

Understand Combinations

Data Science and A.I. Lecture Series

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Introduction to Combinations

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- Example: Selecting 2 players from a group of 3 players (X, Y, Z).
- Possible combinations: XY, XZ, YZ.
- Formula for combinations:

$$\binom{n}{r} = \frac{n!}{r!(n-r)!}, \quad 0 \leq r \leq n$$

Example : Forming Teams

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- Combinations: AB, AC, AD, BC, BD, CD.

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- Total handshakes = 66.

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- Simplify:

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- Total ways = 270,725.

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- Total ways:

$$\binom{5}{1} \times \binom{4}{2} = 5 \times 6 = 30$$

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Summary

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- Examples include forming teams, calculating handshakes, and selecting items.
- Practice makes perfect—try solving more examples to master combinations!

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