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Graph → Friend groups

Hard 5 minutes

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There are 8 people: Ann, John, Kate, Mike, Alice, Bob, Andy, and Sam. It is known that Bob and Alice, Alice and Sam, Bob and Andy, Bob and Sam, Kate and Ann, Ann and John, Ann and Mike, Sam and Andy, Kate and John, John and Mike, Kate and Mike, Alice and Andy are friends. Let’s define a friend group as a group of at least three people where everyone is a friend of all other people in the group.

How many friend groups are there among these people? Note that a group of friends might be a subgroup of another bigger group of friends.

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Hint:

Draw the connection on paper or whiteboard.

Count the number group whose size is "larger than" or "equal to" 3.

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this is basically a combination problem. you do 4 chose 3 and then you have to add a larger group of 4 as a friend group too.

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Count both group of three people and more than three people as separate group.

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friend group have unit digit 0

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both: groups and their sub-groups are important

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A friend group is any group of 3 or more people all of whom are friends with each other. So a friend group could include 3 people or 4 people.

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count how many times can you arrange group of 4 people by 3

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Or 4, since it's at least 3 people. If you don't include groups of 4, you'll get the answer wrong.

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