Maths Circle Explorations: Session 6

TIFR, Mumbai

7th January 2022

Problem 2

Your school is hosting an event and a dinner party afterwards. Knowing that you are good at mathematics, the administration asked you to organise the seating arrangement at the dinner. But you have to follow two rules,

1) You can not fix from beforehand which person sits at which table. Everyone attending the dinner should be able to choose which table they want to join, as long as their preferred table is not completely occupied.

2) you have to make sure that at each table either there is at least 3 people who knows each other from before, or there is at least 3 people who does not know each other. Apparently, dinner conversations are smooth if we follow this rule.

So you got to thinking, what is the least number of people each table should accommodate so that the above rules are followed in each table.