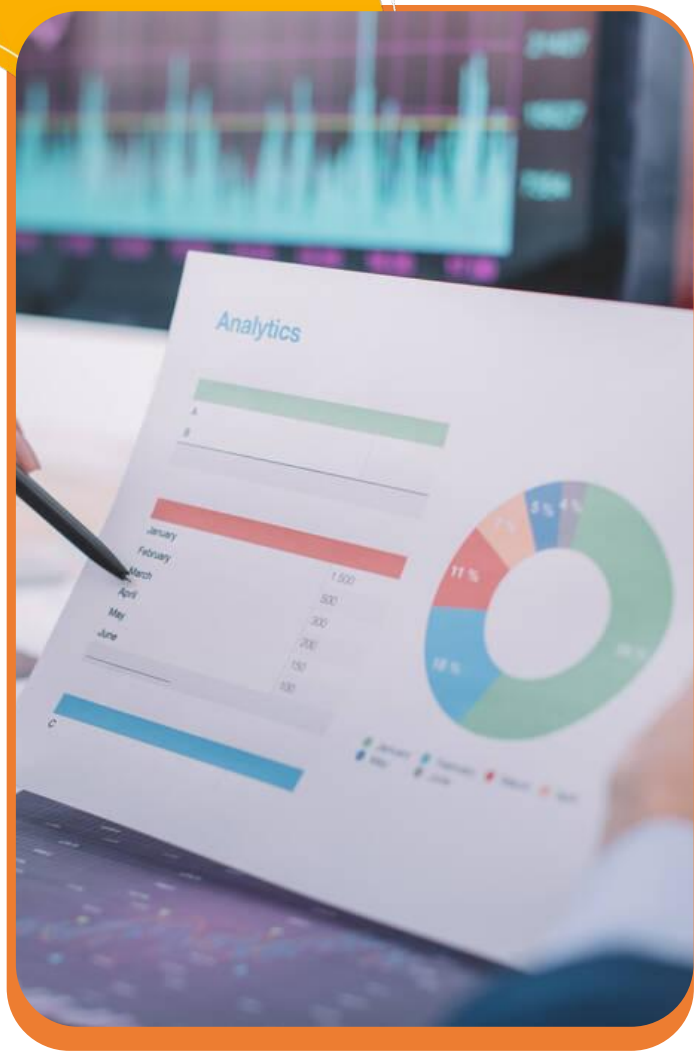
- Party Supplies Co. is deciding between focusing on wedding or birthday decorations
- Analyzed sales data from 100 recent decoration inquiries
- 60 inquiries were for birthdays, 40 inquiries were for weddings

# Using Classical Probability for Decision-making

01 Probability of the next inquiry being for wedding decorations: 40%

02 Probability of the next inquiry being for birthday decorations: 60%

03 Assuming each inquiry has an equal chance of being for either type of decoration

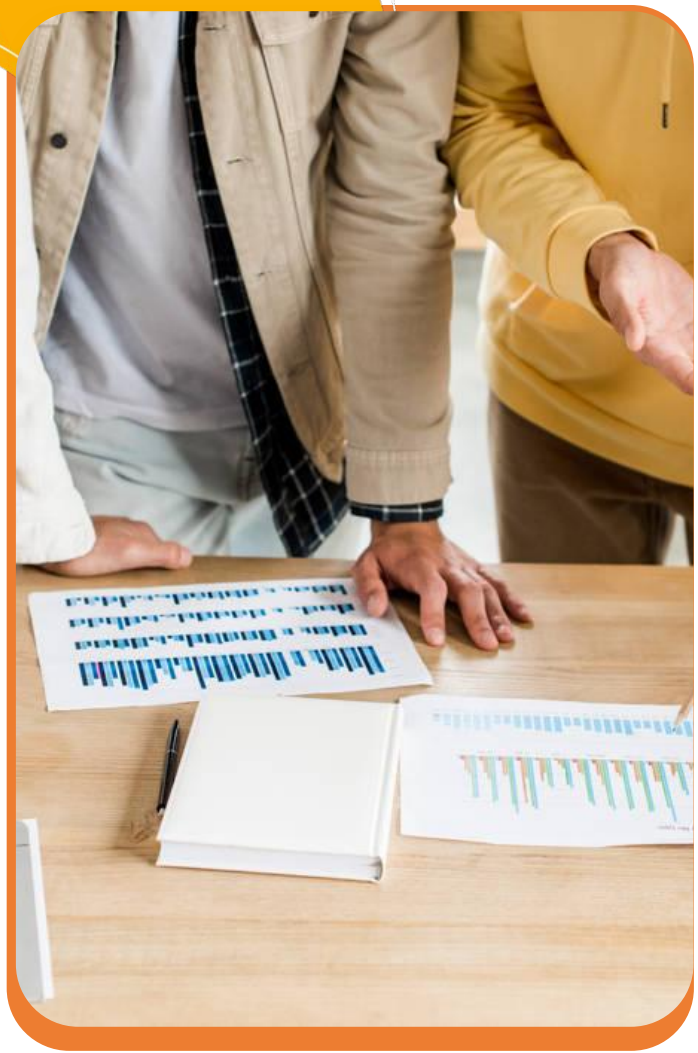


# Strategic Choice: Focusing on Birthday Decorations

01 Using classical probability to evaluate potential demand

02 Based on the higher probability of inquiries for birthday decorations

03 Party Supplies Co. decides to expand their line of birthday decorations first



Let's say you have a jar filled with 10 marbles: 4 are red, and 6 are blue. You want to know the probability of randomly picking a red marble from the jar.

- **Total possible outcomes**: There are 10 marbles in total.
- **Favorable outcomes for picking a red marble**: There are 4 red marbles.

Since each marble is just as likely to be picked as any other, you use classical probability to find the chance of picking a red marble. You divide the number of red marbles (favorable outcomes) by the total number of marbles (possible outcomes):

$$\text{Probability of picking a red marble} = \frac{\text{(red marbles)}}{\text{(total marbles)}} = \frac{4}{10} = 0.4$$

So, there's a 40% chance, or 0.4 probability, of picking a red marble from the jar, assuming you pick only once and randomly. This simple approach, considering each outcome to have an equal chance and counting the favorable versus total possibilities, is the essence of classical probability.

# Thank you. 😄