

Power Sets

$$\mathcal{P}(S) = \{X : X \subseteq S\}$$

$$\mathcal{P}(\{1,2,3\}) = \{ \emptyset, \{1\}, \{2\}, \{3\}, \{1,2\}, \{1,3\}, \{2,3\}, \{1,2,3\} \}$$

How many subsets are there of S , i.e. what is $|\mathcal{P}(S)|$?

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Baseball Outfits

The Husky baseball team has three hats (purple, black, gray)

Three jerseys (pinstripe, purple, gold)

And three pairs of pants (gray, white, black)

How many outfits are there (consisting of one hat, jersey, and pair of pants) if

the pinstripe jersey cannot be worn with gray pants,

the purple jersey cannot be worn with white pants,

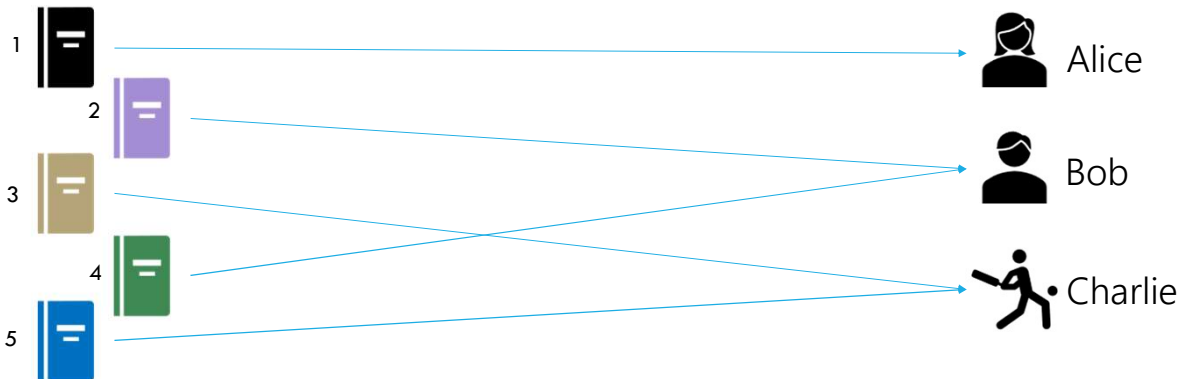
and the gold jersey cannot be worn with black pants.

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Assigning Books

We have 5 books to split to 3 people (Alice, Bob, and Charlie)

Every book goes to exactly one person, but each person could end up with no books (or all of them, or something in between).



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Strings

How many strings of length 5 are there over the alphabet $\{A, B, C, \dots, Z\}$? (repeated characters allowed)

How many binary strings of length n are there?

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