



Communiqué
The Official Soft Skills & Personality
Development Society of IIT Kharagpur

EVALUÉ

THE ART OF A PERFECT GUESS

75
**HAND
PICKED**



ACKNOWLEDGEMENT

Communiqué IIT Kharagpur proudly recognizes the efforts of the Governing Team 2025 - 2026 as the primary authors behind this book. A heartfelt thank you to the Advisory team and Secretary batch 2025 - 2026 for their continued support and guidance throughout the journey.

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How to use this Book?

This book offers 75 carefully designed guesstimate problems for students who are curious about or preparing for a career in business consulting. It's not just a collection of questions. It's a tool to help you think clearly, solve logically, and communicate with confidence.

Begin by reading each question slowly and thoughtfully. Make sure you understand what's being asked before jumping into the solution. Once you're clear on the problem, try solving it on your own. Break it down into smaller parts, make sensible assumptions, and build your answer step by step. After giving it your best effort, check the sample answer provided. It's not about matching it perfectly. Instead, focus on understanding the approach what you did differently, what worked well, and what could be improved.

As you progress through the book, you'll notice certain methods and techniques appearing again and again. These are frameworks that consulting firms often expect in interviews. Pay attention to them and think about how you might apply them in other problems.

Practicing how you explain your thought process is just as important as solving the problem. In real interviews, clear and structured communication often matters as much as getting the right answer. Try speaking your thoughts out loud or explaining them to a friend. If a problem seems tough, don't be discouraged. Come back to it later. You'll often find that your perspective has sharpened just by taking a break and returning with fresh eyes.

And if you can, pair up with a friend and take turns acting as the interviewer and the candidate. It's a great way to simulate real interviews and build confidence through practice.

The more you engage with these problems, the more natural this way of thinking will become. Eventually, you'll find yourself enjoying the challenge and that's when the real learning begins.



INDEX

1. Estimate number of International flights taking off from India per day. ----- **001**
2. Calculate the number of queries answered by Google per second. ----- **003**
3. Estimate the revenue of PVR cinemas in India. ----- **006**
4. Estimate the market size of driverless cars in India in 2050. ----- **008**
5. Estimate the number of Instagram stories uploaded in India. ----- **010**
6. Calculate the number of Amazon product searches in India in a minute. ----- **012**
7. Estimate the number of pizzas sold by a Domino's outlet in India. ----- **015**
8. Amount of garbage produced by Delhi per day in metric tonnes. ----- **019**
9. Estimate the number of shoes bought in Kolkata in a year. ----- **022**
10. Estimate the number of Instagram users in India as of 2025. ----- **024**
11. Estimate the number of cycles sold in a year in India. ----- **026**
12. Estimate the number of people with ChatGPT subscriptions in India. ----- **028**
13. Estimate the number of Indians having a DEMAT account. ----- **031**
14. Estimate the number of vehicles passing by India Gate in a day. ----- **034**
15. Estimate the number of total vehicles owned by households in India. ----- **036**
16. Average number of WhatsApp messages sent in India in a day. ----- **039**
17. Estimate the amount of data consumed per day by an Indian student. ----- **041**
18. Estimate number of liters of water consumed in India per person. ----- **043**
19. Estimate the number of washing machines used in India. ----- **045**
20. Estimate the average distance travelled by cycle by an Indian. ----- **047**
21. Estimate the number of headphones sold in India per year. ----- **048**
22. Estimate the number of people who wear spectacles in India. ----- **050**
23. Estimate the market size of electric scooters in India by 2030. ----- **052**
24. Estimate the number of Metro cardholders in India. ----- **053**
25. Estimate the number of students enrolled in the distance learning program. ----- **055**
26. Estimate the number of engineering colleges in India. ----- **057**
27. Estimate the revenue generated through ticket sales by a cricket stadium during a cricket match. ----- **058**
28. Estimate the number of people who visit shopping malls in Mumbai in a week. ----- **059**
29. Estimate the number of families going on vacation in a year. ----- **061**
30. Estimate the average number of Momo eaters in a day in Delhi by dining in at the venue. ----- **062**
31. Estimate the number of rides a cab driver gets in a day in Mumbai. ----- **064**
32. Estimate the number of non-vegetarians in Mumbai. ----- **067**
33. Estimate the number of iPhone users in India. ----- **068**
34. Estimate the average screen time of an individual in India. ----- **069**
35. Estimate the number of unique UPI users in India. ----- **071**
36. Estimate the number of people with a Spotify subscription in India. ----- **073**
37. Estimate the market size of umbrellas in Kolkata ----- **075**
38. Estimate the filter coffee cups sold in Bangalore per day. ----- **076**
39. Estimate the number of Maggi packets consumed by IIT students in a week. ----- **078**
40. Estimate the average distance run by a football player in an average match. ----- **079**



41. Estimate the number of AC's sold in India. -----	081
42. Estimate the amount of revenue generated by a single petrol pump in India. -----	083
43. Estimate the number of foreign tourists in India per year. -----	086
44. Estimate the number of footballs sold in India. -----	087
45. Estimate the number of chapatis consumed in Balaji Mandir per day. -----	089
46. Estimate the average number of hours of sleep Indian students take per day. -----	091
47. Estimate the number of non-fiction books sold in India per month. -----	093
48. Estimate the number of coffees ordered in CCD in a day in Mumbai. -----	095
49. Estimate the average number of online shopping packages received by a household in India. -----	097
50. Estimate the number of 5G smartphone users in India. -----	100
51. Estimate average electricity consumption in India in a household in a day. -----	102
52. Estimate the number of SUVs sold in India in a year. -----	106
53. Estimate the number of ball pens sold in a day in India. -----	108
54. Estimate the average number of Instagram reels scrolled in India per person in a day. -----	109
55. Estimate the Number of packaged water bottles sold in India per day. -----	111
56. Estimate the revenue of OTT platforms in India in 2024. -----	113
57. Estimate the market size of formal ties in India on an annual basis. -----	115
58. Estimate the number of shampoo bottles sold in India in a year. -----	116
59. Estimate the number of laptop bags sold in Kolkata per year. -----	117
60. Estimate the number of LCD/LED TVs sold per year in India. -----	118
61. Estimate the number of water coolers sold in Delhi in a year. -----	119
62. Estimate the number of gym goers in India. -----	121
63. Estimate the LPG gas usage in a household per month in India. -----	122
64. Estimate the number of families visiting restaurants once a week in India. -----	123
65. Estimate the number of water heaters sold per year. -----	125
66. Estimate the market size of the cricket bat industry in India. -----	126
67. Estimate the number of Weddings conducted per year in India. -----	128
68. Estimate the revenue of McDonald's outlets from burger sales. -----	130
69. Estimate the number of soaps sold per day in India. -----	131
70. Estimate the number of people in India with passports. -----	132
71. Estimate the total number of Gmail accounts in India. -----	133
72. Estimate DAU of any quick commerce services. -----	135
73. Estimate the number of people who read digital newspaper everyday. -----	137
74. Estimate the number of SRK fans in India. -----	139
75. Estimate the number of routers sold in India per year. -----	140



If I had an hour to solve a problem and my life depended on the solution, I would spend the 55 minutes determining the proper question to ask, for once I know the proper question, I could solve the problem in less than five minutes.



Estimate number of International flights taking off from India per day.



Solution

Interviewee: Am I supposed to consider the connecting flights as well?

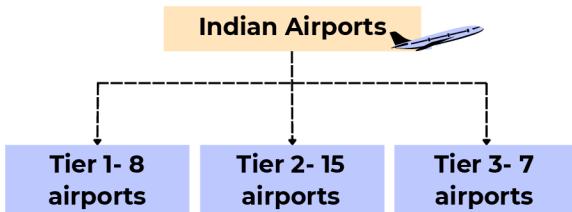
Interviewer: Yes, consider direct as well as connecting flights.

Interviewee: Should I consider the cargo planes as well?

Interviewer: No, just consider the passenger planes.

Assuming the total number of international airports in India: 30

The tier 1 cities presently are eight and all have an international airport. Along with them the most developing tier 2 cities also have the facility, the number therefore goes up to 20+ and we can safely assume there are 30 airports.



For tier 1 cities:

Assumed number of airports: 8

In tier 1 cities, the airports are traffic-intensive, so there are no non-operational hours.

- Peak hours: 16 hours
 - Average boarding time: 15 mins
 - Number of flights in an hour: 4 flights
 - In 16 hours: 64 flights
- Non-peak hours: 8 hours
 - Average boarding time: 30 mins
 - Number of flights in an hour: 2 flights
 - In 8 hours: 16 flights

Total flights from tier 1 city airport: 80 flights

Total flights from tier 1 cities' airports: $8 \times 80 = 640$ flights



For tier 2 cities:

Assumed number of airports: 15

In tier 2 cities, there will be 6 non operation hours due to fewer passengers.

- Peak hours: 10 hours
 - Average boarding time: 15 mins
 - Number of flights in an hour: 4 flights
 - In 10 hours: 40 flights
- Non-peak hours: 8 hours
 - Avg. boarding time: 30 mins
 - No. of flights in an hour: 2 flights
 - In 8 hours: 16 flights
- Non-operational hours: 6 hours

Total flights from tier 2 city airport: 56 flights

Total flights from tier 2 cities' airports: $15 \times 56 = 840$ flights

For tier 3 cities:

Number of airports: 7

In tier 3 cities, the non-operational hours will be very high because of the lowest number of Passengers.

- Peak hours: 5 hours
 - Avg. boarding time: 15 mins
 - No. of flights in an hour: 4 flights
 - In 5 hours: 20 flights
- Non-peak hours: 8 hours
 - Avg. boarding time: 30 mins
 - No. of flights in an hour: 2 flights
 - In 8 hours: 16 flights
- Non-operational hours: 10 hours

Total flights from 1 airport: 36 flights

Total flights from tier 3 cities' airports: $7 \times 36 = 252$ flights

Thus, the total number of International flights taking off from India is 1732 flights. Assuming that around 2% of the flights get canceled due to extreme weather conditions or due to delayed flights occupying runway or airplane malfunction and that we can consider 5% range for the variation in the number of flights based upon the seasonal variation, we have:

The total number of flights will be:

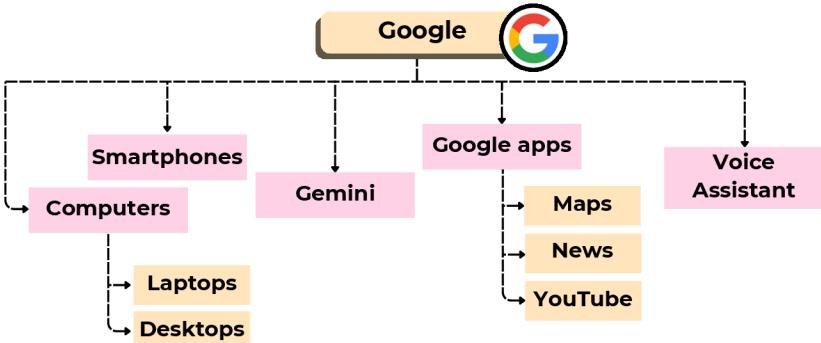
$(1732 \times 0.98) \times [0.95, 1.05] = [1613, 1783] \sim 1700$ flights approximately.



Calculate the number of queries answered by Google per second.



Solution

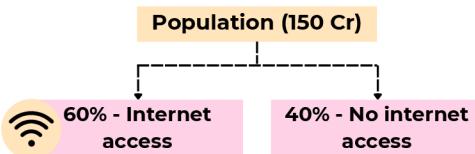


Interviewee: Am I supposed to consider the queries that are asked on google but primarily answered by its other apps (YouTube, Maps and News)

Interviewer: No, you can ignore news and youtube.

Interviewee: Should I consider the queries answered internationally?

Interviewer: No, just consider the Indian Google queries.



Assumption:-

Considering the current scenarios of digitalisation and urbanisation in India and the market players we can safely assume that more than 50%, around 60% Indians have internet access.



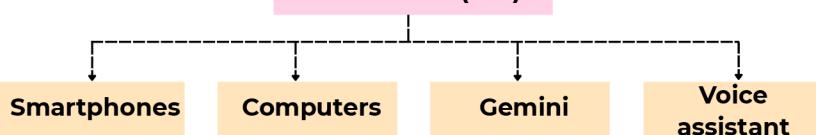
0-14 Years (20%)



- **Smartphones:** Children typically do not own personal smartphones and primarily access mobile devices through their parents. As a result, smartphone usage among children can be considered negligible for the purpose of this analysis.
- **Computers:** Children residing in Tier 1 and Tier 2 cities generally have access to a computer or laptop, primarily for academic purposes. It is reasonable to assume that approximately 40% of children in these areas have such access, with an average of 2 searches conducted per day.
- **Gemini (AI Tool):** Assuming that resolving a child's academic query requires an average of 4 prompts, it can be estimated that these 40% of children generate one complete interaction per day with Gemini, corresponding to 4 prompts each.
- **Voice Assistants:** Given the limited access to smartphones, the use of voice assistants by children can also be considered negligible.

Total: $150 \text{ Cr} * 0.6 * 0.2 * 0.4 * (2 + 4*1) = 43.2 \text{ Cr/day}$

14 - 18 Years (15%)

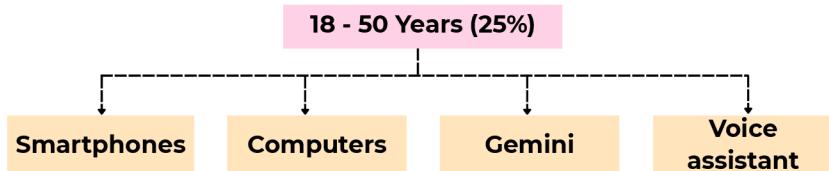


- **Smartphones:** A significant majority in this age group owns personal smartphones and use them extensively for academic needs, entertainment, and general information searches. It is reasonable to assume that approximately 80% have access to smartphones, with an average of 10 Google searches per day.
- **Computers:** Laptops are commonly used, particularly for study or work-related tasks. We estimate that about 70% of individuals in this group use laptops, conducting roughly 3 searches per day. Additionally, around 25% have access to tablets, with an estimated 2 searches per day on those devices.
- **Gemini (AI Tool):** AI tools like Gemini are frequently used by this demographic to support learning and productivity. It's assumed that 70% of users engage with the tool daily, with each session involving approximately 5 prompts to resolve their queries.



- **Voice Assistants:** This group also tends to use voice assistants for quick searches or simple tasks. On average, usage can be estimated at 2 voice-initiated searches per day.

Total: $150 \text{ Cr} * 0.6 * 0.15 * (0.8*10 + 0.7*3 + 0.7*0.25*2 + 0.7*5 + 2) \sim 215.4 \text{ Cr/day}$



- **Smartphones:** Nearly everyone in this age group owns a smartphone. As many are working professionals, smartphones are used regularly throughout the day for everything from quick fact-checking to entertainment. On average, this results in approximately 15 searches per day via smartphone.
- **Computers:** Given that around 90% of individuals in this group are employed in roles that require a laptop or desktop, computer usage is high. It is reasonable to estimate about 20 searches per day on these devices, driven by both professional and personal needs.
- **Gemini (AI Tool):** AI tools like Gemini are commonly integrated into daily routines for productivity and problem-solving. It can be assumed that 80% of users engage with Gemini on a daily basis, making around 20 prompts per person per day.
- **Voice Assistants:** Voice assistants are widely adopted by this age group for quick tasks and hands-free queries. It is assumed that nearly all individuals use a voice assistant at least twice per day.

Total: $150 \text{ Cr} * 0.5 * 0.6 * (15 + 0.9*20 + 0.8*20 + 2) = 230 \text{ Cr/day}$

Google Maps usage in India can be broadly attributed to two key groups:

- **Professionals:** Roughly 10% of the Indian workforce is employed in roles that involve annual transfers. A small but relevant segment of this group can be expected to use Google Maps frequently, averaging around 5 searches per day as they adjust to new and unfamiliar locations.
- **Tourists:** Tourism also contributes meaningfully to map usage. With approximately 2 crore (20 million) tourists visiting each year, of them use Google Maps actively, making around 5 searches per day to navigate their destinations.

Total: $150 \text{ Cr} * 0.5 * 5 / 365 + 2 \text{ Cr} * 5 / 365 \sim 1.1 \text{ Cr searches / day}$

TOTAL: 57 Lakh google searches are made per second in India.



Estimate the revenue of PVR cinemas in India



Solution

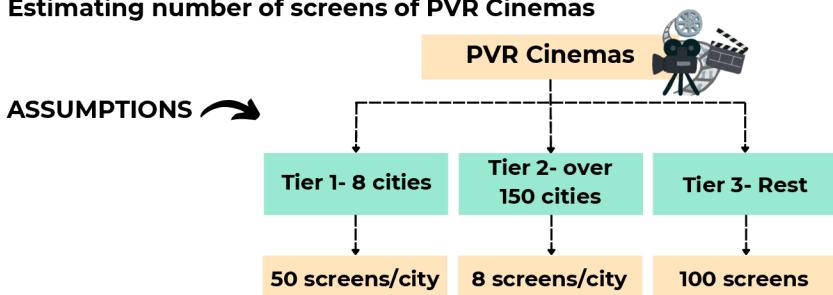
Interviewee: What is the duration in which the estimation is to be done:- revenue in a day, in a week or month.

Interviewer: Estimate it for a week.

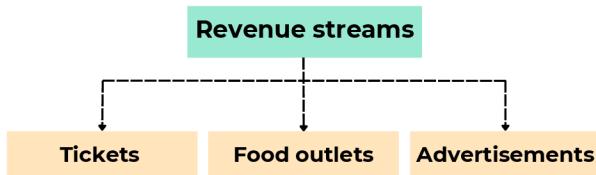
Interviewee: Considering one year to have 52 weeks and thereby one movie per week, would that be okay?

Interviewer: Yes

Estimating number of screens of PVR Cinemas



$$\text{Total: } - 50*8 + 150*8 + 100 = 1700 \text{ screens}$$



We have looked at two typical scenarios for theatres: weekdays and weekends. As expected, audience turnout varies. Some shows might struggle to fill seats while others go houseful. For simplicity, we have assumed an average occupancy of 25% on weekdays and 70% on weekends. These estimates reflect general trends, though actual numbers may be lower, especially with the growing shift toward OTT platforms which continues to impact traditional theatre attendance.



Tickets:

Assuming:

- The theatre size is around 200 seats.
- Average ticket cost (combining the several tiers of tickets: Gold, Platinum, etc) to be 250 INR in Tier 2 and Tier 3 cities and 350 INR in Tier 1 cities.
- 70% of the audience buys meals and snacks of at least 150 INR at the Food outlets (Average costs of popcorns, burgers, fries, etc)

Total revenue in a week from tickets is = Tier 1 + Tier 2 city revenue:

Total screens * cost of ticket * number of seats filled:

$$(50*8*300 + 150*8*250 + 100*250) * (5*0.25 + 2*0.7)*200 = \mathbf{23.6 \text{ Cr INR}}$$

Food outlets revenue:

$$0.7*150 * (50*8 + 150*8 + 100)*(200(5*0.25 + 2*0.7)) = \mathbf{9.5 \text{ Cr INR}}$$

Advertising and Rental Revenue:

Assumptions:

- A movie lasts for one week in the theatre.
- Average money generated on the box office by one film: 150 Cr
- Revenue shared by PVR: 10%

$$\text{Total: } 0.1*150 = \mathbf{15 \text{ Cr INR}}$$

TOTAL: 48 Cr INR/week

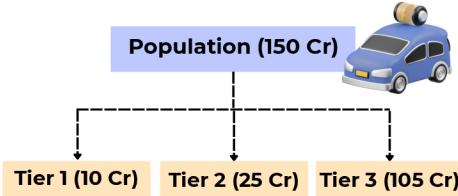


Estimate the market size of driverless cars in India in 2050.



Solution

Market Size: Total number of potential buyers of a market segment. Driverless cars or automatic automobile industry is an emerging industry as of 2025.



The Government of India will be a major player as they will acquire multiple public transport vehicles and will be able to manage the infrastructure costs for the charging stations and maintenance.

Tier 1 Cities: With growing traffic congestion and increasing interest in smarter mobility options, driverless cars present a promising opportunity in India. However, given the country's strong existing public transport systems like metros, local trains, and buses their adoption is likely to grow gradually. We estimate that around 30% of the population could show early interest in this technology. While the demand may rise over time, infrastructure remains a key challenge. Setting up charging stations and support systems requires significant investment, which could slow widespread adoption. As a result, it's reasonable to expect that uptake will increase progressively, but likely remain under 50% in the foreseeable future.



Tier 2 Cities: There are several barriers that could limit the adoption of driverless cars in India, particularly in certain segments of the population. Many Indian roads are not yet suited for autonomous vehicle technology, posing a practical challenge. Additionally, economic factors play a significant role; those who already own cars may not see the need to invest in a new, more expensive alternative, while those without vehicles often face financial constraints that make ownership difficult. Taking these factors into account, it is reasonable to estimate adoption in this segment to be around 10%.

Tier 3 Cities: One of the key challenges in this segment is the lack of supporting infrastructure. Limited availability of service centers and charging stations poses serious logistical hurdles, making it extremely difficult for the driverless car market to take hold in these areas. Given these constraints, it is reasonable to consider the potential market here as negligible at this stage.

TOTAL: $10*0.3 + 25*0.1 + 0 = 5.5$ Cr



Estimate the number of Instagram stories uploaded in India.



Solution

Interviewee: Should I estimate it for one day, one week or a month?

Interviewer: Consider for one day.

Interviewee: Should one image considered as one story or one account's activity should consider as one story?

Interviewer: Just consider that one account post or activity is considered as one story and not the multiple images.

Total Indian population - 150 Cr

People with internet access - 60% = 90 Cr

People with Instagram accounts – 70% = **63 Cr**

Age Groups

- 0-14 years- 10%
- 14-18 years- 60%
- 18-50 years- 40%
- 50+ years~ 0%

Based on Instagram Activity

Occasions



Birthdays

Reels

Images

Considering 365 days in one year: $63\text{ Cr}/365 : 17.2\text{ Lakh birthdays/day}$

With approximately 17.2 lakh birthdays each day and a total user base of 63 crore accounts, we can reasonably estimate a high volume of activity around birthdays. It's common for individuals to share stories on their own birthdays, and for their friends to do the same. Based on this pattern, it's safe to assume that around **3 crore stories** could be posted daily related to birthdays alone.



Reels and Images:

- **Age group 0 to 14 years:** Approximately 10 percent of users fall within this age group. Given that these are mostly school-going children with limited access to devices and often restricted screen time, we estimate that only around 0.5 percent of them post at least one reel or image to their story each day. This conservative figure reflects the relatively low engagement expected from this segment.
- **Age group 14 to 18 years:** This group tends to be highly active on social media platforms. We estimate that around 60 percent of users in this age range are on Instagram. Among these, roughly 50 percent are likely to post a reel or an image to their story on a daily basis, given their strong social media presence and engagement habits.
- **Age group 18 to 50 years:** Users in this group represent a wide range of backgrounds, including college students, working professionals, and content creators. Considering the diversity and general online activity of this demographic, we assume that about 40 percent of them post stories regularly, either through reels or images.

Total: $(0.005*0.1 + 0.6*0.5 + 0.4*0.3)*63$ Cr = **26.5 Cr Stories**

Final Total: $3 + 26.5 = \mathbf{29.5 \sim 30 Crore Instagram Stories}$



Calculate the number of Amazon product searches in India in a minute.



Solution

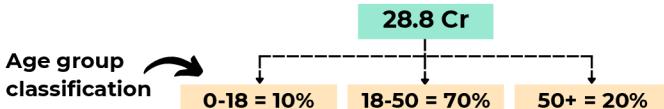
Interviewee: Should I estimate the number of searches on all devices?

Interviewer: Consider the searches made on the amazon app only.

Interviewee: Should searching the same product again be considered as another search?

Interviewer: Yes.

We will estimate the searches for entire year Month by month and then take the average out. As we are considering the searches made on the app only we will have to estimate the total Indian Amazon users.





Based on Shopping Frequency

Heavy Online shoppers Poor Online shoppers

1 Month in the Festive Season:

- **Age Group 0–18:** This demographic is primarily engaged in browsing rather than purchasing, using platforms like Amazon for window shopping and saving items for future reference. It can be reasonably estimated that around 60% who are not much into shopping conduct approximately 0.25 product searches per day and the people who are heavy addicts of online shopping (40%) conduct 0.5, often revisiting the same product to explore features, specifications, or user reviews.
- **Age Group 18–50:** Comprising young adults and working professionals, this financially independent segment is actively involved in both browsing and purchasing activities. On average, individuals in this group who are heavy online shoppers (70%) perform around 1 product search per day and the individuals who aren't much into shopping (30%) conduct 0.5 product search per day for browsing purposes.
- **Age Group 50+:** While this group may not engage heavily in window shopping, they tend to be more focused on evaluating products based on price and utility. It is estimated that they perform around 0.5 product search per day, primarily for comparison purposes rather than casual browsing.
- Note: When we say 0.5 product search/day we mean 1 product search in two days. We expect around 50% to shop daily.

Total: $28.8 * 0.5 * (0.10 * 0.60 * 0.25 + 0.10 * 0.40 * 0.50 + 0.70 * 0.70 * 1 + 0.70 * 0.30 * 0.5 + 0.20 * 0.5)$: **10.51 Cr searches in one day ~ 73000 searches/minute**

1 Month in the Wedding Season:

- Age Group 0–18: This demographic is not a significant contributor during the wedding season in terms of product search activity. It is reasonable to assume an average of 1 product search per day by both types of shoppers, primarily driven by casual interest rather than purchase intent.



- **Age Group 18–50:** As this group comprises financially independent working professionals, their engagement during the wedding season is notably higher. On average, an individual account can be expected to conduct 2 product searches per day for purchases, 1 product search for price comparisons, and approximately 0.5 product searches per day for recreational or window shopping purposes, given the social and festive nature of the season. Here, we also take into consideration both types of shoppers.
- **Age Group 50+:** This group demonstrates moderate engagement, with an estimated 2 product searches per day encompassing all activities, including purchasing, price comparison, and occasional browsing, particularly in the context of family or social obligations during the wedding season.
- Note: We expect around 30% to shop daily.

Total: $28.8 * 0.3 * (0.10 * 1 * 1 + 0.70 * 1 * (2 + 1 + 0.5) + 0.20 * 1 * 2)$:

25.48 Cr searches in one day ~ 177000 searches/minute

1 Month in the Rest of the Year:

- **Age Group 0–18:** During the rest of the year, this group primarily engages in window shopping, driven by curiosity and product exploration rather than purchase intent. It is estimated that individuals in this segment conduct approximately 0.25 product searches per day by heavy shoppers, primarily for browsing purposes.
- **Age Group 18–50:** For this demographic, product search activity remains high even outside peak seasons. On average, users perform 0.5 searches per day for window shopping, 0.25 searches per day for price comparisons, and 0.25 product search every two days for actual purchases, reflecting a balanced mix of recreational and informed browsing behavior. Again this estimation is for heavy shoppers.
- **Age Group 50+:** This group demonstrates minimal engagement with e-commerce platforms during the regular season. It is reasonable to assume that product search activity is negligible to zero, as their involvement in online shopping tends to be limited during this period.
- We assume that shoppers with very less frequency of online shopping do not search products in this period. We expect 5% people shop daily.

Total: $28.8 * 0.05 * (0.10 * 1 * 0.25 + 0.70 * 1 * 0.25 + 0)$: 5.76 Cr searches in one day ~ 2000 searches/minute

TOTAL: $(73000 * 4 + 177000 * 2 + 2000 * 6) / 12$: 54,800 Searches/minute



Estimate the number of pizzas sold by a Domino's outlet in India.

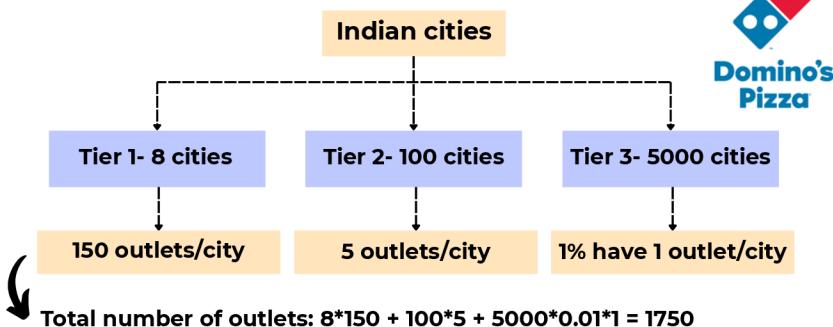


Solution

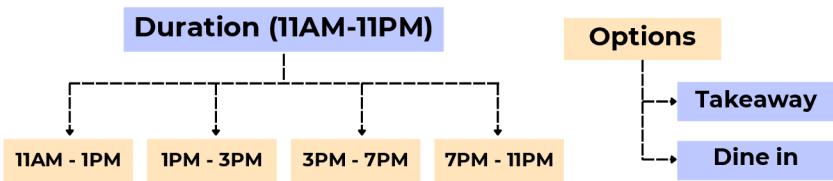
Interviewee: Should I estimate the number orders for a day, week or month?

Interviewer: Estimate it for a day

Estimating the total number of Dominos outlets in India



Now lets consider the time division and the options in which people can order pizzas



We will estimate the pizzas ordered at tier 1, 2 and 3 cities outlets and then analyse them over takeaway and dine in orders to make a total estimation. Basic understanding says that the most busy time will be 7PM-11PM and the least busy will be 11AM-1PM. Tier 2 and 3 will always have slightly low orders as domino's is not yet an integral part in their lifestyle and stands as a 'special occasion' measure for them.



11AM - 1PM: Brunch Time

- **Tier 1 Cities:** During brunch hours, Domino's outlets in Tier 1 cities experience relatively moderate activity. While it's not the peak period, there is still a steady flow of customers. On average, each outlet sees around 5 dine-in orders per hour and approximately 10 takeaway orders per hour, reflecting the convenience-driven habits of urban consumers.
- **Tier 2 Cities:** In Tier 2 cities, the brunch hour sees noticeably lower footfall. Fewer outlets and a less established brunch culture mean Domino's is not a popular choice during this time. It is reasonable to estimate 2 dine-in orders per hour and 2 takeaway orders per hour per outlet.
- **Tier 3 Cities:** Brunch activity in Tier 3 cities is minimal, with Domino's seeing negligible to no orders during these hours. Factors such as limited brand presence, fewer outlets, and different meal-time preferences contribute to this low engagement.

Total: $1200*2*15 + 500*2*4 + 0 = 40,000$ Pizza orders

1PM - 3PM: Lunch Time

- **Tier 1 Cities:** Lunchtime marks a busy period for Domino's outlets in Tier 1 cities, driven by a mix of office-goers, students, and urban dwellers seeking quick and convenient meals. On average, each outlet can be expected to handle around 15 dine-in orders per hour and approximately 25 takeaway orders per hour, reflecting strong midday demand.
- **Tier 2 Cities:** While there's a noticeable uptick in activity during lunch hours, the increase is relatively modest. Consumer behavior here is more reserved compared to Tier 1 cities. Outlets typically receive about 5 dine-in orders per hour and 10 takeaway orders per hour, indicating a consistent but moderate lunchtime rush.
- **Tier 3 Cities:** Domino's outlets in Tier 3 cities do witness a slight rise in orders during lunch, though overall volumes remain limited. It is reasonable to estimate a total of around 5 orders per hour per outlet, combining both dine-in and takeaway, reflecting a more nascent adoption of quick-service dining options.

Total: $1200*2*40 + 500*2*15 + 50*2*5 \sim 1.12L$ Pizza orders



3PM - 7PM: Snacks Time

- **Tier 1 Cities:** During snack hours, order volumes at Domino's in Tier 1 cities taper off compared to the lunchtime peak. Many consumers opt for lighter or no meals during this period. Still, there is steady demand, with each outlet typically handling around 5 dine-in orders per hour and 5 takeaway orders per hour, reflecting casual, off-peak consumption.
- **Tier 2 Cities:** In Tier 2 cities, snack-time activity is modest. The demand is spread thin across dine-in and takeaway, with an estimated total of around 5 orders per hour per outlet, indicating a limited but present engagement during this off-peak window.
- **Tier 3 Cities:** Similar to brunch hours, snack-time ordering in Tier 3 cities is minimal to non-existent. It is reasonable to assume near-zero order volume during this period, given local food habits and limited brand engagement at this time of day.

Total: $1200*4*10 + 500*4*5 + 0 \sim 58,000$ Pizza orders

7PM - 11PM: Dinner Time (Most busy time)

- **Tier 1 Cities:** Peak hours—typically during dinner—represent the busiest period for Domino's outlets in Tier 1 cities. With high customer footfall and strong demand for quick evening meals, each outlet can be expected to handle approximately 25 dine-in orders per hour and 40 takeaway orders per hour, reflecting the brand's popularity and convenience in urban markets.
- **Tier 2 Cities:** Domino's sees a solid rise in activity during peak hours in Tier 2 cities as well, though the volumes are relatively moderate compared to metropolitan areas. On average, outlets manage around 15 dine-in orders per hour and 10 takeaway orders per hour, driven by growing adoption of quick-service dining among middle-tier urban consumers.
- **Tier 3 Cities:** Even in Tier 3 cities, dinner time brings a noticeable spike in orders. While overall volumes are lower, each outlet is estimated to process around 10 total orders per hour, combining dine-in and takeaway, highlighting emerging interest in organized food service during mealtime.

Interestingly, Tier 2 cities show a smaller gap between dine-in and takeaway orders, indicating that customers often enjoy combining a casual outing with a meal at the outlet. In contrast, Tier 1 consumers lean more toward takeaway, likely due to fast-paced lifestyles and a preference for convenience.

Total: $1200*4*65 + 500*4*25 + 50*4*10 \sim 3.64L$ Pizza orders



Total = 5.74 Lakhs pizzas. This is for a normal working day, we can assume that the weekends will be slightly busier, and thereby we can estimate a 20% increase, therefore: **5.74*1.2 ~ 6.9L**

On average per day, pizzas sold will be **[6.9*2 + 5.74*5]/7 ~ 6.1 Lakh pizzas**

Now the final answer would be 6.1L/1750 ~ 350 Pizzas

Therefore, we get the final answer as 350 Pizzas sold per day per outlet.



Amount of garbage produced by Delhi per day in metric tonnes.

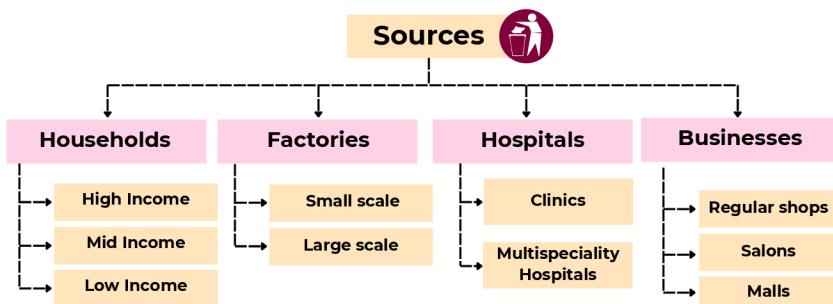


Solution

Interviewee: Should I estimate the population of Delhi?

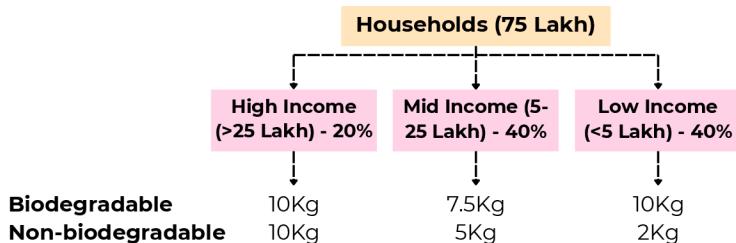
Interviewer: You can consider Delhi's population to be 3 Cr

Now let's analyse the sources of the waste generated in a metro city. We will try to calculate the numbers of all of these measures and then estimate the waste generated by each of them.



Households:

The population is around 3 Crore, average family size in metro cities can be assumed as 4, thereby 75 Lakh families or households.





Biodegradable waste typically includes fruit and vegetable peels, leftover food, eggshells, tea leaves, and other organic kitchen scraps. It may also include wastewater from washing produce and utensils, which contributes to the overall organic waste generated in a household kitchen.

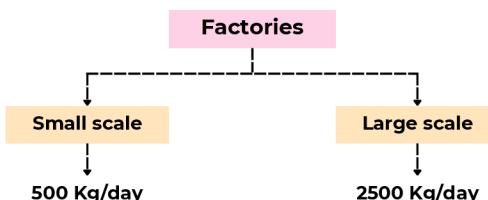
Non-biodegradable waste primarily comprises plastic packaging from grocery items, disposable containers, empty sauce and seasoning packets, cling film, aluminum foil, and broken household items like glass or plastic. This category also includes multi-layered packaging (e.g., chip packets or juice cartons) that is not easily recyclable.

Total household waste: $(0.2*20 + 0.4*12.5 + 0.4*12)*75L = 10.35 \text{ Cr Kg}$

Factories:

Small scale factories are referred to as the factories that invest in the plant and machinery less than 3 Cr and the factories that make the investments more than 3 Cr are known as Large scale Factories.

Delhi spans an estimated 1500 square kilometers, and about 3 percent of this area, roughly 45 square kilometers, is occupied by factories and industrial zones. Within this space, factories range from small workshops to large manufacturing units. Assuming an average size of 2000 square meters for small scale and 6000 square meters for large scale factories, and that half of them are small scale, we arrive at an estimate of around 11000 factories operating across the city.



These industrial units generate a variety of waste throughout their operations, whether it is from processing raw materials, using oils and lubricants, fabricating parts, or packaging products. This waste contributes significantly to the overall industrial waste footprint of the city.

The large scale factories wastes include the extensive chemical, mechanical and electrical processes.

Total waste generated: $11000(500 + 2500): 3.3 \text{ Cr Kg}$



Hospitals:

Delhi, with a population of approximately 3 crore, faces significant healthcare and waste management challenges. Based on current healthcare infrastructure in India, it is reasonable to estimate that there is at least one clinical facility for every 5,000 people, leading to an estimated total of around 6,000 clinics in the city. Furthermore, considering the healthcare distribution, we can assume that there is one multispecialty hospital for every 3 lakh people, resulting in an estimated 100 multispecialty hospitals.

In terms of waste generation, clinics typically produce about 20 kg of waste per day, while multispecialty hospitals contribute significantly more, generating around 700 kg of waste daily. This waste includes disposable items such as medicine wrappers, syringes, IV sets, masks, bedding, and other medical supplies.

Total Hospital waste: $6000 \times 20 + 100 \times 700 \sim 2L \text{ Kg/day}$

Businesses:

- **Shops:** In a densely populated city like Delhi, retail establishments such as grocery shops, supermarkets, and showrooms are prevalent. Based on the population density, it is estimated that there are approximately 1 lakh such shops in the city. The waste generated by these retail outlets primarily consists of expired goods and general plastic waste, including packaging materials, plastic bags, and product wrappers. On average, it can be assumed that each shop produces around 10 kg of waste per day. Effective waste management strategies are essential to address the environmental impact of this waste, particularly considering the growing reliance on plastic in the retail sector.

Total waste: $10L \text{ Kg/day}$

- **Malls:** The number of total malls can be estimated to be 300 and the wastes generated range from a lot of expired material to a lot of wear and tear materials and plastic packaging materials. It can be assumed that on an average 300 Kg/day waste is generated by malls

Total waste: $90,000 \text{ Kg/day} \sim 1L \text{ Kg/day}$

- **Salons:** The number of salons can be assumed just as shops and thereby 5 Lakh. The waste generated are hairs, empty bottles of haircare products and thereby can be assumed as 10kg/day

Total waste: $50L \text{ Kg/day}$

TOTAL ~ 140,000 Metric Tonnes of waste generated per day



Estimate number of shoes bought in Kolkata in a year.



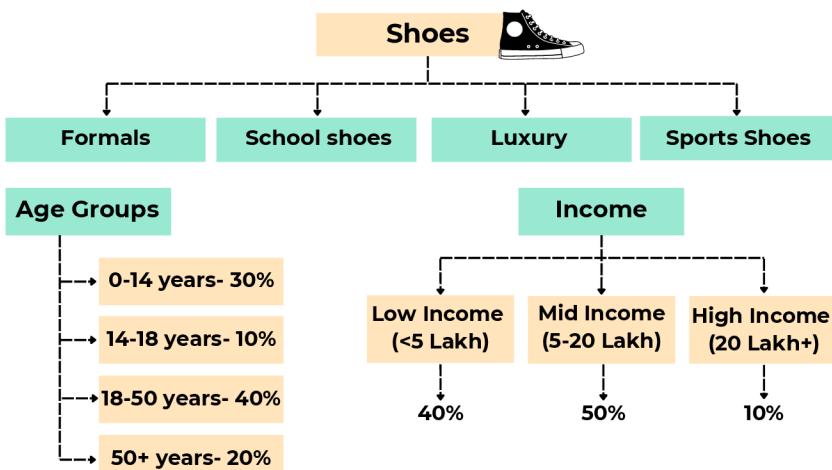
Solution

Interviewee: Should I consider shoes of any special type, lets say sports shoes?

Interviewer: No, consider everything

Interviewee: Should I estimate the population of Kolkata?

Interviewer: You can consider it to be 1.5 Cr



Assuming average life of sports shoes is 2 years, formal shoes is 3 years, school shoes is 1 year and luxury shoes is 5 years.

Luxury Shoes:

The primary customer target for this is the High Income class and it can be safely assumed that they will buy 2 pair of shoes per year. Here we can expect a range of plus minus 10% based on the interest of people in shoe buying.

Total: $1.5\text{Cr} \times 0.1 \times 2 \times [0.9, 1.1] \sim 30 \text{ Lakh school shoes sold per year}$



Formal Shoes:

The age group primarily customer of this sector of shoes will be the working professionals that is the age group 18-50 years.

We can safely assume that the high income class people will buy one pair of formal shoes per year, the number for the low income class and middle income class will be around (1/3) and 0.5 shoes per year.

Total: $1.5Cr * 0.4 * (0.1 * 1 + 0.5 * 0.5 + 0.4 / 3)$ ~ **29 Lakh school shoes sold per year**

School Shoes:

The primary customer base for this product comprises children and adolescents, specifically within the 0-14 and 14-18 age groups.

Age Group 0-14 Years: In this segment, purchasing behavior varies by income group. Households in the high- and middle-income brackets typically buy one pair of school shoes per child annually. In contrast, lower-income families are assumed to purchase one pair every two years, averaging 0.5 pairs per child per year.

Age Group 14-18 Years: During the high school years, students' needs continue, though at a slightly reduced consumption rate. It is estimated that high-income households buy one pair per year, while both middle- and low-income groups purchase approximately 0.5 pairs per year.

Total: $1.5Cr * [0.3 * (0.1 * 1 + 0.5 * 1 + 0.5 * 0.4) + 0.1 * (0.1 * 1 + 0.5 * 0.5 + 0.4 * 0.5)]$ = **44.25 Lakh school shoes sold per year**

Sport Shoes:

Age Groups

- **0-14 years- 30%** → 2 Shoes/year
- **14-18 years- 10%** → 1 Shoes/year
- **18-50 years- 40%** → 1 Shoes/year
- **50+ years- 20%** → 0.25 Shoes/year

Total: $1.5Cr * (0.3 * 2 + 0.1 * 1 + 0.4 * 1 + 0.2 * 0.25)$ ~ **1.73 Crore shoes/year**

TOTAL: 2.77 Crore shoes per year purchased in Kolkata



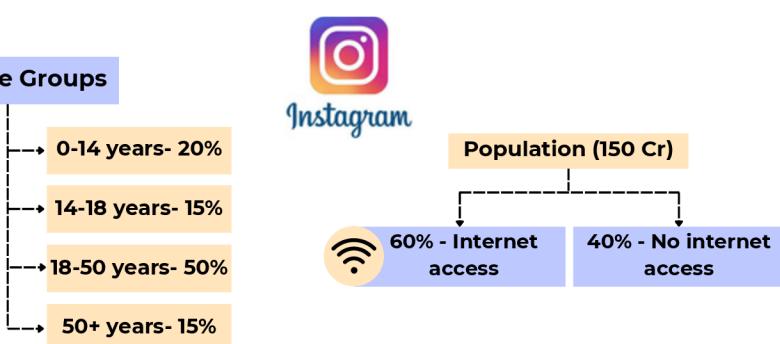
Estimate the number of Instagram users in India as of 2025.



Solution

Interviewee: Should I consider multiple accounts by same person as different users?

Interviewer: No, consider it as one user



Assumptions:

- Age Group 0-14 Years:** Most children in this age group do not own personal smartphones, which limits their direct social media presence. It is therefore reasonable to assume that only around 20% of this group has an active Instagram account.
- Age Group 14-18 Years:** Teenagers represent a highly active and engaged segment on social media platforms. As digital natives, approximately 80% of individuals in this age bracket are estimated to have an Instagram account.
- Age Group 18-50 Years:** This category includes young adults, working professionals, homemakers, and a wide spectrum of digitally connected users. With high smartphone and internet penetration, an estimated 95% of individuals in this group are active on Instagram.



- **Age Group 50+ Years:** While digital adoption is rising among older adults, this group is comparatively less active on social media. It is assumed that about 40% of individuals aged 50 and above have an Instagram account, largely driven by increasing familiarity with technology.

Total Instagram Users: $150\text{Cr} * 0.6 * (0.2 * 0.2 + 0.15 * 0.8 + 0.5 * 0.95 + 0.15 * 0.4) \sim 63$
Crore Users



Estimate the number of cycles sold in a year in India



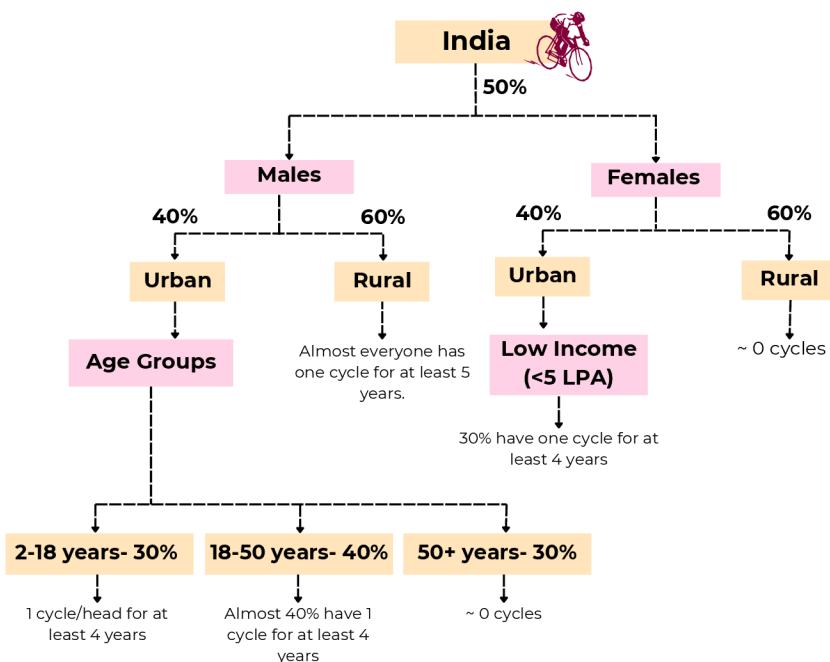
Solution

Interviewee: Which year should I assume for assuming the Indian demographics?

Interviewer: You can assume it to be 2024.

To estimate the number of cycles sold in India in 2024, let's assume that **India's current sex ratio is 1:1.**

Population of India : 150cr





Considering India's sex ratio to be 1:1, the number of males = number of females = 50% of 150 cr = **75 cr.**

Now, the male and female population can further be subdivided into Rural and Urban.

Number of males living in rural areas = 60% of 75 cr = 45 cr.

Number of males living in urban areas = 40% of 74 cr = 30 cr.

Number of females living in rural areas = 60% of 75 cr = 45 cr.

Number of females living in urban areas = 40% of 74 cr = 30 cr.

The male population in the urban areas can further be divided into the following age groups :

- **Age Group 2-18 Years:** They generally own one bicycle per person as people in this age group are primarily children and students.
- **Age Group 18-50 Years:** This age group comprises of college students and working professionals. Urban areas have alternative modes of transport such as public buses, metro systems, ride-sharing services, and private vehicles. Due to the hectic lifestyle, mostly people use cycle as a measure to maintain their health. Urban males may rely on bicycles as a primary mode of transport, often due to financial constraints. So, around 40% of this population own cycles.
- **Age Group 50+ Years:** Older adults rather prefer walking than cycling to maintain their health. So, it can be assumed that this category owns no cycles.

In rural areas, cycle is the primary mode of transport for almost everyone. So, we assume everyone owns a cycle. Considering the average lifespan of a cycle to be 5 years, 20% of the people will purchase a cycle every year.

In urban areas, some working women and some health conscious women own a cycle for at least 4 years.

In rural areas, females are generally housewives and are dependent on their husbands for transportation. So, we assume that this category also own no cycles.

Summing up, the total number of cycles sold in a year are :

$$(0.5*150) * ((0.4*0.3*0.25*1 + 0.4*0.4*0.4*0.25*1 + 0.4*0.3*0) + 0.6*0.2*1) + (0.5*150) * (0.6*0 + 0.4*0.3*0.25*1) = \mathbf{14.7 cr.}$$



Estimate the number of people with ChatGPT subscriptions in India.



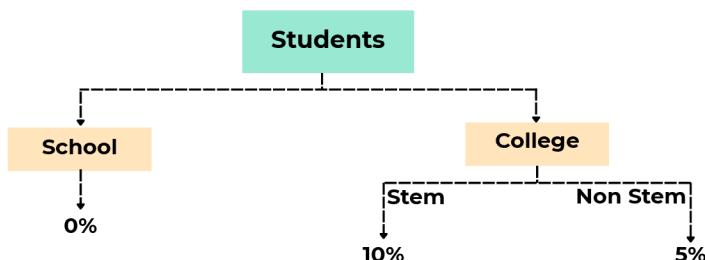
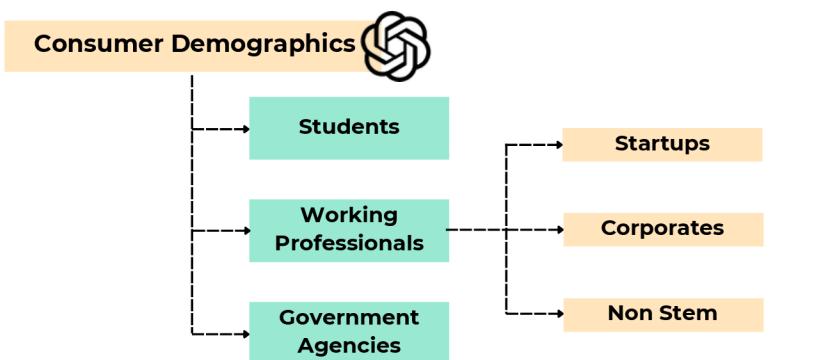
Solution

Interviewee: Should I assume a specific literacy rate for India while making the estimation?

Interviewer: Yes, you can consider the literacy rate to be approximately 80%.

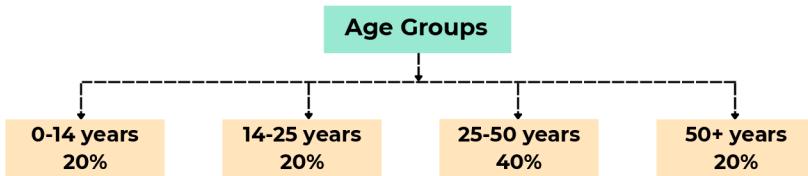
Interviewee: Should I assume a certain employment rate for India while doing the estimation?

Interviewer: Yes, you can consider the employment rate to be around 50%.





Estimating the number of students:



As told, considering India's literacy rate to be 80%, and dividing students into subcategories of school and college(STEM + Non-STEM), covering the age group of 0 - 25, making 40% of the total population.

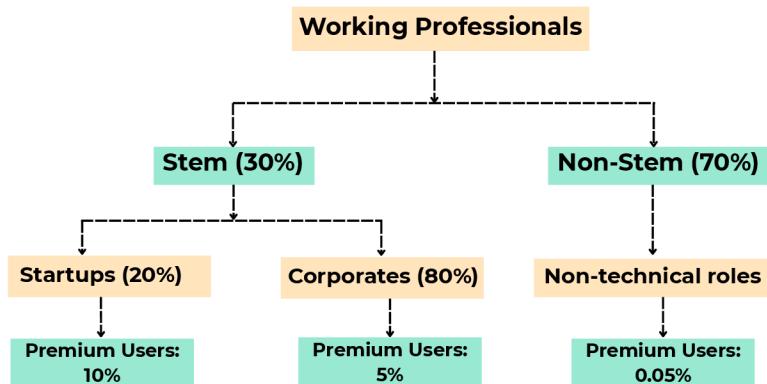
So total number of students = $150\text{Cr} * 0.8 * 0.4 = 48\text{Cr}$

Number of Students using ChatGPT Premium:

Students can be broadly classified into school-going and college-going individuals. Assuming a uniform distribution across the 0–25 age group, those aged 18–25, typically in college, will make up 28% of this population. School students generally do not require extensive use of GenAI, so it is reasonable to assume minimal to no usage of ChatGPT Premium in this segment. In contrast, college students, who often engage in research, coding, and academic writing, are more likely to benefit from this. Within the college group, we can further distinguish between STEM and non-STEM students. Considering both utility and affordability, we estimate that around 5% of STEM students and none of non-STEM students use ChatGPT Premium.

Total: $48\text{Cr} * 28\% * (5\%) \sim 67.8 \text{ Lakhs}$

Working Professionals:





Indian Working Professionals can be divided into two categories, STEM comprising Startups, Corporates and Non-STEM comprising Nontechnical roles such as doctors, army, guards, staff, etc.

In Non-STEM, we can safely consider that only some rich people might have a premium, so 0.05% is a safe assumption.

In STEM, as corporates are new to AI in India, we have assumed that only 10% of companies give a premium to their employees. Also, startups are heavily dependent, hence we have assumed 100% premium users.

Total: $150\text{Cr} * 50\% * (30\% * (80\% * 5\% + 20\% * 10\%) + 70\% * 0.05\%) \sim 1.38\text{Cr}$

Government Agencies:

The Indian government has its own set of procedures for working. It's very new to gen AI models in working like ChatGPT ~ 0. (Expected to increase by 2030-2041)

Total: $0.678\text{Cr} + 1.38 \sim 2.06$ Crore ChatGPT premium users in India.



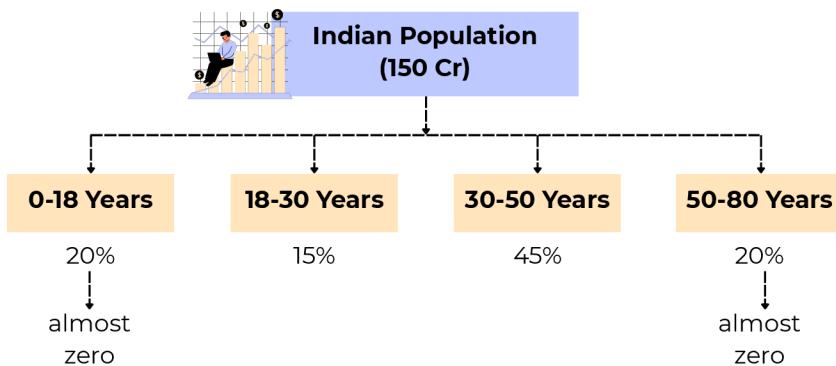
Estimate the number of Indians having a DEMAT account.



Solution

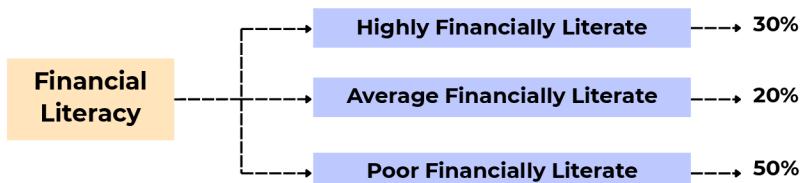
DEMAT accounts are prerequisites for Indians to trade in Stock Market. We will divide the Indian people on basis of ages and financial literacy.

Assumption- Life expectancy in India is **80 years**.



18 -30 Years -

Financial literacy has become an important topic for Indian youth and the general, and initial estimations from the ever-moving fast generation say that the number of DEMAT accounts will increase.





We can assume that out of

Highly financially literate -----> 80% have a DEMAT account

Middle financially literate -----> 40% have a DEMAT account

Some people even being lowly financially literate in trade market, although the count will be less



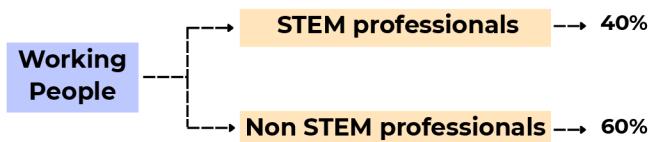
Total:-

(150 Cr x 15%) x (30% x 40% + 20% x 40% + 50% x 20%): **6.75 Crores**

30 - 50 Years -

These are mostly working professionals.

Assuming India's employment rate is 50%

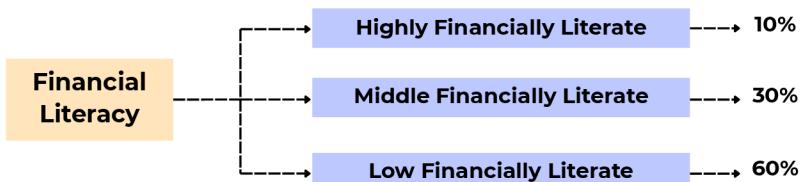


STEM professionals have a strong understanding of financial markets and the stock market.

So we can assume that everyone here is financially literate and can be assumed that around **80%** have a DEMAT account.

Non STEM professionals

Here we again estimate the division on basis of financial literacy.



It can be assumed that out of the Highly financially literate people, there are 50% who have a DEMAT account.

From average financially literate we can assume 5% have a DEMAT account.

From low financially literate we can assume 0%.



Total:-

(150 Cr x 45%) x (50%)x (40%x80% + 10%x50% + 30%x5%): **13 Crores**

Out of the 50% unemployed people many sometimes depend on trading as their main income we can assume around 2% of them have DEMAT account.

150Cr x 50% x 45% x 2%: **0.7 Crores**

Total number of Indians having DEMAT accounts: 21 Crores



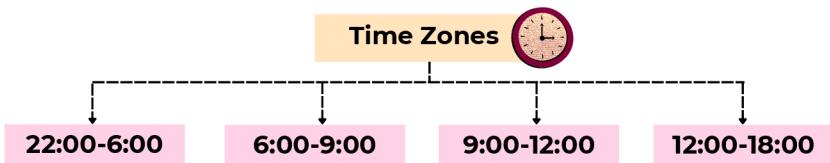
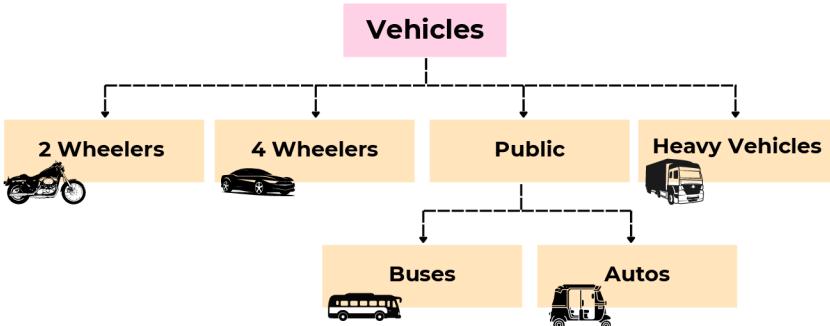
Estimate the number of vehicles passing by India Gate in a day.



Solution

Interviewee: Should I consider only cars?

Interviewer: No, consider 2 wheeler, 3 wheelers and buses as well.





Bifurcation of Vehicles Across Different Time Zones in Delhi
(Population: ~3 Crores)

Time Slot: 22:00 – 06:00 (8 Hours) — Night Traffic

Heavy Vehicles (Trucks): 20 trucks/hour

4-Wheelers (Private Cars): 10 cars/hour

Public Transport (Buses, Autos, Bikes): ~0/hour

Total Vehicles:

Hourly Rate: 30 vehicles/hour

Total (8 hours): 240 vehicles

Time Slot: 06:00 – 09:00 (3 Hours) — Peak Office & School Time

Heavy Vehicles: Negligible (~0)

2-Wheelers: 100 vehicles/hour

4-Wheelers: 80 vehicles/hour

Buses (Full Swing): 10 buses/hour

Autos (Three-Wheelers): 70 autos/hour

Total Vehicles:

Hourly Rate: 260 vehicles/hour

Total (3 hours): 780 vehicles

Time Slot: 09:00 – 12:00 (3 Hours) — Peak Office Hours

2-Wheelers: 80 vehicles/hour

4-Wheelers: 70 vehicles/hour

Buses: 50 buses/hour

Autos: 50 autos/hour

Total Vehicles:

Hourly Rate: 250 vehicles/hour

Total (3 hours): 750 vehicles

Time Slot: 12:00 – 18:00 (6 Hours) — Midday/Office Hours

Heavy Vehicles (Trucks): ~0

2-Wheelers: 30 vehicles/hour

4-Wheelers: 30 vehicles/hour

Buses: 30 buses/hour

Autos: 50 autos/hour

Total Vehicles:

Hourly Rate: 170 vehicles/hour

Total (6 hours): 1,020 vehicles

Total Vehicles in one day: $1020+750+780+240=2790$ Vehicle/Day



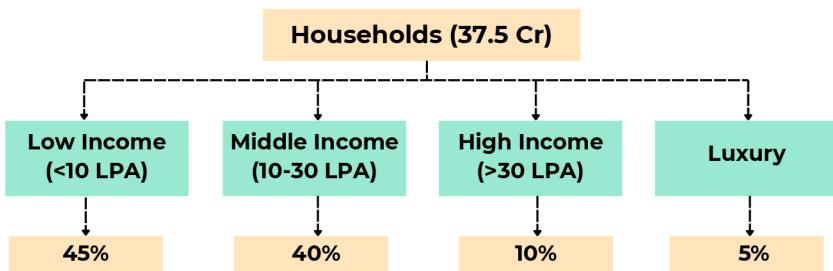
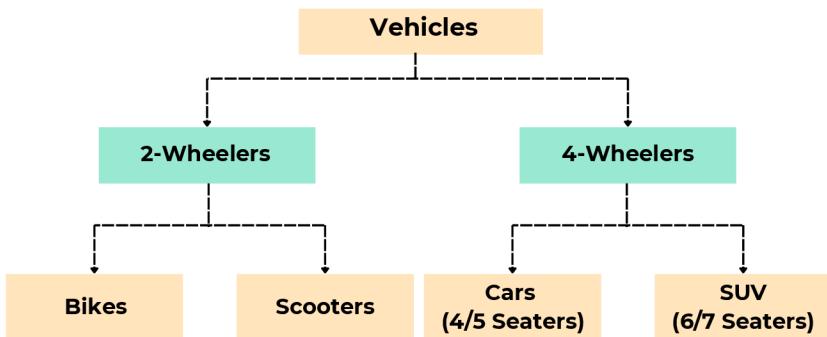
Estimate the number of total vehicles owned by households in India.



Solution

Interviewee: What kind of vehicles should I consider?

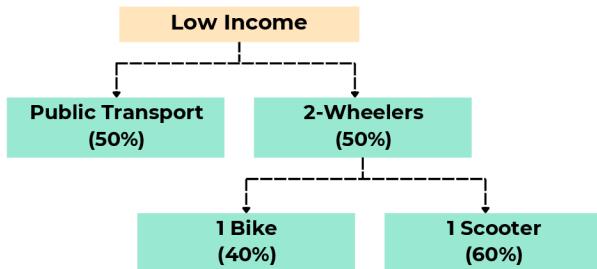
Interviewer: Consider cars, scooters and bikes.





Low Income

People from this income group depend either on public transport or have a 2-wheeler vehicle.

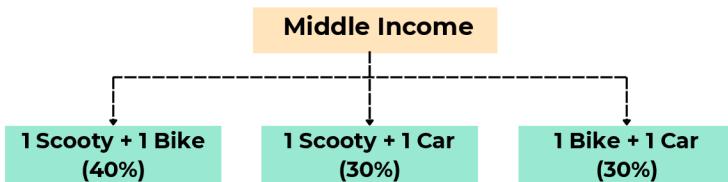


Total - Bikes - $45\% \times 50\% \times 40\% \times 37.5\text{Cr} = 3.38\text{Cr}$

Scooters - $45\% \times 50\% \times 60\% \times 37.5\text{Cr} = 5.06\text{Cr}$

Middle Income

In this income group, people tend to have various ranges. It's more dependent on consumer psychology.



Here, due to various expenditure attitudes, we can see different divisions and all are almost equal.

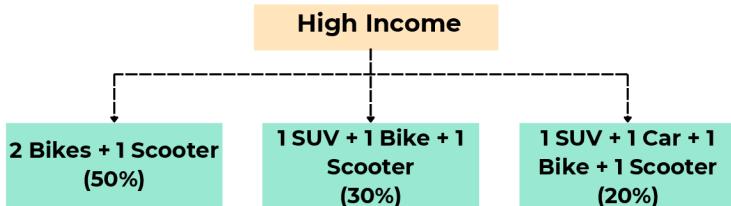
Total - Bikes - $40\% \times (40 + 30)\% \times 37.5\text{Cr} = 10.5\text{Cr}$

Scooters - $40\% \times (40 + 30)\% \times 37.5\text{Cr} = 10.5\text{Cr}$

Cars - $40\% \times (30 + 30)\% \times 37.5\text{Cr} = 9\text{Cr}$

High Income

In this income group, people are more liberal, as generally almost everyone is working and therefore transport is an important measure. SUV stands as luxury or an advanced symbol of richness. So even in this income group, the upper high income people (marginally less ratio) can afford it.



Total - Bikes - $10\% \times (2 \times 50 + 30 + 20)\% \times 37.5\text{Cr} = 5.62\text{Cr}$

Scooters - $10\% \times (50 + 30 + 20)\% \times 37.5\text{Cr} = 3.75\text{Cr}$

Cars - $10\% \times 20\% \times 37.5\text{Cr} = 0.75\text{Cr}$

SUVs - $10\% \times (30 + 20)\% \times 37.5\text{Cr} = 1.88\text{Cr}$

Luxury

Some people, generally wealthy businessmen, have a hobby of collecting cars and bikes. We can assume a collection of 10 bikes and 20 cars per household.

Total - Bikes - $5\% \times 10 \times 37.5\text{Cr} = 18.75\text{Cr}$

Cars - $5\% \times 20 \times 37.5\text{Cr} = 37.5\text{Cr}$

Hence, the total number of vehicles owned by households is

Bikes - $3.38\text{Cr} + 10.5\text{Cr} + 5.62\text{Cr} + 18.75\text{Cr} = 38.25\text{Cr}$

Scooters - $5.06\text{Cr} + 10.5\text{Cr} + 3.75\text{Cr} = 19.31\text{Cr}$

Cars - $9\text{Cr} + 0.75\text{Cr} + 18.75\text{Cr} = 28.5\text{Cr}$

SUVs - 1.88Cr

Hence, the total number of vehicles owned by households is $(38.25\text{Cr} + 19.31\text{Cr} + 28.5\text{Cr} + 1.88\text{Cr}) = 87.94\text{Cr}$



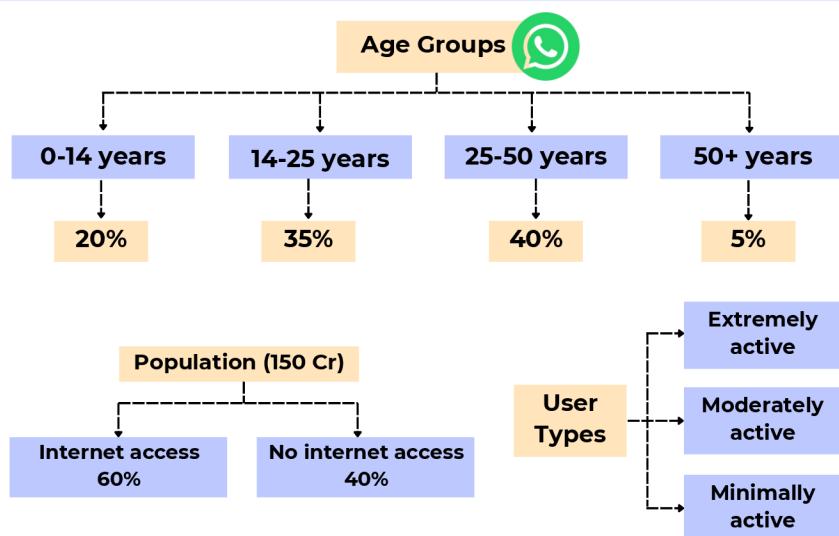
Average number of Whatsapp messages sent in India in a day.



Solution

Interviewee: Should media like docs, pdfs, images and videos be included in messages?

Interviewer: No, include only text images



Assuming every internet person is on WhatsApp

- **Age group 0-14 years:** Many people here do not have their own phones as they are school-going students. Out of 20% of age groups - > 1% have WhatsApp access. We can safely assume that around 10 texts/person/day

Total: $150\text{Cr} * (60\%) * (20\%) * (1\%) * 10 = 18 \text{ crore} \sim 0.00018 \text{ lakh crore}$



- **Age group 14-25 years:** People here are high school students, college students and young adults. They are highly active on all social media handles.

- Extremely active -> 200 WhatsApp Groups
- Moderately active -> 100 WhatsApp Groups
- Minimally active -> 50 WhatsApp Groups
 - Assuming 60%: extremely active users have activity of 100 messages/group
 - Assuming 30%: moderately active users' activity of 50 messages/group
 - Assuming 10%: Minimally active users' activity of 30 messages/group

Total: $150Cr * (60\%) * (35\%) * [(60\%) * 200 * 100 + (30\%) * 100 * 50 + (10\%) * 60 * 30]$ = 430920 Cr ~ 4.31 lakh crore

- **Age group 25-50 years:** This includes working professionals.

- Extremely active -> 150 WhatsApp Groups
- Moderately active -> 60 WhatsApp Groups
- Minimally active -> 20 WhatsApp Groups
 - Assuming 40%: Extremely active people having 50 texts/person/group
 - Assuming 30%: Moderately active people having 20 texts/person/group
 - Assuming 30%: Minimally active people having 15 texts/person/group

Total: $150Cr * (60\%) * (40\%) * [(40\%) * 150 * 50 + (30\%) * 60 * 20 + (30\%) * 20 * 15]$ = 124200 crore ~ 1.24 lakh crore

- **Age group 50+ years:** These people are less involved in the social media world, including the senior citizen class. On average, we can assume 20 texts/person/group for 50% of people, and these have 20 groups/account.

Total: $150Cr * (60\%) * (5\%) * (50\%) * 20 * 20 = 900$ crore ~ 0.09 lakh crore

Hence, the total number of WhatsApp chats in India daily = $0.00018 + 4.31 + 1.24 + 0.09 = 5.64018 \sim 5.64$ lakh crore messages

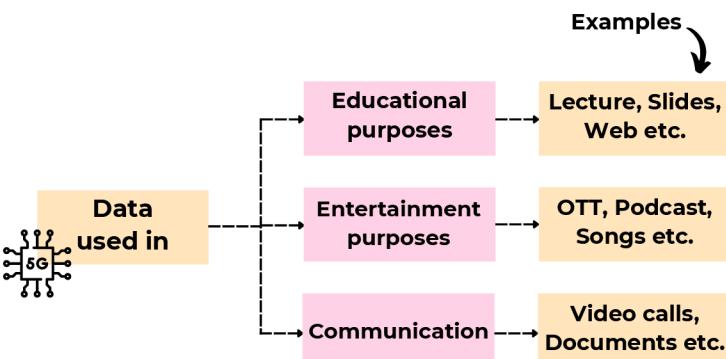
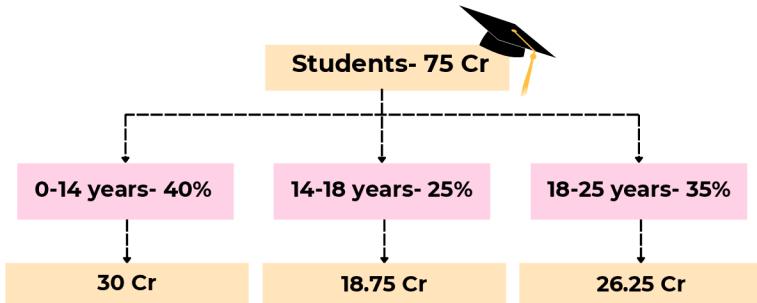
Sanity check = Total WhatsApp users = 560 M, so it comes out to be 10 messages per user.



Estimate the amount of data consumed per day by an Indian student



Solution



Assumptions:

Age Group 0-14 Years: This category mostly includes school-going students and they won't be using smartphone for educational and communication purpose. Only use-case they are being involved is Entertainment which will consume around 1 GB/day.



- **Age Group 14–18 Years:** Teenagers fall under this category, and they do have their social presence on all kinds of platforms, ranging from social media to educational apps. Assuming that almost 40% of the students use 1 GB/day for educational purposes, as it is the most important work during this period and 3 GB/day for entertainment, as relaxation is also a demand for these individuals at this age. Communication is something that, by default, uses a fixed amount of data per person. Categorizing further, 20% of the people would be using 2 GB/day, 30% would use 0.5 GB/day, and 50% would use 0.25 GB/day.
- **Age Group 18–25 Years:** Containing college students and young adults, there's a significant use of the internet here for various use cases such as college projects, online courses, YouTube, etc. Looking into the details, we can say that the educational sector would consume barely 3 GB/day for 75% of the people. OTT and social media, which fall under entertainment, would require 3 GB/day as these days the screen time of students has increased significantly. Sixty per cent of the people who are involved in online conferences, video meetings, etc., under Communications would require 4 GB/day.

Total data consumed by all age-groups with all categories would be:

$$(0.4*1 + 0.25*(0.4*1+3+0.2*2+0.3*0.5+0.5*0.25) + 0.35*(0.75*3+3+0.6*4)):$$

4.09625 GB of data.

To reach the final answer we would just multiply it by number of students i.e. 75 Cr: $75*4.09625 = 307.22$ crore GB/day.



Estimate number of liters of water consumed in India per person (For personal use only)



Solution

Water usage:

- Drinking
- Bathing
- Washing clothes, utensils, cars, scooters, bikes.
- Cleaning of the house (Dusting and mopping)
- Watering plants
- Hand wash, face wash, etc.
- Cooking food

Drinking water = 7-8 glasses of 200ml water $\sim 7.5 \times 200 \text{ ml} = 1.5 \text{ L per day}$

Bathing = 1 bucket of water + 5 L for other chores (like pooping) $= 45 \text{ L per day}$

Washing clothes: Assuming that households wash their clothes once in three days and they are a family of five.

$$\begin{aligned}\text{Estimated water consumption:} &= 15 \text{ buckets of water} \\ &= 15 \times 40 \text{ L for 5 persons in 3 days} \\ &= 15 \times 40 / 5 \times 3 \text{ L per person/day} \\ &= 40 \text{ L per person per day}\end{aligned}$$

Washing utensils: assuming utensils are washed once daily for a family of 5

$$\begin{aligned}&= 2-3 (\sim 2.5) \text{ buckets of water} \\ &= 100 \text{ L of water per day for family} \\ &= 20 \text{ L per person per day}\end{aligned}$$



Assuming that 1 bucket each is to clean two scooters and 1 bucket for a car.

2 buckets of water for a family of 5 = $2 \times 40 / 5$ L = **16 L/day**

Cleaning of house = 1 bucket of water = $40 / 5$ = **8L/day**

Hand Wash = 3 times before having meal + 3 times after having meal + 5 times extra for various reasons

= 12 times handwash each consuming 200ml per wash
= **2.4L/day**

Cooking food ~ 1.5L per meal for 5 person meal (includes water used for cooking vegetables and making flour) (3 meals)

$$= 1.5 \times 0.6 \text{ L}$$
$$= \mathbf{0.9L}$$

Therefore, total water consumption per day per person = **133.8 L**

This average can go up and down by 10 L owing to factors like age of the person and water availability which might also be a consequence of one's economic circumstance.

Therefore on average 130-140 L of water is consumed in India per person per day.



Estimate the number of washing machines used in India.

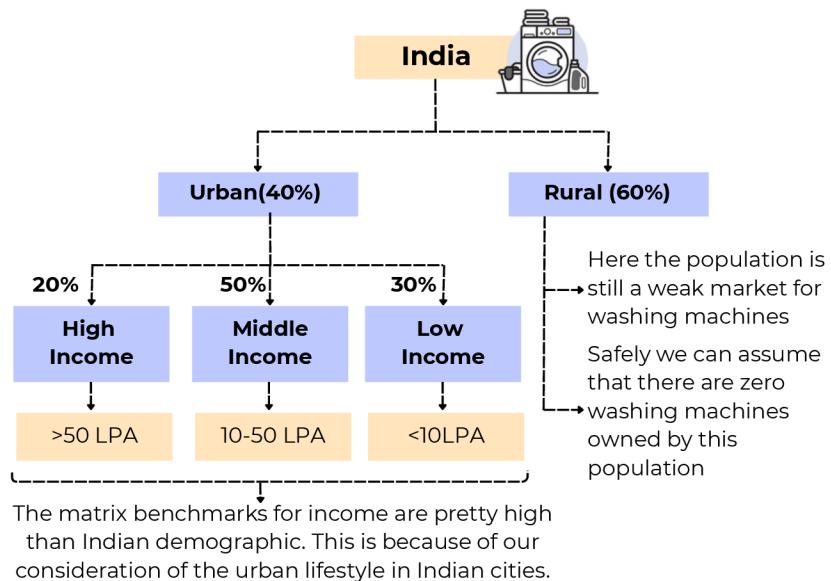


Solution

Interviewee: Which duration should I consider?

Interviewer: Assume in the year 2024

As per the trends in 2024, let's assume :



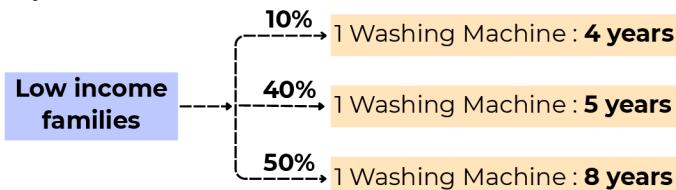
Assumption 1 : Every high income families have at least one machine

Assumption 2 :





Assumption 3 : Low income families can be subdivided like :



Assumption 2 and 3 explains the spread which accounts for psychological reasoning of various numbers of washing machines.

Therefore the number of washing machines sold in a year in India is :

$$150 \text{ Cr} * 0.4 * \left[(0.2 * 1) + 0.5 * (0.3*(1/4) + 0.2*(1/2) + 0.5*(1/5)) + 0.3 * (0.1*(1/4) + 0.4*(1/5) + 0.5*(1/8)) \right]$$

23.265 Cr Washing Machines



Estimate the average distance travelled by cycle by an Indian.



Solution

Interviewee: In what duration should the travelled distance be estimated?

Interviewer: Assume the average distance travelled in one day.

We have calculated the number of cycles sold in one year in one of the previous question.

We assume that the life span of a cycle is 5 years.

Total number of cycles present is one year is :

1.61 Cr x5= 8.05 Cr

Now we further divide the population gender wise and region wise.

Urban female = $(9 \text{ Cr} \times 5 / 365) = 12.33 \text{ Lakhs}$

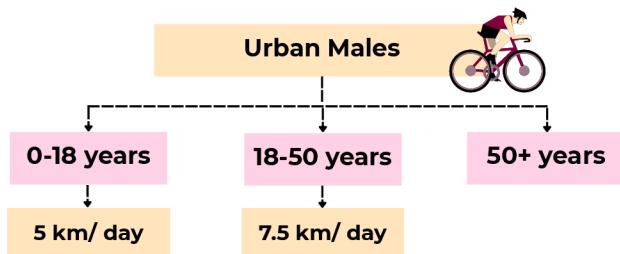
Urban Male = $((2.7 + 1.44) \text{ Cr} \times 5 / 365) = 56.6 \text{ Lakhs}$

Rural Female = **0**

Rural Male = $45 \text{ Cr} \times 5 / 365 = 61.64 \text{ Lakhs}$

We divided the total distance by 365 to find distance travelled in one day and multiplied by 5 to get the cycles owned as we have assumed 5 years to be the average life of a cycle.

Assuming that urban females ride around 7.5 kilometer daily for their workplaces, exercise, and daily chores. Assuming that rural males travel around 10 kilometer per day to their workplaces and daily chores.



Total - 6.8 km is estimated to be the average distance travelled by cycle in India



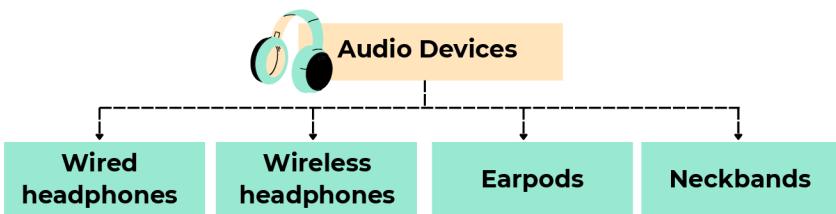
Estimate the number of headphones sold in India per year.



Solution

Interviewee: Do these headphones include all type of wired and wireless audio devices.

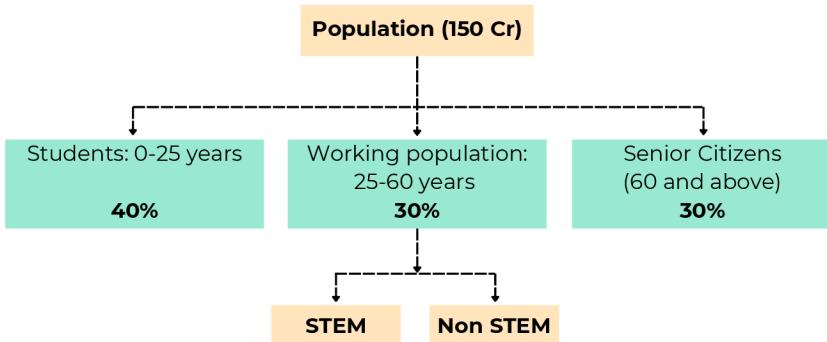
Interviewer: Include everything.



We are considering that our main targeted consumer base for such products are students and Working professionals.

We will be heading towards the solution using a demographic analysis based on age group division.

Total Indian population - 150 Cr





Student population:

This comprises the population between the age group of 0 to 25 years. They contribute to around 40 % of the total population.

We divide this vast age span into two groups based on the number of headphones they purchase.

- Around 60% of student population purchase 1 headphone per-year.
- 40% of the student population purchase 2 headphones per-year.

Total headphones purchased by student population:

$$150 * 0.4 * (0.6 * 1 + 0.4 * 2) = 84 \text{ Cr/year}$$

Working population

This comprises the population that lies in the age group of 25-60 years which makes 30% of the total population. This population can be divided into two groups based on the usage of headphones in their profession.

- **STEM working professionals:** they make around 12% of total population (STEM- science, technology, engineering and management). This group of people have heavy usage of headphones in their professions and so we assume that they purchase 2 headphones/year.
- **Non-STEM working professionals:** they make around 18% of total . They do not have have usage of headphones and thus we assume that they purchase 1 headphone/year.

Total headphones purchased by working population:

$$150 * (0.12 * 2 + 0.18 * 1) = 63 \text{ Cr/year}$$

Senior Citizens

This comprises the population that lies in the age group of 60 and above years which makes 30% of the total population. These people don't have use of headphones regarding work. 20% of this population can be assumed to use headphones for their own daily hobby and recreational usage. We assume them that they buy 1 headphone/year.

Total headphones purchased by senior citizens:

$$150 * 0.3 * 0.2 * 1 = 9 \text{ Cr/year}$$

Total headphones purchased/year: $84 + 63 + 9 \text{ Cr/year} = 156 \text{ Cr/year}$.

Therefore total 156 Cr headphones are sold in India every year.



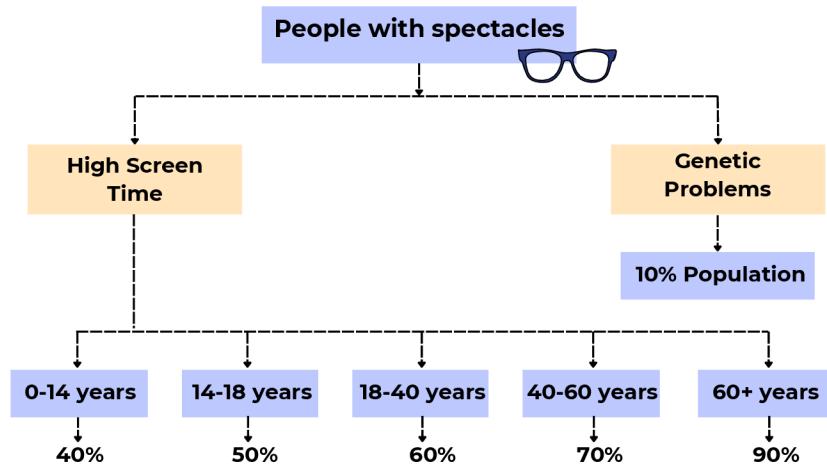
Estimate the number of people who wear spectacles in India.



Solution

Interviewee:- Should I include the people who wear spectacles due to genetic problems

Interviewer:- Yes, you may add them as well.



Assumptions:

- Age Group 0-14 Years:** They constitute 20% of the total population. Among them, an increasing number of children are using spectacles. Therefore, it is reasonable to assume that around 40% of them wear spectacles.
- Age Group 14-18 Years:** They make up about 5% of the total population. Teenagers, particularly students, have high screen time, which contributes to an increased need for spectacles. Hence, it is safe to assume that approximately 50% of them wear spectacles.
- Age Group 18-40 Years:** They account for about 40% of the total population. Working professionals in this group spend prolonged hours in front of screens for work-related tasks. Even non-STEM professionals experience significant screen exposure. Therefore, it is safe to assume that around 60% of them wear spectacles.



- **Age Group 40–60 Years:** They represent approximately 25% of the total population. With advancing age and continuous work, eye health tends to deteriorate. Hence, it is reasonable to estimate that about 70% of them wear spectacles.
- **Age Group 60+ Years:** They also comprise about 25% of the total population. Age-related degeneration and accumulated strain further impact vision. Thus, it is safe to assume that around 90% of them wear spectacles.

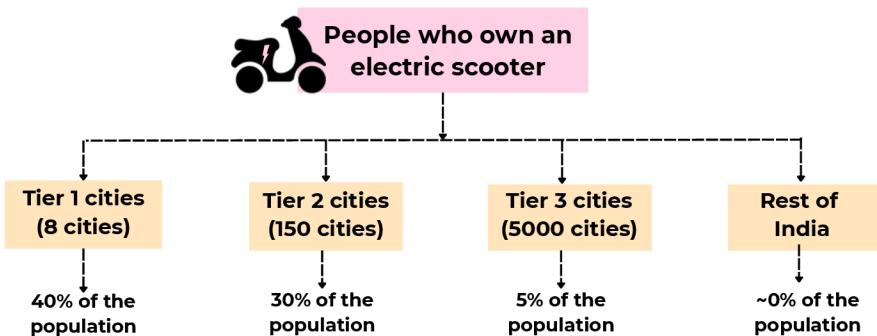
Total: $150 \text{ Cr} * (0.2*0.4 + 0.05*0.5 + 0.4*0.6 + 0.25*0.7 + 0.1*0.9 + 0.1) =$
50.55 Cr ~ Almost 51 Crore people in India wear spectacles



Estimate the market size of electric scooters in India by 2030.



Solution



Reasoning

The electric vehicles industry is an emerging market. The charging stations are unavailable in India like petrol pumps for gasoline engines is old vehicles. This is the major challenge that hinders the electric scooter market especially in the tier 2 and tier 3 cities and towns.

Assumptions

Assuming that on an average, population of

Tier 1 cities : 2.5 crore

Tier 2 cities : 1 crore

Tier 3 cities and towns : 50 lakh

Total : $0.4*2.5*8+0.3*1*150+0.05*0.5*5000$ (in crores) = 178 crore

The market size of electric scooters in India is almost 178 crores.



Estimate the number of metro card holders in India.



Solution

Interviewee:- What is the duration in which I should estimate the number of metro card holders?

Interviewer:- Estimate number of metro card holders in 1 month.

Assumption 1 :- Assuming that there are around 70 metropolitan (having metro stations and lines) cities in India.

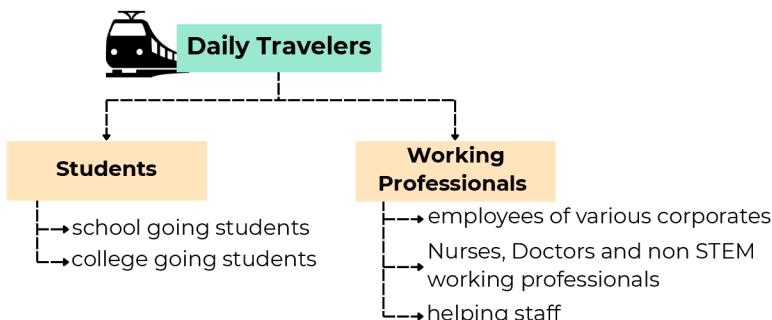
Assumption 2 :- Approximately 20 of them are highly busy metro stations.

Assumption 3 :- On an average, there are two metro lines in 50 cities which are less busy metro stations and 4 metro lines in the 20 cities which are highly busy metro stations.

Assumption 4 :- Around 20% of the population in cities are daily metro travelers on one line.

Assumption 5 :- On an average, population of cities with less busy metro station is 1.5 Cr and population of cities with busy metro station is 2.5 Cr.

Metro card holders are those who generally use metros on a daily basis. We can analyse this situation by dividing the population demographically, assuming that students and working professionals are daily travellers.





Analysing traffic of daily travellers on one metro line for highly busy metro stations :-

People using highly busy metro stations face long queues and so we are assuming that a higher rate of people here have metro cards.

Students :

- Makes 40% of the daily travelling population.
- We assume that 80% of these students take a metro card.

Working Professionals :

- Makes 60 % of the daily travelling population.
- We assume that 100% of the working professionals take a metro card.

Total number of people having a metro card in highly busy metro station cities:-

$$4 \text{ lines} * 2.5 \text{ Cr} * 0.20 * (0.40 * 0.80 + 0.60 * 1.00) * 20 \text{ stations} = 36.8 \text{ Cr}$$

Analysing traffic of daily travellers on one metro line for less busy metro stations :-

People using less busy metro stations don't face long queues daily and so they do not feel a need to buy a metro card.

Students :

- Makes 40% of the daily travelling population.
- We assume that 60% of these students take a metro card.

Working Professionals :

- Makes 60 % of the daily travelling population.
- We assume that 70% of the working professionals take a metro card.

Total number of people having a metro card in less busy metro station cities:- $2 \text{ lines} * 1.5 \text{ cr} * 0.20 * (0.40 * 0.60 + 0.60 * 0.70) * 50 \text{ stations} = 19.8 \text{ Cr}$

$$\text{Total : } 36.8 + 19.8 \text{ Cr} = 56.6 \text{ Cr}$$

Therefore, total number of metro card holders are 56.6 Cr.



Estimate number of students enrolled in distance learning program.



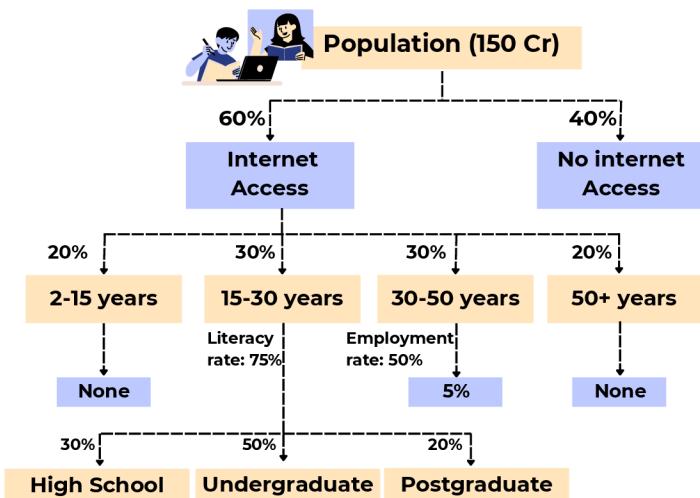
Solution

Distance learning programs and online classes have exponentially increased the business potential of EdTech Industry.

Distance learning programs are majorly taken up by students in their high school, and college students in their undergraduate and post graduate programs.

Only a few percentage of working professionals are enrolled in a distance learning program.

We approach this problem by first segregating the population into internet and non- internet users. Further we will make a demographic segregation.





High School Students:-

Students take advanced coaching classes in various subjects through online mode.

Taking in consideration the recent increase in internet availability and competition, around 40% students

Total high school students engaged in distance learning program :

$$150 * 0.60 * 0.30 * 0.75 * 0.30 * 0.40 = 2.43 \text{ Cr}$$

Undergraduate Students:-

Students are in a search of career field they actually want to pursue and so they keep exploring different distance learning courses.

We can assume that around 30% of the students take distance learning course.

Total undergraduate engaged in distance learning program :

$$150 * 0.60 * 0.30 * 0.75 * 0.50 * 0.30 = 3.04 \text{ Cr}$$

Postgraduate Students:-

Students pursuing post graduation do not take distance learning courses, they are more inclined to offline courses.

We assume that around 10% of the students take distance learning course.

Total undergraduate engaged in distance learning program :

$$150 * 0.60 * 0.30 * 0.75 * 0.20 * 0.10 = 0.41 \text{ Cr}$$

30- 50 year old population :-

This age group barely get time to get involved in a distance learning course.

We assume that only 5% of this population take distance learning course.

Total population of the age 30-50 years who are engaged in distance learning program :

$$150 * 0.60 * 0.30 * 0.50 * 0.05 = 0.68 \text{ Cr}$$

Total population accessing distance learning program is 6.56 Cr



Estimate the number of engineering colleges in India.



Solution

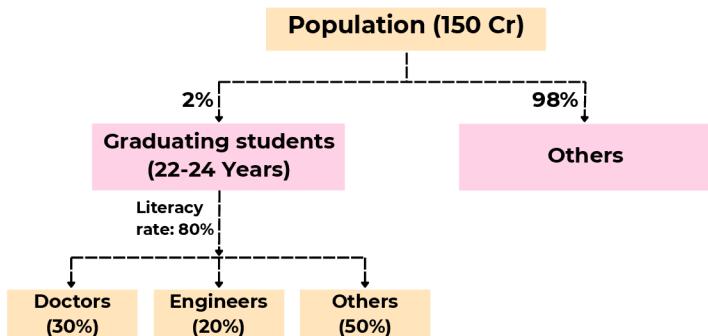
India is considered as one of the largest producers of engineers. This number is backed up by the engineering colleges in India.

Engineering graduate has an age around 22-24 years.

The literacy rate in this particular age group in recent years can be assumed to be around 80%.

Out of the total 150 crore population of India, we can assume that around 2% fall in the age group 22-24 years.

We can assume around 20% of those are engineering graduates.



Prominent Courses chosen by Indian Students

Total engineering graduates : $150 \text{ Cr} * 2\% * 80\% * 20\% = 48 \text{ lakhs}$

Assuming average students count in engineering college to be around 2000, the number of engineering colleges in India is estimated at 2400.

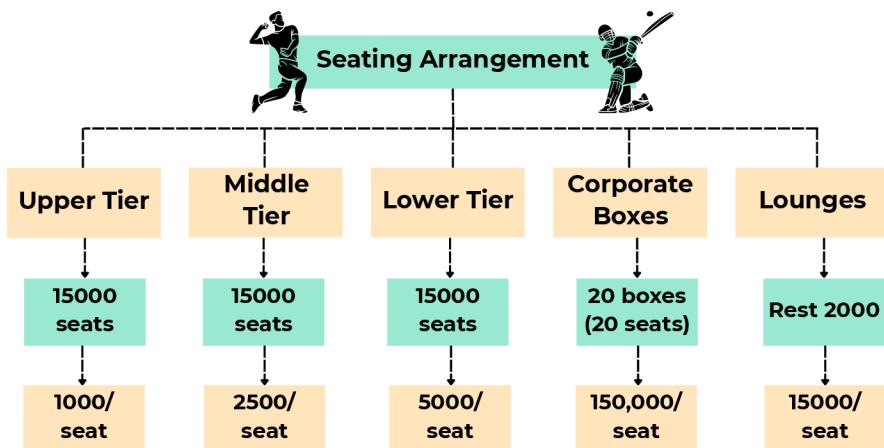


Estimate the revenue generated through ticket sales by a cricket stadium during a cricket match.



Solution

Here is an assumed seating pattern for stadium.



Total = **21.75 Cr**

Assuming around 80% seats are occupied.

80% x Total = **17.4 Cr**



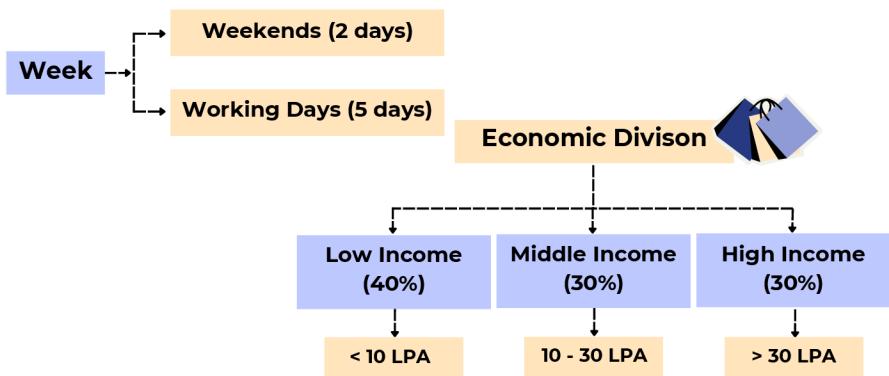
Estimate the number of people who visit shopping malls in Mumbai in a week.



Solution

Generally people go with their friends or family to places like malls. Other consumer demographics are close to zero. Indian lifestyle and Infrastructure is not so developed to provide malls in every town or city. Therefore it can be assumed that around 40% of the total population of India visits malls.

Assumptions: Population of Mumbai is 3 Cr. That makes around 75 lakh households. We can assume friends visit malls in a group of 5.



Population that visits mall:

For a working day

- Friends group (students) (60%)
- Families (40%)

For a weekend

- Friends (50%)
- Families (50%)

For a working day:

	Low Income	Middle Income	High Income
Friends	0%	5%	10%
Families	0%	0%	5%



For a Weekend:

	Low Income	Middle Income	High Income
Friends	0%	5%	15%
Families	5%	10%	20%

The two tables have been made from various factors considering the economic difference in lifestyle and psychological preferences.

For example:

Weekend will see the peak in number of families visiting malls.

For a weekday:

Middle income and high income people visit malls: 5% of households and 15% of friend groups:

Total: $75 \text{ Lakh} * 4 * (5\% * 30\%) + 60 \text{ Lakh} * 5 * (10\% * 30\% + 5\% * 30\%)$

18 Lakh people

For a weekend:

People from all income classes visit malls: 20% of households and 35% of friend groups:

Total: $75 \text{ Lakh} * 4 * (5\% * 40\% + 30\% * 10\% + 30\% * 20\%) + 60 \text{ Lakh} * 5 * (5\% * 30\% + 15\% * 30\%)$

51 Lakh people

Total:

On a daily basis: $(18 * 5 + 51 * 2) / 7 \sim 27.5 \text{ Lakh people visit shopping mall in mumbai.}$



Estimate the number of families going on vacation in a year.

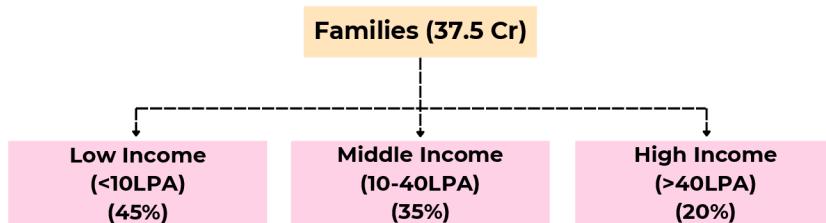


Solution

Interviewee:- Does this vacation need to be International or Domestic?

Interviewer:- Include both.

Since the population of India is 150Cr, we'll assume the number of households in India to be $150\text{Cr} / 4 = 37.5\text{Cr}$.



Low Income:

We'll assume that 30% of families will go on vacation once every 2 years, and the rest will not go at all.

$$\text{Total} = 45\% \times (30\% \times 0.5) \times 37.5\text{Cr} = 2.53\text{Cr}.$$

Middle Income:

We'll assume that 20% of families will go on vacation once a year, 30% will go on vacation once every two years, and the rest will not go at all.

$$\text{Total} = 35\% \times (20\% \times 1 + 30\% \times 0.5) \times 37.5\text{Cr} = 4.59\text{Cr}.$$

High Income:

We'll assume that all of them will go on vacation once a year.

$$\text{Total} = 20\% \times (100\% \times 1) \times 37.5\text{Cr} = 7.5\text{Cr}.$$

$$\text{Total} = 2.53\text{Cr} + 4.59\text{Cr} + 7.5\text{Cr} = 14.62\text{Cr}.$$

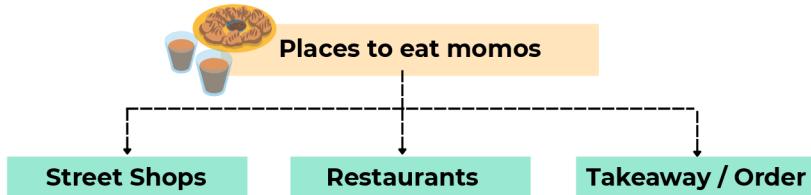
Therefore, 14.62Cr families go on a vacation every year.



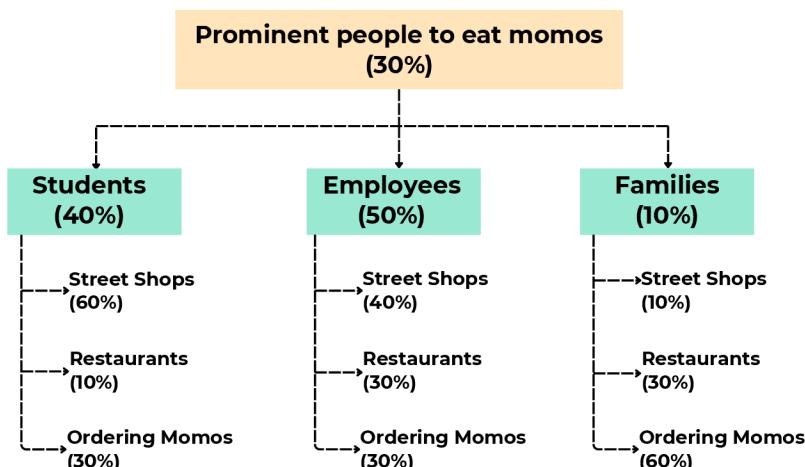
Estimate average number of momo eaters in a day in Delhi by dining in on the venue.



Solution



Assumption: The population of Delhi is considered to be roughly 3 crore.



Means from where one can eat momos can be majorly divided into 3 categories: street shops, restaurants, and Takeaway/Order. Prominent people to eat momos are Students, Employees, and Families.



Since students usually don't have a lot of cash on hand, it makes sense that they tend to spend their money on more affordable options, like street shops, where they can find lower-priced goods and services.

Employees appear to embrace an unhealthy lifestyle, as seen in their food ordering habits. They have a nearly equal preference for all three types of ordering options—like online food delivery apps, dine-in restaurants, and takeaways—pointing to a steady trend of indulgence no matter how they choose to eat.

Considering the average size of a family to be 4 members. It's common for families to either dine at restaurants or opt for takeout to enjoy at home. These choices often align with those precious moments when they gather to spend quality time together, such as on weekends, during celebrations, or at shared meals.

Total:

$3Cr * (30\%) * ((40\%) * (60\% + 10\%) + (50\%) * (40\% + 30\%) + 4 * (10\%) * (10\% + 30\%))$
~ 71L daily Momo eaters by dine on-site venues throughout Delhi.



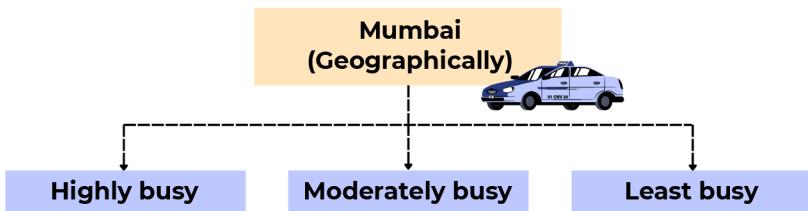
Estimate the number of rides a cab driver gets in a day in Mumbai.



Solution

Interviewee:- Should shared cabs be considered as different rides?

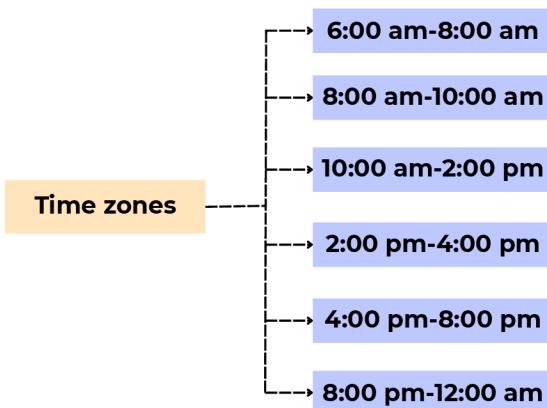
Interviewer:- No, consider shared cabs as a single cab ride.



Note: Here, busy indicates the traffic and amounts of the people present over the streets.

Assumptions:

- An average cab driver gets about 70% rides in highly busy areas, 25% rides in moderately busy areas, and 5% rides in the least busy areas.
- We will divide day into time zones from 6:00 am to 12:00 am.

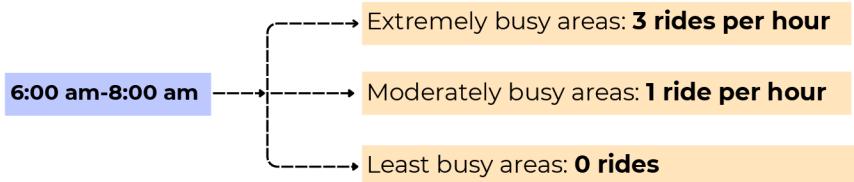




Time zones are divided on the basis of various day to day activities.

- **From 6:00 am-8:00 am**

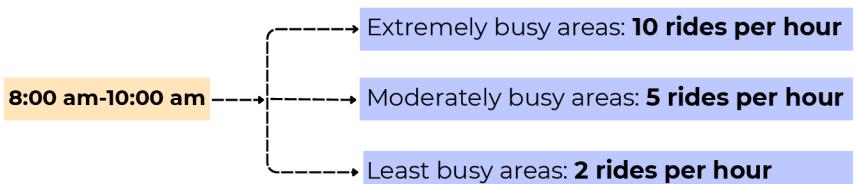
This is an odd hour for working people. Majority travellers in this hour are tourists.



- **From 8:00 am-10:00 am**

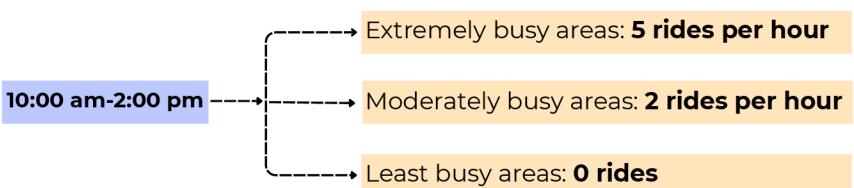
This is the office time so we expect the numbers to peak here.

Assumption: Out of total rides, 40% are booked by tourists.



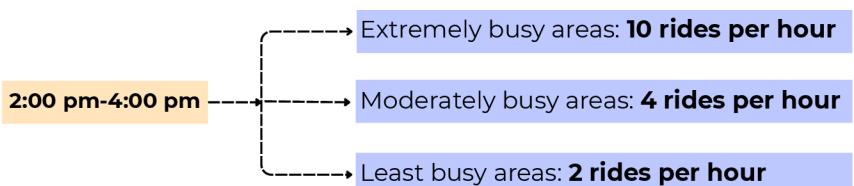
- **From 10:00 am-2:00 pm**

This is the time when tourists are in a good number.



- **From 2:00 pm-4:00 pm**

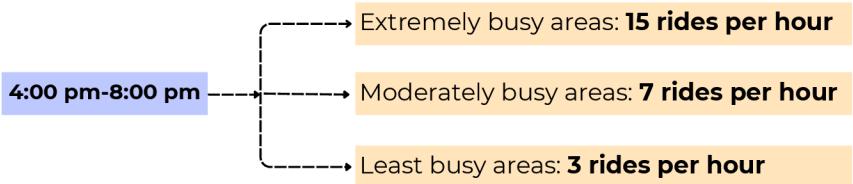
This is the peak lunch time. Mumbai sees a good traffic during these hours. Thus, tourists and working people along with other general people account for booking cab rides during this time.





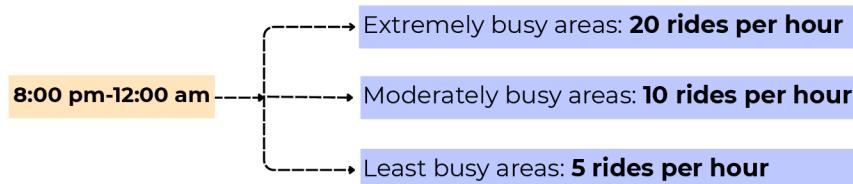
- **From 4:00 pm-8:00 pm**

This is the peak time when working people go home and also, the night engages the tourists and general public



- **From 8:00 pm-12:00 am**

This is the peak time when a lot of people, especially youngsters, plan their night along with tourist. City sees a good traffic in these hours.



$$\text{Total number of cab rides a driver gets} = 70\%*(3+10+5+10+15+20)+25\%*(5+2+4+7+10)+5\%*(2+2+3+5) = 52 \text{ rides}$$



Estimate the number of non-vegetarians in Mumbai.

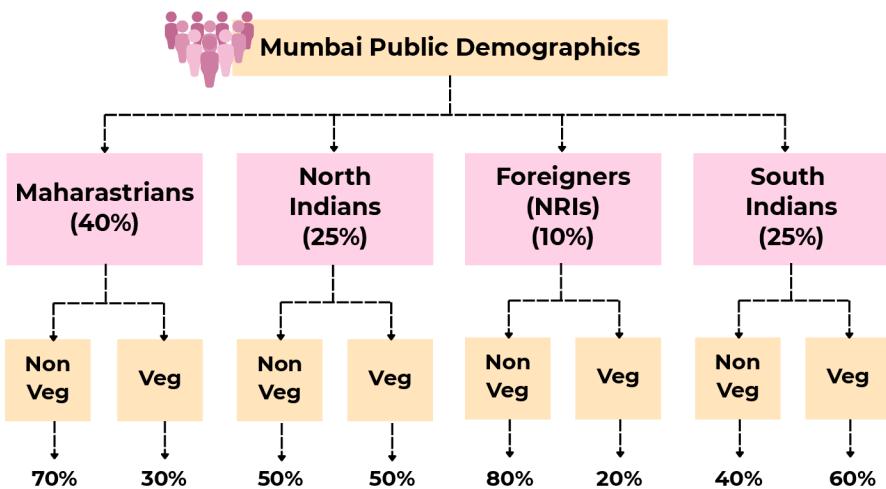


Solution

India is a country of diverse cultures.

Mumbai has citizens from every part of the country.

We will try to divide the Indian culture demographic into some subsections.



Assumptions are based on the cuisines of the divisions and public preference of staple food.

Assumption: Assume population of Mumbai is almost **3 Crore**.

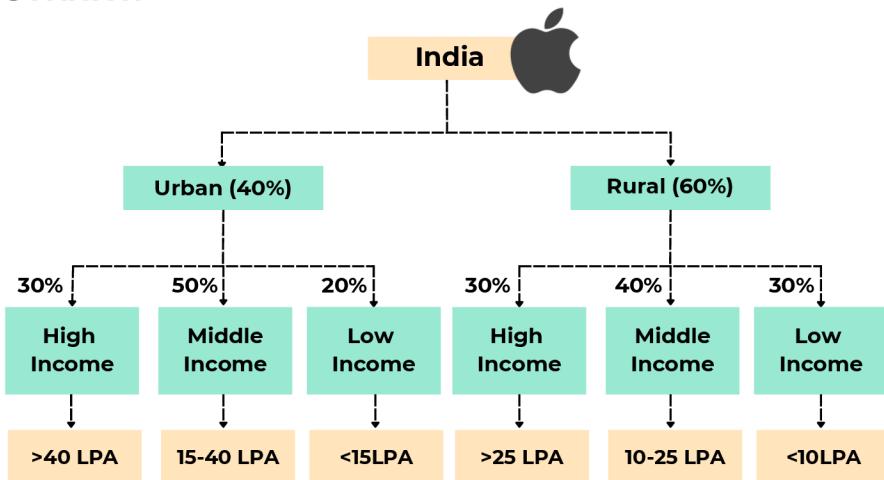
$$\begin{aligned}\textbf{Total} &= 3 \text{ Cr} \times [40\% \times 70\% + 25\% \times 50\% + 10\% \times 80\% + 25\% \times 40\%] \\ &= \mathbf{1.75 \text{ Cr}}\end{aligned}$$



Estimate the number of iPhone users in India.



Solution



Assumptions:

- Out of these urban high-income people, we can assume 20% of them have iPhones.
- Out of these urban middle-income people, we can assume 5% of them have iPhones.
- Out of these urban low-income people, we can assume they have zero iPhones.
- Out of the rural high income people, we can assume 5% have iPhones.
- For these rural middle- and low-income people, we can assume they have zero iPhones.

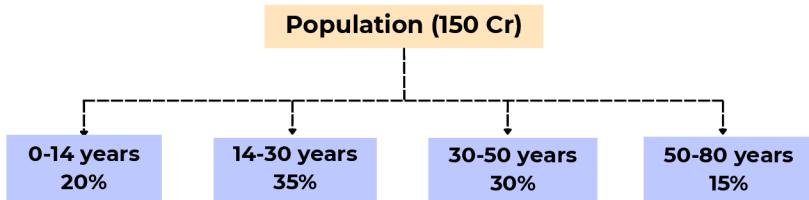
Total : $150 \text{ crores} * [0.4 * (0.3 * 0.2 + 0.5 * 0.05) + 0.6 * (0.3 * 0.05)] = 6.45 \text{ crores}$
The number of iPhone users in India is about 6.45 crores.



Estimate the average screen time of an individual in India.

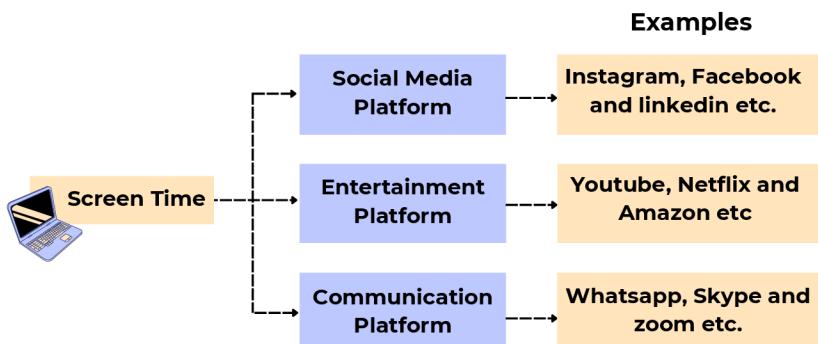


Solution



Note: Here, the division is done on the basis of lifestyle difference with respect to social media and electronic device usages.
Life expectancy is assumed to be 80 years in India.

An average Indian's screen time includes time given in:



Assumptions:

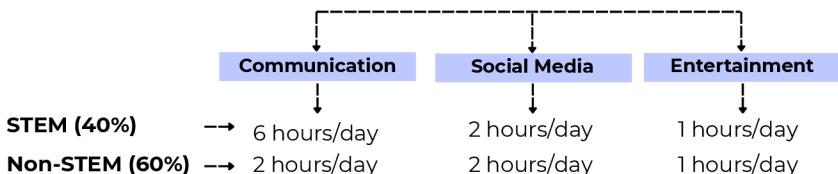
- Age Group 0-14 Years:** This section comprises of school going kids which are not exposed much to smartphones at this age, they mostly use their parent's smartphone's. Thereby, there screentime can be estimated as 1 hour/day.



- **Age Group 14–30 Years:** Including high school students, adults and most socially active people here, the usage time is maximum for this category as their needs are more at this age. We need to further categorize this section into three as:



- **Age Group 30–50 Years:** This age group consists of employees or working professionals either doing their own business or working in a Multi national company. This crowd can be categorized in two types- STEM & Non-STEM. STEM refers to the startups and corporate field jobs and Non-STEM refers to the jobs like doctors, army and staff etc. The further detailing in these both can be done as:



- **Age Group 50–80 Years:** These people are not very active on mobiles and laptops. We can assume that their screen time is around 0.5 hours/day.
- **Note:** People in age group 0-14 & 50-80 are primarily active on televisions too rather than just smartphones. So we need to take that in consideration also, this total of 35% population has an average time of 4 hours/day for televisions.

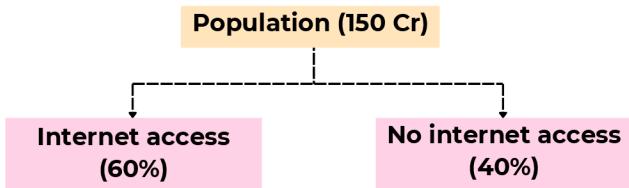
Total: ($0.2*1 + 0.35*8 + 0.3*(0.4*9 + 0.6*5) + 0.15*0.5 + 0.35*4$):
6.4 hours/day



Estimate the number of unique UPI users in India.



Solution



UPI users are primarily adults and earning individuals. India is a leader in the online payment transaction sector. Let's divide the Indian consumers into different age groups because of different age classes.



0 - 14 years - Children in this group typically do not have their own bank accounts, so we can assume there are zero UPI users (in this segment).

- 14 - 20 years - These people either have their own bank account or joint accounts with their parents as guardians. We can safely assume that around 30% here are UPI users.

20 - 50 years - This group is evenly divided between urban and rural populations; we assume 100% of urban and 40% of rural individuals are UPI users.

- 50 - 80 years - Here, most people are senior citizens and mostly dependent on their working children. Thereby, we can assume around 30% of people here use UPI.



Total: $150\text{Cr} * 60\% * (15\% * 30\% + 40\% * 50\% + 40\% * 50\% * 40\% + 25\% * 30\%) \sim 12.24\text{Cr}$ unique UPI users in India.

The impact of UPI is noted by noting that its widespread adoption, from high-end malls to local street vendors, has made digital payments an integral part of daily life in India. Whether it's in fancy malls, high-end retail stores, or even with small local street vendors and hawkers, the widespread use of QR codes has made digital payments not only accessible but also a part of everyday life.



Estimate the number of people with a Spotify subscription in India.



Solution

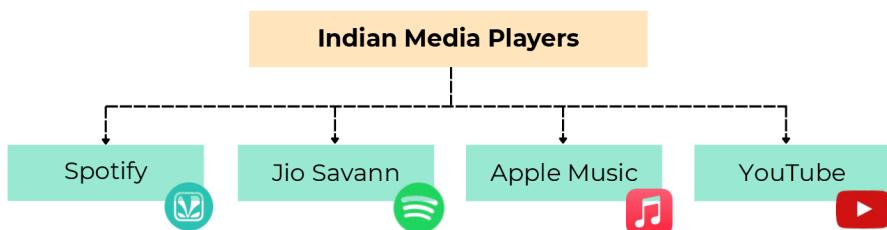
Interviewee: Can I consider the lowest tier of subscription as the base tier for my assumptions?

Interviewer: Yes, you can.

Interviewee: I am considering the age group 18-60, is there any specific number I have to use for that population?

Interviewer: No, assume that yourself.

First, we'll try to analyse the market share of Spotify in India.



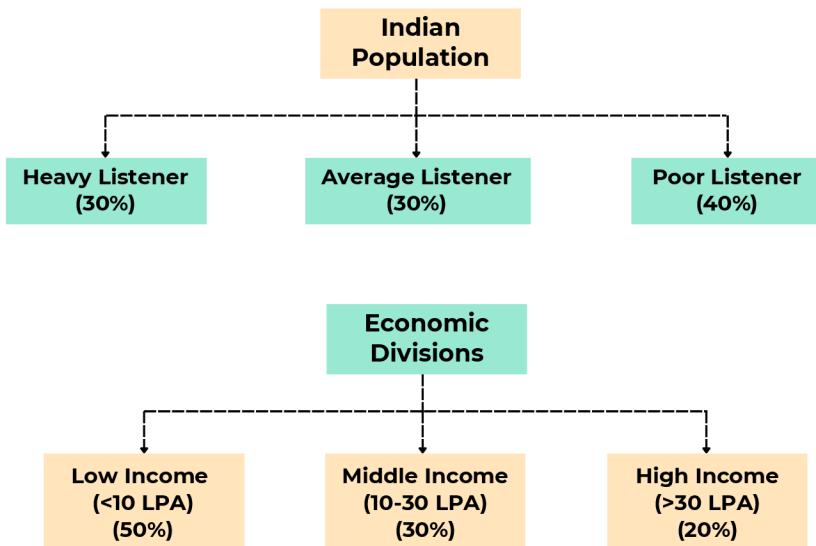
These are prominent market players in this industry.

- YouTube is not a direct competitor, as it is used by everyone to some extent.
- Jio Savann, due to the unavailability of songs and many podcasts, should have a lower market share.
- Apple Music is only for people using Apple Products. Due to its relatively costly pricing, it has to have a low market share.

Considering the above factors, we can assume Spotify has around a 40% market share, making it the market leader.



Listening to songs is a habit relating to personal lifestyle. So, we will make some broad divisions.



Low Income Sector:

We can assume 0 subscriptions

Middle Income Sector:

Heavy Listeners: 5% have Spotify subscriptions.

Average Listeners: 1% have Spotify subscriptions.

Low Listeners: 0% have Spotify subscriptions

Total: $40\% \times 30\% \times (30\% \times 5\% + 30\% \times 1\%) \times 150\text{Cr} = 32.4\text{L}$

High Income Sector:

Heavy Listeners: 10% have Spotify subscriptions.

Average Listeners: 5% have Spotify subscriptions.

Low Listeners: 2% have Spotify subscriptions.

Total: $40\% \times 20\% \times (30\% \times 10\% + 30\% \times 5\% + 40\% \times 2\%) \times 150\text{Cr} = 63.6\text{L}$

Hence, we come to a total of $32.4\text{L} + 63.6\text{L} = 96\text{L}$ subscribers.

Therefore, there are 96 Lakh people with a Spotify subscription in India.



Estimate the market size of umbrellas in Kolkata



Solution

Interviewee:- Can you please give me the estimation of population of population of Kolkata?

Interviewer:- You can assume it to be 2 crores.

Kolkata experiences heavy monsoons in the months of July, August, September, and October.

We can safely assume that the market size for umbrellas in Kolkata during the months of December, January, February, March, April, and May is approximately zero.

The months of June and November will have a medium market size.

Since umbrellas are important and inexpensive products, dividing the market based on economic segments does not seem appropriate.

Therefore, we can assume that 10% of the population buys an umbrella in each heavy rainfall month.

Assumption: The lifetime of an umbrella is 1 year.

Total: $10\% \times 2 \text{ crore} \times 4 = 0.8 \text{ crore}$

We can assume the market size in June and November to be 10% of this total.

Final Total: $0.8 \text{ crore} + 10\% \text{ of } 0.8 \text{ crore: } \mathbf{0.88 \text{ crore}}$



Filter coffee cups sold in Bangalore per day.

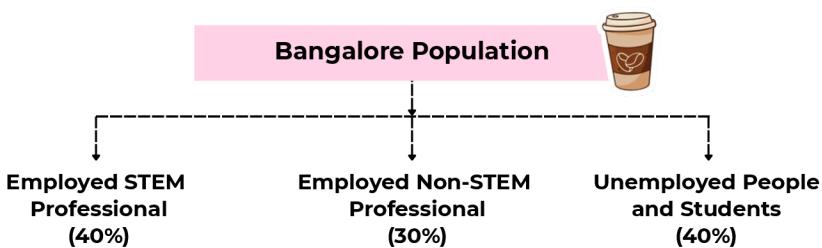


Solution

Interviewee:- Can you please give me the estimation of population of population of Bangalore

Interviewer:- You can assume it to be 1.5 Crores

Filter coffee is a very loved beverage in the Southern India.
Let's divide the population of Bangalore into some profiles :



Employed STEM Professionals : These individuals show a strong dependence on energy drinks such as tea and coffee. Therefore, we can assume that :





Employed Non-STEM Professionals: The situation is somewhat different here. Energy beverages are not a necessity but more of a lifestyle choice. As a result, consumption is generally lower in this group. It can be reasonably estimated that approximately 30% of individuals in this category consume at least one cup of an energy drink daily.

Unemployed people and students : Daily coffee consumption is quite prevalent among them.. It can generally be assumed that around 70% of them drink at least one cup each day, often as a part of their routine or for refreshment.

$$\text{Total : } 1.5 * \left((0.4 * ((0.4 * 2) + (0.4 * 1) + (0.2 * 0))) + (0.3 * 0.3 * 1) + (0.3 * 0.7 * 1) \right)$$

Number of coffee cups sold in Bangalore per day is approx 1.17 crores



Estimate the number of Maggi packets consumed by IIT students in a week.



Solution

Not just IITians but all the engineering students survive on Maggi! It becomes a regular part of the diet. Heavy Maggi consumption is expected on weekends and late at night.



There are 23 IITs currently in India. Assuming there are around 15000 students of various years and streams residing on campus in every IIT. Also, there are five weekdays and two weekends.

Weekdays: On weekends we assume that around 10% of students eat Maggi at a given time.

$$\text{Total} = 10\% \times 15000 \times 23 \times 5 = 1,72,500 \text{ packets}$$

On weekends, we see a rise in these numbers. Assuming around 30% people eat Maggi at once.

$$\text{Total} = 30\% \times 15000 \times 23 \times 2 = 2,07,000 \text{ packets}$$

Assumption: Each student is consuming one packet at a time.

On average, per week Maggi consumption is 3.8 Lakh packets.



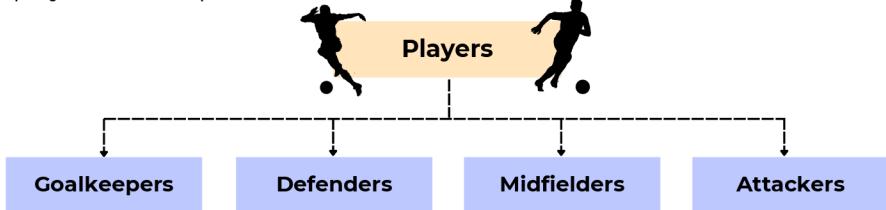
Estimate the average distance run by a football player in an average match.



Solution

Assuming it is a normal 90 min game with no extra time, both teams consist of 11 players with 4-3-3 formation & for simplicity not accounting for substitutions and the field is of length 100m.

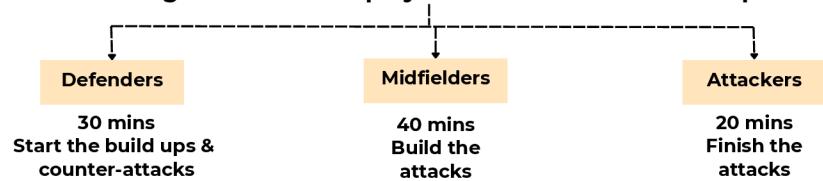
We assume that both teams will have the same average distance run by players in each position.



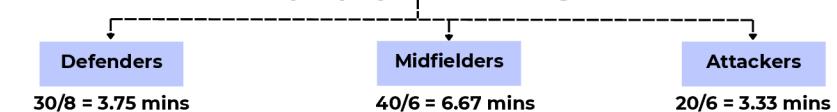
Now, going by positions,

The goalkeeper will only run from the goal to the edge of the penalty area (which is around 15m). So, taking around 20 plays to the goal on average, a goalkeeper will run $15 \times 20 = 300$ m on average

Assuming the total time players have the ball for each position



Total time per player considering both teams



Now, players will have different speeds when they have the ball & when they don't have it, but their own team has it
Also, for simplicity we assume that both teams will have the ball for equal amounts of time.



Speeds when a player has the ball

Defenders

5 km/hr
Only start the build ups

Midfielders

8 km/hr
Build the attacks, sometimes go on counter-attack.

Attackers

15 km/hr
Fast-paced finishes to the attack.

Speeds when a player doesn't have the ball but the ball is with their team

Defenders

3 km/hr
Usually, just walk around and have to be careful against counter-attacks.

Midfielders

10 km/hr
Have to contribute actively by making space.

Attackers

10 km/hr
Sometimes, make fast-paced runs, but usually, they wait for the ball.

Speeds when the opposite team has the ball

Defenders

10 km/hr
Have to defend actively.

Midfielders

5 km/hr
Have to contribute to defense but not as much as defenders.

Attackers

3 km/hr
Usually, don't defend much.

Distance run by a player of a particular position

Goalkeepers

0.3 km

Defenders

$$(5*3.75 + 3*41.25 + 10*45) / 60 = 9.88 \text{ km}$$

Midfielders

$$(8*6.67 + 10*38.33 + 5*45) / 60 = 11.03 \text{ km}$$

Attackers

$$(15*3.33 + 10*41.67 + 3*45) / 60 = 10.03 \text{ km}$$

Therefore, the average distance run by the players -

$$= (1*0.3 + 4*9.88 + 3*11.03 + 3*10.03) / 11$$

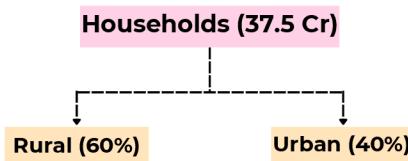
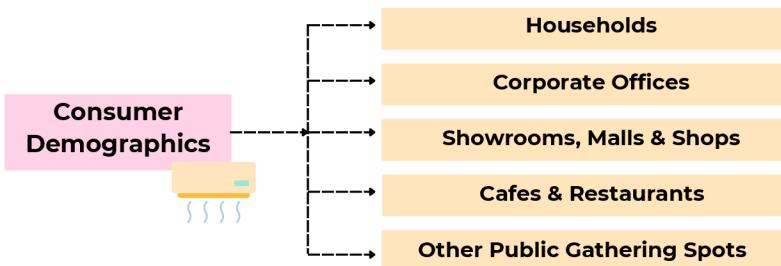
$$= 9.36 \text{ km}$$

Therefore, the average distance run by a football player in an average match is 9.36 km.

Estimate the number of Acs sold in India.



Solution



Households:

We can assume that the rural households don't have ACs yet. Out of the urban households, we can assume 35% of them to have an AC.

$$\text{Total} = 40\% \times 35\% \times 37.5 \text{ Cr} = 5.25 \text{ Cr}$$

Corporate Offices:

Corporate Offices generally have ACs. At least 10 ACs are present in a well-maintained office. While mediocre offices and co-working spaces that are often rented by startups have at least 2 ACs.

We'll assume India's employment rate to be 75%. The working population makes up around 50% of the total population. Out of this, let's assume 20% are office-going employees.

Therefore, the number of office-going employees = $50\% \times 75\% \times 20\% \times 150 \text{ Cr} = 11.25 \text{ Cr}$



We'll assume that there are 2000 employees in an average corporation, and 500 in small companies and startups.

Hence, from the above calculations, we can assume there to be 1L small companies and startups, and 35000 corporations.

We'll assume there are 100 branches in each corporation.

$$\text{Total} = 35000 \times 100 \times 10 + 10000 \times 2 = 3.52\text{Cr.}$$

Cafes and Restaurants:

In a metropolitan city, we can easily assume around 400 cafes and around 800 restaurants. We can assume 50 metropolitan cities in India. We can assume that cafes have 3 ACs on average and restaurants have 5 ACs on average.

$$\text{Total} = 50 \times (400 \times 3 + 800 \times 5) = 2.6\text{L}$$

In other towns, villages, and restaurants on highways, we can assume around 5 cafes and 10 restaurants per town, 0 cafes and 1 restaurant per village. We'll assume that there are 10000 towns and 5L villages in India. Eateries in villages are assumed not to have ACs. In towns, we can assume that 40% of them have 1 AC.

$$\text{Total} = 10000 \times 15 \times 40\% \times 1 = 0.6\text{L}$$

Apart from this, we assume that 50% of lodge rooms have 1 AC, and on average, there are 20 rooms per lodge. We'll assume the number of lodges to be equal to the number of restaurants.

$$\text{Total} = (50 \times 800 + 10000 \times 10 + 5L \times 1) \times 50\% \times 1 = 3.2\text{L}$$

Showrooms and Malls:

We can assume there are around 100 malls in Tier 1 cities and around 50 malls in a general metropolitan city. We'll assume that a mall in Tier 1 cities will have 200 ACs and a mall in a metropolitan city will have 100 ACs.

We will assume that the number of showrooms is equal to the number of malls, and each showroom will have 30 ACs.

$$\text{Total} = (80 \times 100 \times 200 + 100 \times 50 \times 100) + (80 \times 100 + 100 \times 50) \times 30 = 24.9\text{L}$$

Other Public Gathering Spots:

Other public gathering spots include libraries, lavish classrooms, and tourist locations like museums, palaces, etc. We can safely assume that around 0.5Cr ACs are used here.

$$\text{Total} = 3.52\text{Cr} + 2.6\text{L} + 0.6\text{L} + 3.2\text{L} + 24.9\text{L} + 0.5\text{Cr} = 4.33\text{ Cr}$$

We can assume the average lifetime of an AC to be 10 years.

Therefore every year, **4.33 Cr ACs are sold in India.**



Estimate the amount of revenue generated by a single petrol pump In India.



Solution

Petrol pump's revenue is highly influenced by its location.

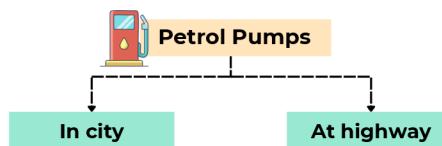
If the petrol pump is on highway, then most of it's customers are heavy vehicles passing through, whereas in a city its customers will be local vehicles primarily for fuel refuelling.

Interviewee:- For what location of petrol pump, should i estimate the revenue collection?

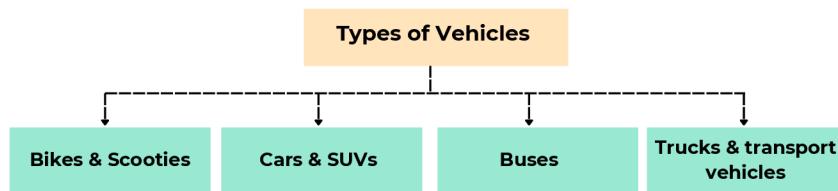
Interviewer:- There is no specific location.

Interviewee:- For what duration should I estimate the revenue collection?

Interviewer:- Estimate revenue collection for 1 day.



We further divide vehicles on the basis of fuel consumed.



Assumption 1:- Average petrol price is 100 rupees/litre

Assumption 2:- Average petrol price is 90 rupees/litre

We analyze revenue separately for highways and cities based on the type of vehicle traffic.



Petrol pumps on highways:

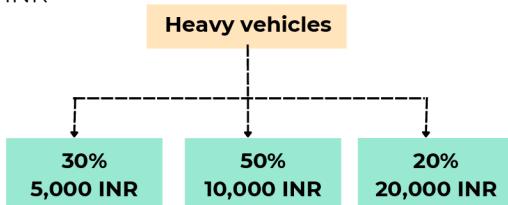
Petrol pumps on highways have a high traffic of large vehicles. We assume that on a daily basis around 200 trucks, 100 tempos, 100 buses, 50 cars, and 50 SUVs visit petrol pumps.

To find the revenue collection we further divide the vehicles based on the fuel they consume (petrol or diesel).

We assume that

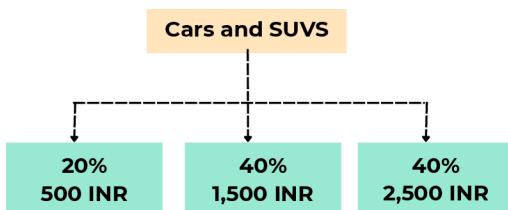
- Trucks, buses, and tempos generally use diesel.
- Out of the total cars and SUVs, 50% consume petrol and the other 50% consume diesel.
- We assume that bike and scooter traffic is negligible.

We assume that different percentage of heavy vehicles fill diesels in multiple of 1000 INR



Revenue generated by petrol pumps by filling heavy vehicles:
 $400 * (0.30 * 5,000 + 0.50 * 10,000 + 0.20 * 20,000) = 42 \text{ Lakh INR}$

We assume that different percentages of heavy vehicles fill fuel in multiple of 500 INR



Revenue generated by petrol pumps by filling cars and SUVs:
 $100 * (0.20 * 500 + 0.40 * 1500 + 0.40 * 2500) = 1,70,000 \text{ INR}$

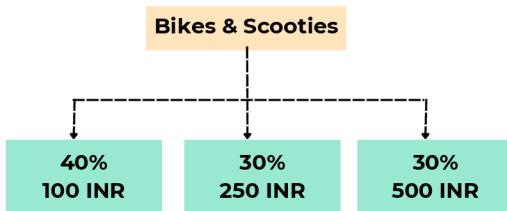
total revenue generated by petrol pumps on highways = 43,70,000 INR

An inside city petrol pump:

Trucks and other vehicles are a minority traffic in city. It is also important to divide cities into Tier 1, Tier 2, and Tier 3 because of the different vehicle traffic in these three tiers of cities.



In a tier 1 city petrol pump, we assume that there are 500 bikes and scooties, 200 cars and SUVs, 50 buses and 20 tempos.



As here, the fuel purchased for cars and SUVs will mostly be for shorter distances in a city. Thus we assume that the average cost of fuel taken by cars and SUVs will be around 1000 INR.

Similarly, for buses and tempos, we assume the fuel cost to be 1500 INR

In Tier 2 cities we assume that the revenue is 60% of the revenue collected in Tier 1 cities.

In Tier 3 cities we assume that the revenue is 5% of the revenue collected in Tier 1 cities.

The revenue generated by petrol pumps in tier 1 city is :

$$500 * (0.40 * 100 + 0.30 * 250 + 0.30 * 500) + 200 * 1000 + 70 * 1500 \text{ INR} = 4,37,500 \text{ INR}$$

To find the revenue earned by a single petrol pump in city, we find the average revenue collected by Tier 1, Tier 2 and Tier 3 cities.

So, the average revenue collected is 2,40,625 INR.

To find the average revenue earned by a single petrol pump, we need to find average of revenue earned in cities and on highways:

Revenue earned is INR.

Revenue earned by a single petrol pump is 23,05,312.5 ~ 23 Lakh INR.



Estimate the number of foreign tourists in India per year.



Solution

India is a very diverse country with all forms of natural, architectural and historical beauty. This makes it a great tourist attraction for people.

Assumption 1 :-There are 40 international airports in India, and every airport hosts at least 20 planes daily.

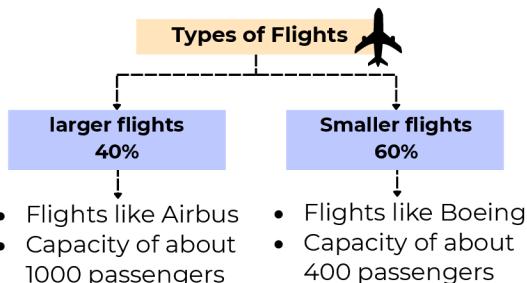
(We are taking into consideration only the flights arriving at Indian airports.)

Total no. of flights in a day = 800 flights

Each flight will have foreigners as well as Indians.

Assumption 2 :- International flights have 30% foreigners.

Depending on the capacity of passengers, flights can be larger or smaller.



Number of passengers in one day :

$$800 * (0.40 * 1000 + 0.60 * 400) * 0.30 = 1,53,600 \text{ passengers}$$

Number of passengers in one year:

$$365 * 1,53,600 = 5,60,64,000 \text{ passengers}$$

Number of passengers = tourists

Total 5,60,64,000 tourist visit India in a year.



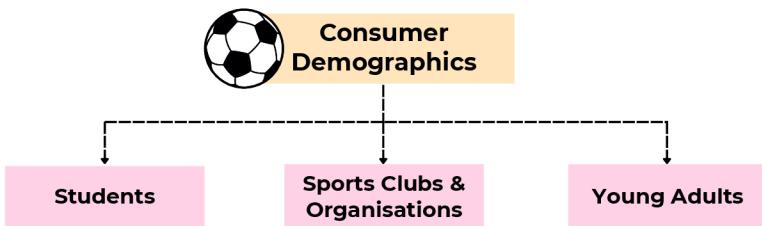
Estimate the number of footballs sold in India.



Solution

Interviewee: What is the duration for which I should estimate the no. of footballs sold?

Interviewer: Estimate it for 1 year.



Students:

Around 20% of the total Indian Population are students. Students and children play football recreationally in India, often without access to a proper football field. They may play in apartment parking lots or society grounds. In general, we can assume around 1 in 20 children have a football.

Total: $(20\% \times 15,000L) / 20 = 150L$.

Young Adults:

This age group of 18-26 years accounts for around 15% of the Indian Population. Here, mostly people go to sports clubs or have access to footballs in their colleges (if they are enrolled in them).

A very small proportion—about 0.5%—of this group purchases a football each year.

Total: $15\% \times 15,000L \times 0.5\% = 11.25L \sim 10L$.



Sports Clubs and other Organisations:

This section includes schools, colleges and sports clubs.

Sports Clubs:

We'll assume that a sports club purchases at least 25 footballs.

Sports Clubs are present only in Tier 1 and Tier 2 cities. We'll assume that there are around 200 sports clubs in Tier 1 Cities (8), and almost 50% of Tier 2 Cities (100) have 20 Sports Clubs.

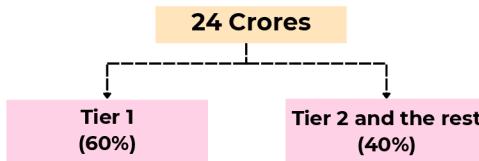
$$\text{Total: } (200 \times 8 + 50\% \times 100 \times 20) \times 25 = 0.65L$$

Schools:

We'll assume that age group 0-18 constitutes 20% of the Indian Population, and 80% of this population goes to school.

Therefore, Total Schooling Population = $20\% \times 80\% \times 150Cr = 24Cr$.

Assuming that on average total population of a school is around 1000 students in Tier 1 city schools and around 600 students in the rest of them.



Therefore, Schools in Tier 1 Cities = $(24Cr \times 60\%) / 1000 = 1.44L$ schools.

We'll assume schools in Tier 1 Cities purchase at least 10 footballs every year. This amounts to 14.4L footballs.

Schools in Tier 2 Cities and the rest = $(24Cr \times 40\%) / 600 = 1.6L$ schools.

We'll assume that around 5 footballs are purchased every year. This amounts to 8L footballs.

$$\text{Total: } 14.4L + 8L = 22.4L$$

Colleges:

We'll assume that the 18-25 age group constitutes about 15% of the Indian Population. We'll assume the graduation rate in India to be 75%.

Therefore, no. of college students = $15\% \times 75\% \times 150Cr = 16.88Cr$.

Assuming an average college strength of 750 students, we get $16.88Cr / 750 = 2.25L$ colleges in India.

We'll assume that 10 footballs are purchased in each college.

$$\text{Total: } 2.25L \times 10 = 22.5L$$

Hence, in this section, we have $0.65 + 22.5L + 22.4L = 45.5L$ footballs sold.

Therefore, we have $150Cr + 10L + 45.5L = 205L$ footballs sold every year.

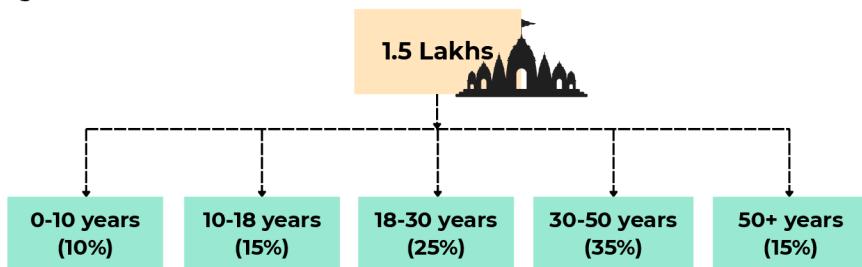


Estimate the number of chapatis consumed at Balaji Temple in a day.



Solution

Assuming the count of pilgrims visiting Balaji Mandir per day = 1.5 lakhs.
Let's divide them on the basis of age, as appetite can be influenced by age.



As the temple is based in South India, where rice is considered a staple diet.

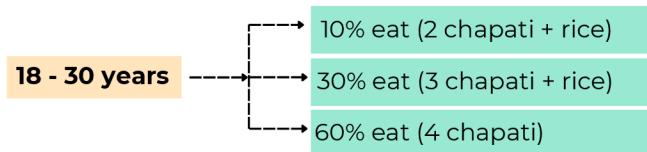
0 - 10 years

- 40% eat (only rice)
- 50% eat (1/2 chapati + rice)
- 10% eat (1 chapati)

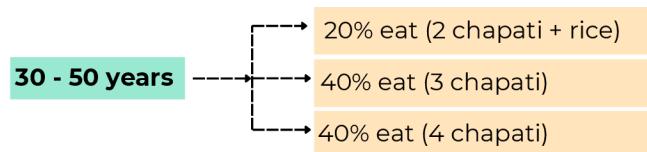
$$\text{Total: } (1.5L * 10\%) * (50\% * 1/2 + 10\% * 1) \sim 0.05L$$



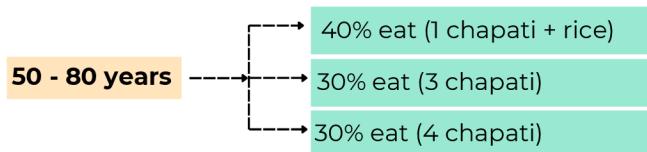
$$\text{Total: } (1.5L * 15\%) * (30\% * 1 + 40\% * 2 + 30\% * 3) \sim 0.45L$$



$$\text{Total: } (1.5\text{L} * 25\%) * (10\% * 2 + 30\% * 3 + 60\% * 4) \sim 1.31 \text{ L}$$



$$\text{Total: } (1.5\text{L} * 35\%) * (20\% * 2 + 40\% * 3 + 40\% * 4) \sim 1.68 \text{ L}$$



$$\text{Total: } (1.5\text{L} * 15\%) * (40\% * 1 + 30\% * 2 + 30\% * 3) \sim 0.43 \text{ L}$$

Final Total: 3.92L chapati are daily consumed in Balaji Temple

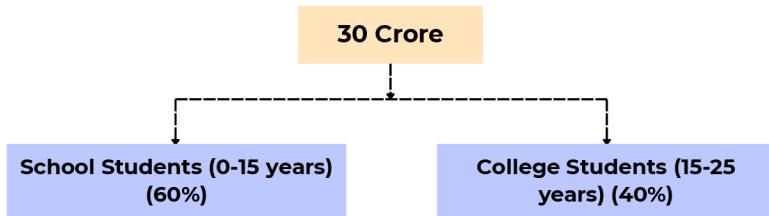


Estimate the average number of hours of sleep Indian students take per day.



Solution

Assuming Indian Students to be 20% of 150 Crore = 30 Crore



School students typically go to bed around 11:00 p.m. and wake up by 6:00 a.m. due to their school schedules, resulting in approximately seven hours of sleep each night.

For college students, the difference between weekdays and weekends significantly impacts their sleep schedules. Academic responsibilities, such as demanding coursework, ongoing assessments, and group projects, often disrupt healthy sleep routines.

We can estimate on regular weekdays sleep hours of college students to be around:

- 50% take a 6 hours sleep,
- 30% take 5 hours sleep
- 10% take 7 hours sleep
- 10% take only 4 hours sleep.

On weekends college students generally plan night outs or have to meet some extreme work due to assignments and deadlines. During weekends sleep hours can be estimated as:

- 25% take 6 hours sleep
- 40% take 5 hours sleep
- 35% take 4 hours sleep



Avg college student sleep:

$$\frac{\left[\begin{array}{c} 50\% * 6 \\ 30\% * 5 \\ 10\% * 7 \\ 10\% * 4 \end{array} \right] * 5 + 2 * \left[\begin{array}{c} 25\% * 6 \\ 40\% * 5 \\ 35\% * 4 \end{array} \right]}{7} \sim 5.4 \text{ hours}$$

Average hours of sleep: $60\% * 7 + 40\% * 5.4 = 4.2 + 2.16 = 6.36$ hours

Average number of hours of sleep Indian students take per day should be around 6 to 6.5 hours.



Estimate the number of non-fiction books sold in India per month.

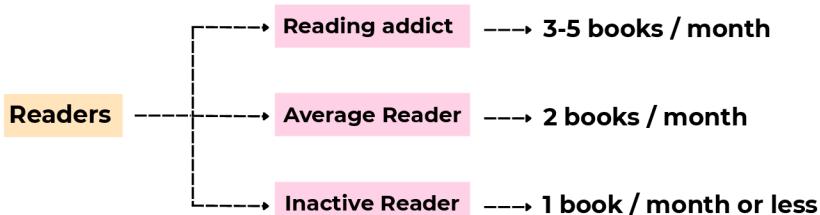


Solution

Interviewee:- Shall I consider the e-book purchases?

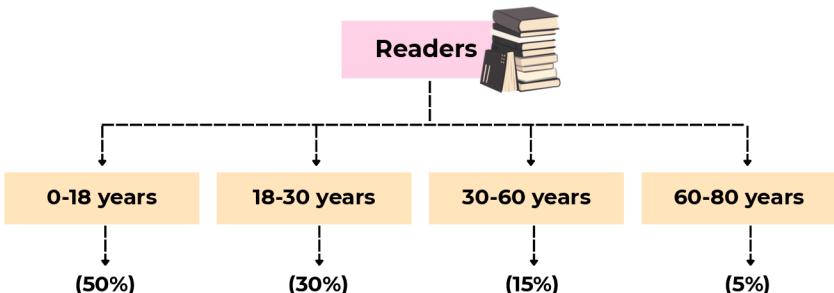
Interviewer:- Yes, you can.

Non-Fiction Books:- Magazines, novels, plays, philosophy, history, political discussions, etc. These are some categories that fall under the Non-Fiction Books. The further analysis will be based on book reading habits.

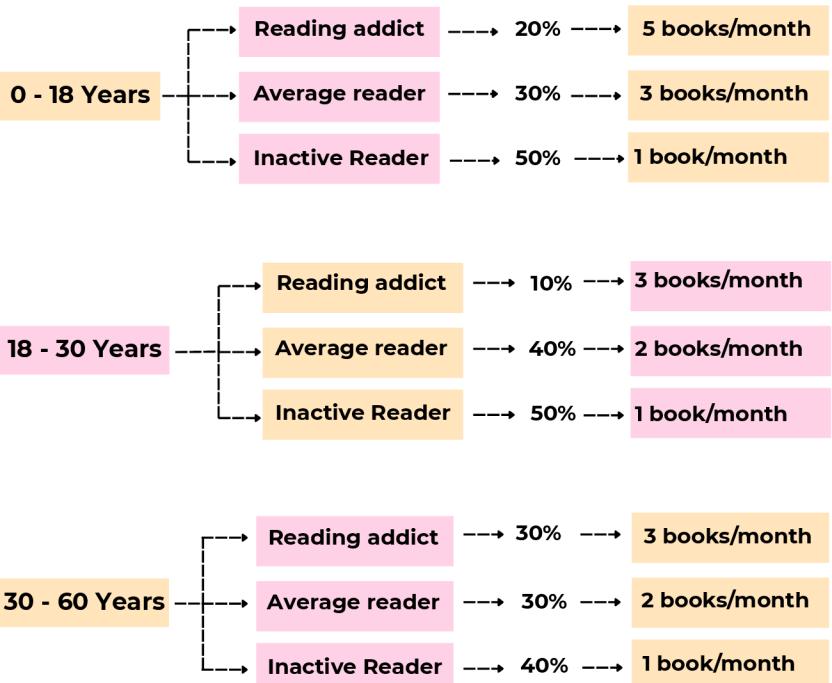


India's literacy rate is assumed to be **75%**.

That boils down our pool of possible readers to **75% of 150Cr = 112.5Cr**

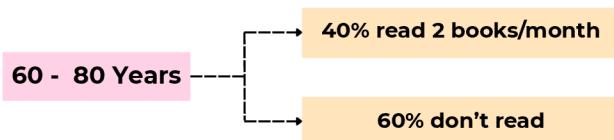


0-18 Years are school going and so they are expected to be highest amongst readers. We have here assumed a total of both physical books and e-books in this count.



60- 80 Years

Here people are of two categories, either addicted to books or have lost eye eyesight to read such books.



Total = 226 Cr

We have assumed a total of both physical books and e-books in this count.

Now we will divide them based on some assumptions and estimations.

- India is still new to the e-book. Only people with good tablets can access them.
- The number of e-books is expected to increase. We can assume that 10% of the total books have been purchased as online e-books.



Estimate the number of coffees ordered in CCD in a day in Mumbai.



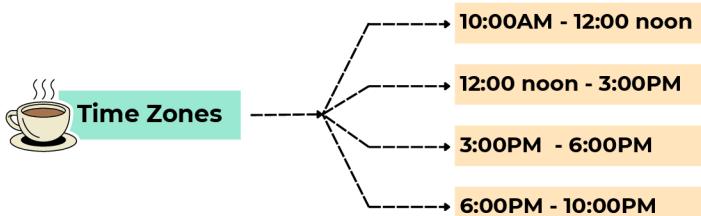
Solution

Interviewee: What number of CCD outlets should I assume in Mumbai?

Interviewer: Assume it to be 150.

Assume the working hours of CCD to be 10:00AM to 10:00PM.

Let's divide the time zones into various zones



Now, let's analyse the consumers going to CCD.

Generally, working professionals and youngsters are the only profiles who go to CCD.

The total population of Mumbai is 3 crores.

The population that is the targeted consumers for CCD is in the age group 18-40 years.

This is around 25% of the population, $2.5\% \text{ of } 3\text{Cr} = 0.75\text{Cr}$ people.

Out of a total 150 CCD outlets, we can expect around 100 to be in busy locations and the remaining 50 in comparatively less busy locations.

10:00 AM - 12:00 PM

This is the general time for breakfast. We expect a medium crowd here. In busy locations, we will assume 10 orders/hour. In less busy locations, we will assume 5 orders/hour.

Total = $10 \times 2 \times 100 + 5 \times 2 \times 50 = 2500 \text{ orders}$

12:00 Noon - 3:00 PM

This is lunchtime. CCD is not a preferred option for lunch. But it's also preferred by many corporations to have client meetings. In the busy locations, we will assume 7 orders/hour. In less busy locations, we will assume 3 orders/hour.

Total = 2550 orders



3:00 PM to 6:00 PM

This is peak snack time, we can expect maximum crowd now. In busy locations, we will assume 15 orders/ hour. In less busy locations, we will assume 10 orders/hour.

Total= $15 \times 3 \times 100 + 10 \times 3 \times 50 = 6000 \text{ orders}$

6:00 PM to 10:00 PM

This is dinner time. CCD might be visited by people for a quick snack or a meeting. In busy locations, we will assume 10 orders/hour. In the less busy locations, we will assume 3 orders/hour.

Total= $10 \times 4 \times 100 + 3 \times 4 \times 50 = 4600 \text{ orders}$

Total= $2500 + 2550 + 6000 + 4600 = 10,250 \text{ orders}$

Number of coffees ordered in CCD in a day in Mumbai is approximately 10.3K



Estimate the number of online shopping packages received by a household in India.



Solution

Interviewee: For what duration i have to make this estimation?

Interviewer: Estimate it for 1 day

Interviewee: Should i also include the food parcels received by households in this guesstimate?

Interviewer: No, don't include food packages.



If we don't include food packages, the online shopping packages will be brought from :

- General products and gifts purchased from Amazon, Flipkart, Meesho, Myntra, Nykaa etc.
- Groceries brought through delivery sites such as Blinkit.

Since the population of India is 150 Cr, we assume that 4 people live in one household.

The number of households in India is 37.5 Cr.

We assume that in India around 60% of the people have internet access. Out of the remaining 40%, many are children and senior citizens and we consider that if one person has internet access, the household will also have internet access thus, around 75% of the households have internet access.

Households that have internet access: $0.75 \times 37.5 \text{ Cr} = 28.125 \text{ Cr}$.

Women are the primary consumers of textiles and clothing.

So we will proceed with the problem by an income split, as well as the frequency with which households do online shopping. Also, urban and rural households have different shopping patterns.

As we are considering a household, we need not be concerned about age group-based division.



	Low Income (40%) (< 10 LPA)		Middle Income (35%) (10-30 LPA)		High Income (25%) (>30 LPA)	
	Urban	Rural	Urban	Rural	Urban	Rural
Active shoppers	15%	10%	50%	20%	60%	45%
Average shoppers	25%	20%	30%	30%	30%	30%
Below Average shoppers	60%	70%	20%	50%	10%	25%

Assumptions:-

- In every Income segment, we assume a 50-50% split in urban and rural areas.
- In low-income division, we expect one order in four months so we can consider that there are zero orders per day.
- In high-income division, urban and rural areas have prominent differences in online purchasing habits.

1.Urban areas:-

- Active shoppers buy one product each week.
- Average shoppers buy one product every 10 days.
- Below average shopper buys one product every month.

2.Rural areas:-

- Active shoppers buy 2 products every month.
- Average shoppers buy one product every month.
- Below average shopper buys no products.

- In average income division,

3.Urban areas:-

- Active shoppers buy 1 parcel every 10 days.
- Average shoppers buy one product every 30 days.
- Below average shopper buys one product every two months.

4.Rural areas:-

- Active shoppers buy products a month
- Average shoppers buy one product every 2 months.
- Below-average shoppers buy no product.

In order to calculate the parcels received per day, we will calculate for one month and then divide it by 30 days.



Total no of parcels received by high-income households :

$$28.125 * (0.125*(0.60*4 + 0.30*3 + 0.10*1) + 0.125*(0.45*2 + 0.30*1)) = 16.17 \text{ Cr}$$

Total no of parcels received by high-income households :

$$28.125*(0.175*(0.50* 3 + 0.30* 1 + 0.20* 0.5) + 0.175*(0.20*1 + 0.30*0.5)) =$$

$$11.07 \text{ Cr}$$

Total parcels purchased by households in India in one month is 27.24 Cr

Total parcels purchased by households in India in a single day is 90.8 lakh parcels.



Estimate number of smartphone users with 5G in India.



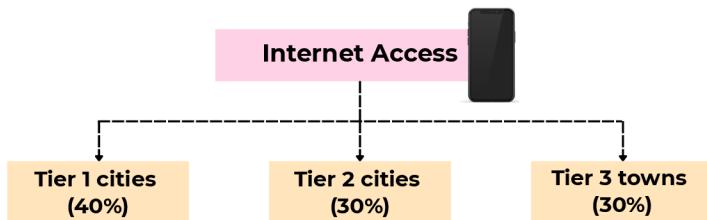
Solution

Total Indian population is 150Cr.

Assuming around 60% currently have Internet access

$$150\text{Cr} \times 60\% = 90 \text{ Crore}$$

Out of those 90 Crore people , 5G services from providers will be more subscribed in Tier 1 cities than villages and towns.



This population contains people from all age classes.

	Tier 1	Tier 2	Tier 3
0-18 years	20%	20%	15%
18-30 years	30%	30%	30%
30-50 years	35%	30%	30%
50-80 years	15%	20%	25%



We assume that population between 0-18 years and 50-80 years do not have access to 5G services.

We are making some assumptions for the population of age group 18-30 years and 30-50 years:

- All Tier 1 cities have access to 5G services.
- 80% citizens of Tier 2 cities and 50% citizens of Tier 3 cities have access to 5G services.

Total population that have access to 5G services is:

$$90 \text{ Cr} * (40\% * 65\% + 30\% * 60\% * 80\% + 30\% * 60\% * 50\%) = 28.08 \text{ Crore}$$

Total number of 5G smartphone users in India is 28.08 Crore.



Estimate average electricity consumption in India in a household in a day.



Solution

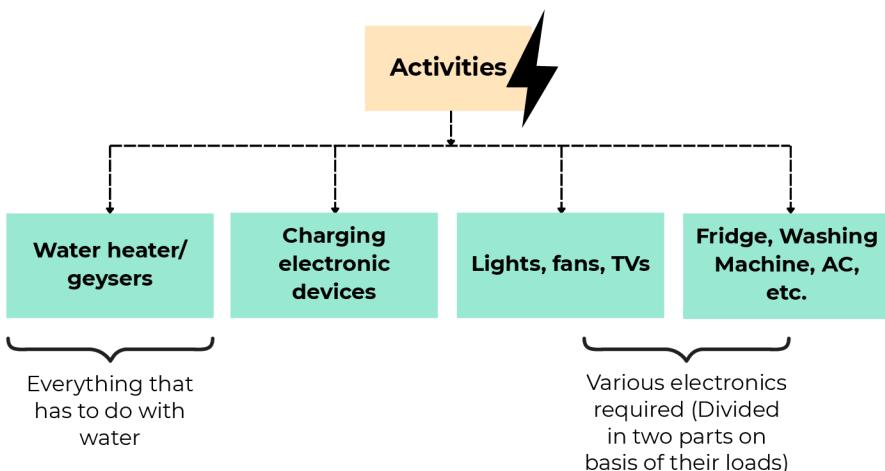
We can assume every village and city in India has an electricity facility. The first classification will be based on the lifestyle of a household.

Case 1: Urban lifestyle - Highly dependent on electronic devices for various day-to-day activities (**40%**)

Case 2: Rural lifestyle - Bare minimum use of electricity (**60%**)

The electricity consumption for various uses will vary in the two lifestyle cases will vary. But a basic understanding says that urban lifestyle consumption per household will be more than rural households.

We assume summer, winter, and rainy seasons to be four months. Let's analyze the various activities that demands electricity.





Urban Lifestyle:

India is a large country with cultural and geographical diversity, which will influence electricity usage. Some parts of India will use fans more, while some will use water heaters.

In four months of summer, we assume that daily, out of 24 hours in a day.

- 16 hours of fans are used (Average fan count per house = 3)
- People use the fridge 24 hours a day.
- Water heaters are not used.
- 40% of people have 1 AC in their home, and they use it for 8 hours/day
- TV is used for 4 hours daily.
- Washing Machines are used at least 4 hours/day (Clothes in the summer need to be washed more frequently)
- Electronic devices (phones, laptops, headphones, etc) are charged for 10 hours per day (The number of devices is assumed to be 4)

In the Rainy and Winter seasons, most numbers are the same except for:

- Fans are not used.
- Electric heaters/geysers are used for 2 hours/day.
- No ACs are used.
- Washing Machines are used for 2 hours/day.

Total hours of electricity in terms of hours used by an urban household per day:

- $16 * 3 * 4/12$ hours of fan per day
- 24 hours of fridge per day
- $2 * 8/12$ hours of heaters per day
- 40 hours of charging devices per day
- $(4 * 4/12 + 2 * 8/12)$ hours of washing machine per day
- 4 hours of TV per day
- $0.4 * 8 * 4/12$ hours of AC per day
- 80 hours of normal light sources per day

Rural Lifestyle:

Here the homes are assumed to be weak economically.

We assume everyone has fridge, only 30% people have washing machines, no one has ACs, desert coolers are used, average number of fans per household is 2.

Number of electronic devices per household is 2.



In summers, we assume that daily, out of 24 hours in a day.

- 16 hours of fans are used per day
- 8 hours of desert coolers are used per day
- 6 hours of TV per day
- Electronic devices are charged for 8 hours/day
- Washing Machines are used at least 4 hours/day (Clothes in the summer need to be washed more frequently)
- 24 hours of fridge/day

In Winters and Rainy seasons, we assume that out of 24 hours in a day:

- 6 hours of TV is used/day
- Electronic devices are charged for 8 hours/day.
- Water heaters are used for 1.5 hours/day.
- Washing Machines are used for 2 hours/day.

Total hours of electricity in terms of hours used by an rural household per day:

- $16 * 2 * 4/12$ hours of fans/day
- $8 * 4/12$ hours of desert coolers/ day
- 6 hours of TV/day
- 8 hours of electronic gadgets/day
- $1.5 * 8/12$ hours of water heaters/day
- 24 hours of fridge/day
- 80 hours of normal light sources/day
- $0.3 * (4 * 4/12 + 2 * 8/12)$ hours of washing machine/day

Let's assume power consumption by those devices as:

- Charging devices use 40W/hr
- Fans use about 80W/hr
- ACs use about 1000W/hr
- Water heaters use 1500W/hr
- TVs use 150W/hr
- Lights use 30W/hr
- Fridge uses 500W/hr
- Washing machines use 1000W/hr

Assuming the size of an Indian household to be 4, the household count is $150/4 = 37.5\text{cr}$.



Therefore, total power consumed by an urban household in a day is:
 $16 * 3 * 4/12 * 80 + 24 * 500 + 2 * 8/12 * 1500 + 40 * 40 + (4 * 4/12 + 2 * 8/12) * 1000 + 0.4 * 8 * 4/12 * 1000 + 80 * 30 \sim 23\text{kW}$

Total power consumed by rural household in a day:

$16 * 2 * 4/12 * 80 + 8 * 4/12 * 500 + 6 * 150 + 8 * 40 + 1.5 * 8/12 * 1500 + 24 * 500 + 80 * 30 + 0.3 * (4 * 4/12 + 2 * 8/12) * 1000 \sim 20\text{kW}$

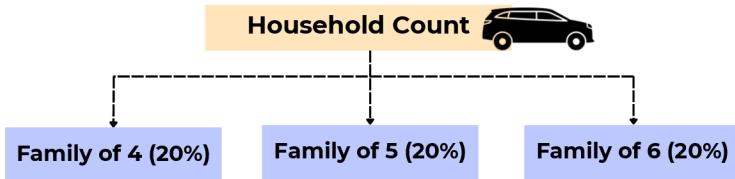
Therefore, total power consumed in India is :
37.5 cr * (40 % * 23 + 60 % * 20)kW ~ **795 Crore kW**



Estimate the number of SUVs sold in India in a year.



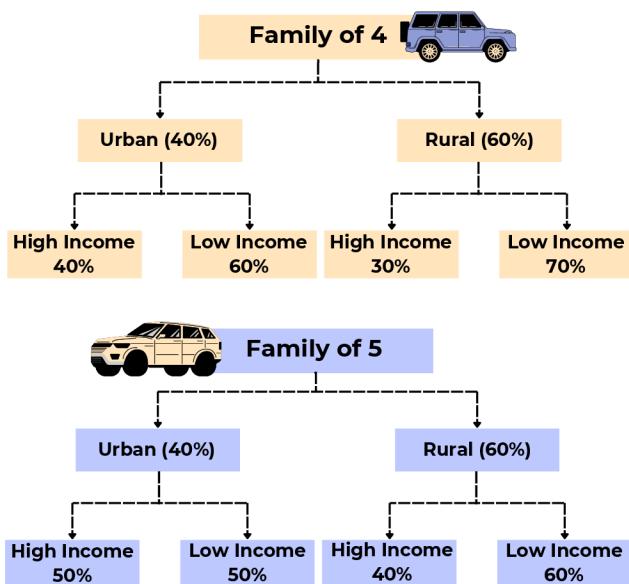
Solution

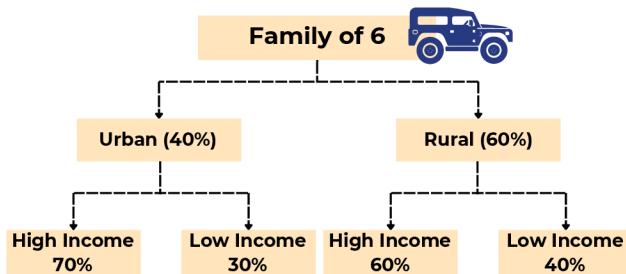


Assumptions

SUVs are generally purchased by families who have more than 5 members and are generally stronger economically.

We can assume these families have a total income of more than 30 LPA in rural areas of India and more than 60 LPA in urban areas of India. This difference is due to the difference in the lifestyles of those different backgrounds.





Total population of India = 150 Cr.

- Assuming around 10% of people do not have families as they live apart from their homes for their jobs, careers, etc.
- We can assume around 80% live in nuclear families of 3 people.
- At last we can assume around 20% live in families of 4, 5, and 6 people.

Assuming that in the high-income division

- 100% of families of 6
- 40% of families of 5
- 20% of families of 4

buy SUVs and that average life of a SUV car is 10 years

Total = 150 crores *20%*(0.167*(40%*70%+60%*60%)+0.2*40%*(40%*50%+60%*40%)+0.25*20%*(40%*40%+60%*30%)) ~ 4.3 crores
Number of SUVs sold in India in a year is 43 lakhs.



Estimate the number of ball pens sold in a day in India.



Solution

Ball pens are generally bought by students and professionals.

Age of students is in range of 0-25 years, accounting almost 40% of the population.

Assumption: Literacy rate for the of people in this age group is around 90%.

Total: $36\% \times 150 \text{ cr} = 54 \text{ cr people}$

Assuming, average 20% of 54 cr people buy a ball pen daily.

Total pens bought: **$20\% \times 54 \text{ cr} = 10.8 \text{ cr pens}$**



Apart from this, many colleges and companies purchase customized pens and generally, these are ball pens. We can assume such pens are given twice in 1 year.

We can assume that out of 54 cr students, 40% study in colleges.

This means, **0.12 cr pens** is bought by colleges in a day.

For companies, we can assume 50 times of the pens above as number of companies is much more than that of college.

Total pens bought: **$50 \times 0.12 \text{ cr} = 6 \text{ cr pens}$**

Total pens bought in a year: $10.8 \text{ cr} + 0.12 \text{ cr} + 6 \text{ cr} = 16.92 \text{ cr pens}$



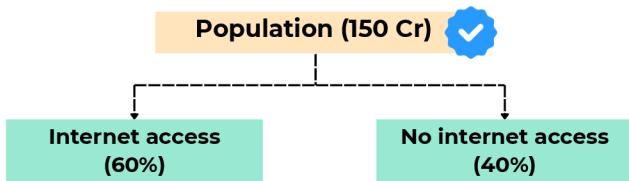
Estimate the average number of Instagram reels scrolled in India per person in a day.



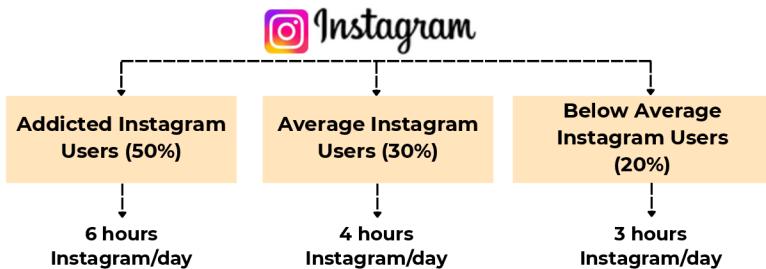
Solution

Population of India: 150 cr

Assuming 60% Indians have Internet access.



Out of this 60%, we divide the population on the basis of Instagram addiction.



Assuming the average reel duration is about 40 seconds.

The average number of Instagram reels scrolled in India per person per day is :

$$60\% * 150 \text{ cr} * (50\% * 6 \text{ hours} * 60 * 60 + 30\% * 4 \text{ hours} * 60 * 60 + 20\% * 3 \text{ hours} * 60 * 60) / 40 / 150 \text{ cr} \sim \mathbf{260 \text{ reels}}$$



Dividing the people on the basis of Internet Penetration & Smartphone availability:

In **tier 1 cities**, most of the people have hectic schedules that makes them more reliant on online orders. That's why we consider 40% of the total people who order at least once a day. And internet penetration here is almost 70%*

$$14 \times 0.7 \times 0.4 = 3.92 \text{ Cr} \sim \mathbf{4 \text{ Cr}}$$

For **tier 2 cities**, the case varies mostly in internet connectivity; roughly 50% have access to the internet there. Also, the work is in progress here for all kinds of companies to set up. Assuming 30% of the population here orders at least once a day.

$$28 \times 0.5 \times 0.3 = \mathbf{4.2 \text{ Cr}}$$

Coming up to our last category i.e. tier 3 cities which lack much in the internet making only 10% people have access to it. People here order occasionally only rather they prefer local vendors around. But still taking into account the upcoming developments we can consider that 25% people here order once a day.

$$98 \times 0.1 \times 0.25 = 2.45 \text{ Cr} \sim \mathbf{2.5 \text{ Cr}}$$

Therefore, the total orders would be around — 10.7 ~ 11 Crore orders



Estimate the number of packaged water bottles sold in India per day



Solution

The occasions at which people buy packaged water bottles are-

- While travelling by roads and trains.
- People visiting any eatery.

Trains:-

We assume there are 8 Tier 1 cities, with around 5 stations per city, that each station has 10 platforms, and that every platform receives around 40 trains per day.

Every train almost visits one Tier 1 city in its journey.

Therefore, we can assume the total train.

Total train count is: $8 * 5 * 10 * 40 = 16000$

We assume that on average, every train has 15 wagons and every wagon has around 40 seats.

People traveling per day are: $16000 * 15 * 40 = 96$ Lakh people travel per day.

We further divide the people based on the bottles purchased.

- 10% buy 1 bottle
- 30% buy 2 bottles
- 60% buy 3 bottles

Total bottles purchased by people travelling through train :

$96 \text{ lakh} * (0.10 + 2 * 0.30 + 0.60 * 3) = 240 \text{ Lakh bottles} \sim \mathbf{2.4 \text{ Crore}}$



Roads:-

We assume that around 10% of households in India own cars, and out of those, around 5% travel daily.

Here we consider long-distance traveling only.

We consider that on average each household has 4 members.

Total cars travelling = $0.10 * 150 / 4 * 0.05 = \mathbf{18.75 \text{ lakh}}$



We further assume that on average

- 30% of people travelling in a car purchase 2 bottles
- 40% of people travelling in a car purchase 3 bottles
- 30% of people travelling in a car purchase 4 bottles

Total number of bottles purchased by people travelling by bus is

$$18.75 * (0.30 * 2 + 0.40 * 3 + 0.30 * 4) = \mathbf{56.25 \text{ Lakh bottles}}$$

People Visiting Eateries:-

Generally people visiting eateries like restaurants, cafes and food stalls ,

We divide the people based on Tier 1, Tier2 and Tier 3.

Assumptions:-

- Every Tier 1 city has around 5000 cafes and 2000 restaurants. We assume that around 50 bottles are sold per day at a restaurant and cafe.
Total = $8 * (5000 + 20000) * 50 = \mathbf{28 \text{ Lakh}}$
- Tier 2 cities have around 1000 restaurants and 2500 cafes. We assume around 200 tier 2 cities.
Total bottles sold in Tier 2 cities are $200 * (2500 + 1000) * 20 = \mathbf{1.4 \text{ Cr}}$

Total packaged water bottles sold in India per day are 4.64 Cr



Estimate the revenue of OTT platforms in India in 2024.



Solution

Interviewee :- Should I estimate the revenue only for video streaming or include audio streaming as well?

Interviewer :- Consider only video streaming platforms.

We analyze some key market players in India in the OTT industry. Netflix, Amazon Prime Video, Disney + Hotstar, Zee5, Jio cinema, etc.

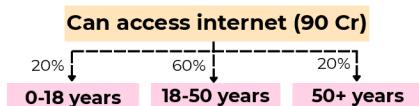


Assumptions:-

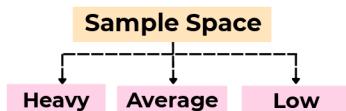
- Market size of Netflix and Amazon Prime is around 20%
- Disney + Hotstar has a market share of 40% (because of shows and cricket matches hosted by it).
- Other competitors in this market hold 20% of the market share.
- The average subscription price of Netflix in India is 200 INR.
- The average subscription price of Amazon Prime Video in India is 300 INR.
- The average subscription price of Disney Hotstar in India is 50 INR.

To estimate the total market size of OTT platforms, we first consider the people who can access the internet and then demographically divide this population.

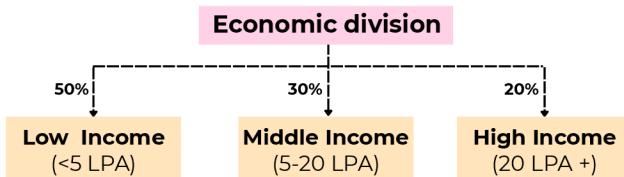
60% of people (90 Cr) can access the internet out of total population.



The population of the age group 18-50 years can be further divided on the basis of income and interest.



Based on interest in OTT platforms and entertainment



Interest	High Income	Mid-Income	Low Income
Heavy	60%	50%	50%
Average	30%	30%	25%
Low	10%	20%	25%

Assuming that people with low income own OTT subscriptions

People with heavy income and heavy entertainment lovers own at least one OTT subscription.

Rest we can assume 50% of people with mid income and heavy interest, average interest with high income own OTT subscription.

Total population investing in a OTT subscription was

$$90 \text{ Cr} * 0.60 * (0.20 * 0.60 + 0.20 * 0.30 * 0.50 + 0.30 * 0.50 * 0.50) = 12.15 \text{ Cr}$$

We calculate the monthly revenue by using the market share of top players.

- 20% of 12.15 Cr spent 200 INR/ month on Netflix.
- 20% of 12.15 Cr spent 300 INR/ month on Amazon.
- 40% of 12.15 Cr spent 50 INR/ month on Disney + Hotstar.
- For the remaining 20% market we assume that 180 INR/month is spent.

Total revenue earned by OTT platforms was :

$$12.15 \text{ Cr} * (0.20 * 200 + 0.20 * 300 + 0.40 * 50 + 0.20 * 180) = 1895.4 \text{ Cr}$$

Total revenue generated by OTT platforms was 1895.4 Cr in 2025



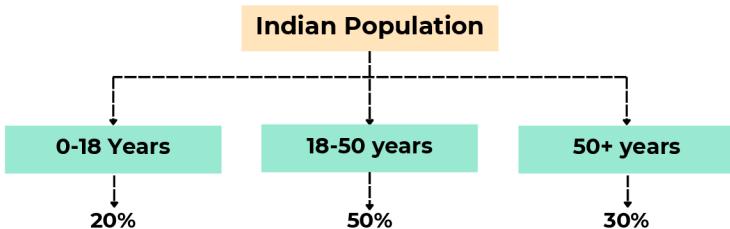
Estimate the market size of formal ties in India on an annual basis.



Solution

Formal ties are generally purchased by corporate employees. This is the highest market sector for this industry.

Total Indian population is 150 crore.



Assumptions

Employment rate of India is 75%.

The individuals who are employed and living in cities who generally work in corporates will form the perfect market for formal ties.

Urban rural split as 30:70.

In cities, we can assume around 40% jobs require tie in their formal attire.

Therefore final answer:

Total : $150 \text{ crores} * (50\% * 75\% * 30\% * 40\%) = 6.75 \text{ crores}$

Market size of formal ties in India is about 6.75 crores.



Estimate the number of shampoo bottles sold in India in a year.



Solution

Shampoo is used by almost everyone in India. Shampoo bottles are of various sizes. Safely, we can assume three sizes of bottles: 50ml, 100ml, and 500ml bottles.

People living alone generally buy packets or small bottles of shampoo while people living in families generally buy the 500ml bottles.

Assuming 60% people live in families (considering average family size as 5): $(60\% \times 150 \text{ cr})/5 = 18 \text{ cr families}$.

A bottle of 500ml shampoo can get exhausted in 2 months by a family of 5.

Bottle used in a year: **$6 \times 18 \text{ cr} = 108 \text{ cr bottles}$**

Out of remaining 40%, we can assume that 50% people buy bottles of 50ml and the rest 50% buy bottles of 100ml.

Assuming on an average, 50ml bottles get used up in 1 month and 100 ml bottle gets used up in 2 months.

Bottles used in a year: **$40\% \times 50\% \times 150 \text{ cr} \times (12+6) = 540 \text{ cr bottles}$**

Total bottles used in a year: $180 \text{ cr} + 540 \text{ cr} = 720 \text{ cr bottles}$





Estimate the number of laptop bags sold in Kolkata per year.



Solution

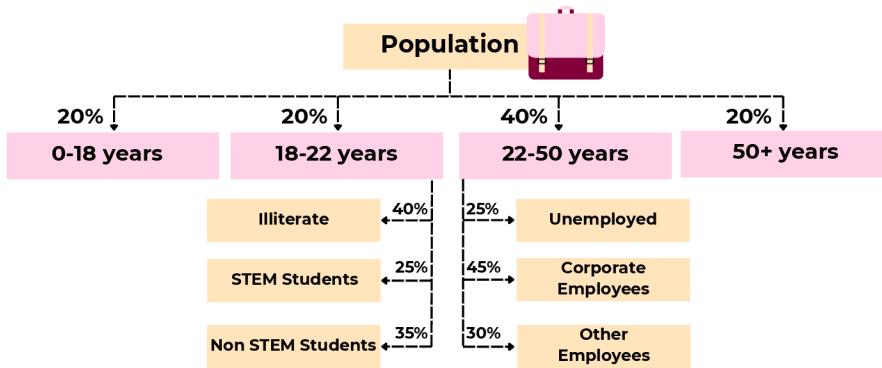
Interviewee: What population of Kolkata should I assume?

Interviewer: Assume it to be 50 Lakh

Kolkata is a city but it's many times referred to as (the) least urban Indian city.

Laptops are purchased generally by:

- Corporate Employees
- STEM Students



Assumptions:

- Assuming average laptop life to be 5 years
- Assuming that people generally buy laptop bags only with laptops

$$\text{Total : } 50 \text{ lakhs} * (20\% * 25\% + 40\% * 45\%) / 5 = 2.3 \text{ lakhs}$$

Number of laptop bags sold in Kolkata in a year is about 2.3 lakhs.



Estimate the number of LCD/LED TVs sold per year in India.



Solution

Interviewee: Should I consider second hand TVs as well?

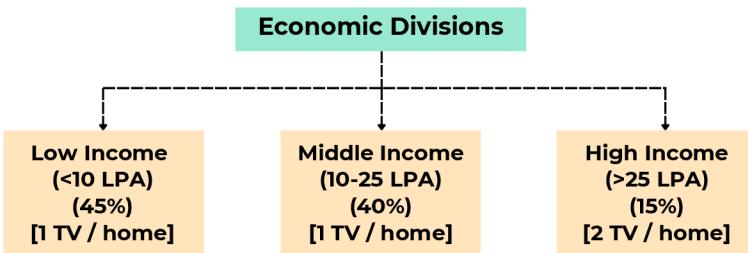
Interviewer: Yes.

TVs are generally purchased by households.

India's population = 150 cr

Number of family members in average sized family = 4

Total households = **37.5 cr**



We can safely assume that almost every households has TV. Average TV life in such households can be assumed as 10 years.

High and middle income class households do not buy second hand TVs.
Total TVs: **(40%*37.5 cr + 15%*37.5 cr)/10 = 2.0625 cr**

In the low income class people, we can assume that generally second hand TVs are bought and average life is same as 10 years.

Total TVs: **(45%*37.5 cr)/10 = 1.6875 cr**

Total number of TVs: 3.75 cr



Estimate the number of water coolers sold in Delhi in a year.



Solution

Interviewee:- What population of Delhi should I assume?

Interviewer:- Assume it to be 3 crore.

Our prime customers for water coolers are : Schools, Colleges and Households.

Households

Total Households count = 0.75 Crore = 75 Lakhs

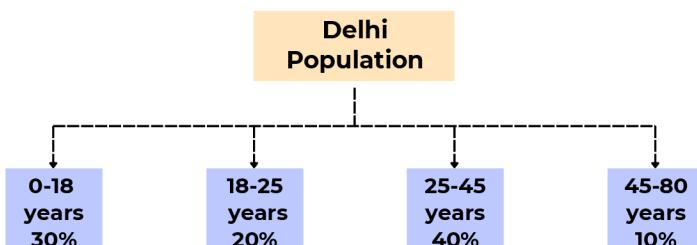
Assuming around 10% of the household buy water coolers every year.

10% of 75 Lakhs = 7.5 Lakhs

Schools and Colleges

We can assume around 10 water coolers per school and 30 water coolers per college are purchased once in 5 years.

In a city like Delhi, where there are endless opportunities for jobs, education, etc. we can assume a high number of schools and colleges.



Assuming literacy rate in Delhi to be around 80%.



0-18 Years :

These are the school going students. Assuming on an average 1000 students per school.

We can estimate - $\frac{80\% \times 30\% \times 3 \text{ crore}}{1000}$ Schools

Water coolers = School count $\times 10/5 = 14,400$ water coolers.

18- 25 years :

These are college-going students. We can assume around 2500 students/college

We can estimate- $\frac{80\% \times 20\% \times 3 \text{ crore} \times 30}{2500 \times 5} = 1920$ water coolers

Total final answer= 7.7 lakh watercoolers



Estimate the number of gym goers in India.

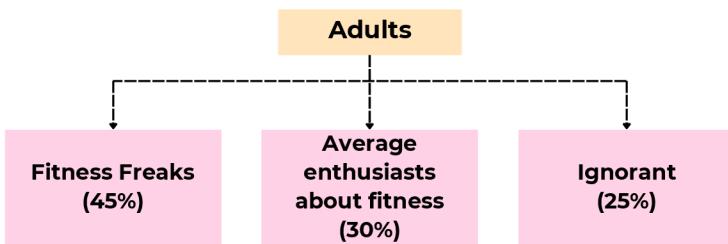


Solution

Generally people of age groups 18–40 years (adults) go to gym. Assuming that this population is around 40% of total population, its equal to about 60 crores.

Let's divide this population on basis of interest in fitness.

With current social media marketing around gyms and physical fitness this industry is seeing good raise in profits.



Assumptions

- Ignorant people do not go to gym.
- Among fitness freaks almost 90% go to gym.
- Among the average enthusiastic people, around 60% go to gym, out of which 70% are regular visitors.

Total : $60 \text{ crores} * (45\% * 90\% + 30\% * 50\% * 70\%) = 30.6 \text{ crores}$

Number of gym goers in India is about 30.6 crores.



Estimate the LPG gas usage in a household per month in India.



Solution

Interviewee: In what units should I calculate the answer?

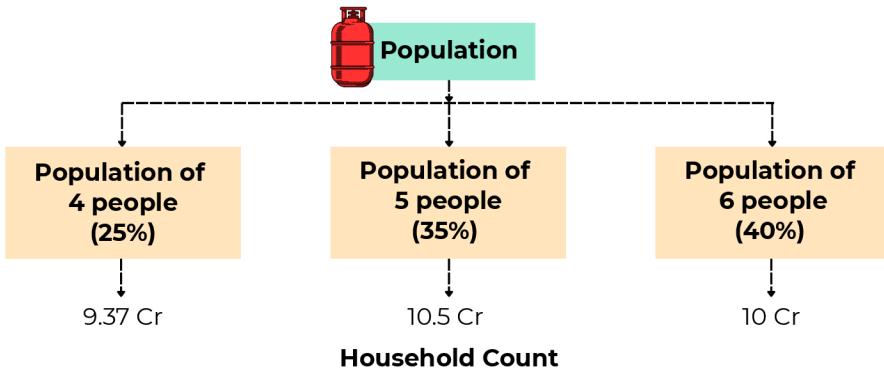
Interviewer: You can give a final answer in terms of cylinders.

With the present government initiatives and efforts, almost every household has LPG gas.

LPG gas is generally only used for cooking.

LPG gas is generally only used for cooking.

We assume the general count of family members as 4, 5, or 6.



Assuming that

- Household of four consumers, one gas cylinder in 3 months
- Household of five consumers, one gas cylinder in 2 months
- Household of six consumers, one gas cylinder in 1 month.

**Total: $9.37\text{Cr} \times 4 + 10.5\text{Cr} \times 6 + 10\text{Cr} \times 12 \sim 220.48\text{Cr}$,
 $220.48/12 \sim 18.37 \text{ Cr LPG cylinders are used monthly}$**

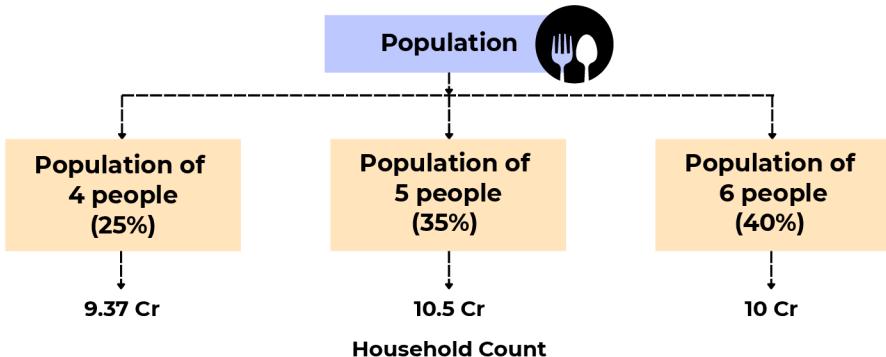


Estimate the number of families visiting restaurant once a week in India.



Solution

Let's first analyse the households in India



Visiting restaurants is still considered an option for slightly economically well doing families.

	Family of 4	Family of 5	Family of 6
High Income (> 25 LPA)	25%	20%	20%
Middle Income (15 - 25 LPA)	35%	30%	35%
Low Income (< 15 LPA)	40%	50%	45%



We assume,

- Every high-income household visits restaurants once a week (at least)
- 40% of middle-income families of 4, 50% of 5 and 6
- None from low income family generally visit restaurant once in week

Total: $25\% * 9.35 + 20\% * 10.5 + 20\% * 10 + 40\% * 35\% * 9.35 + 50\% * 30\% * 10.5 + 50\% * 35\% * 10 = 11.07$ Cr Families visit restaurant once a week.



Estimate the number of water heaters sold per year.

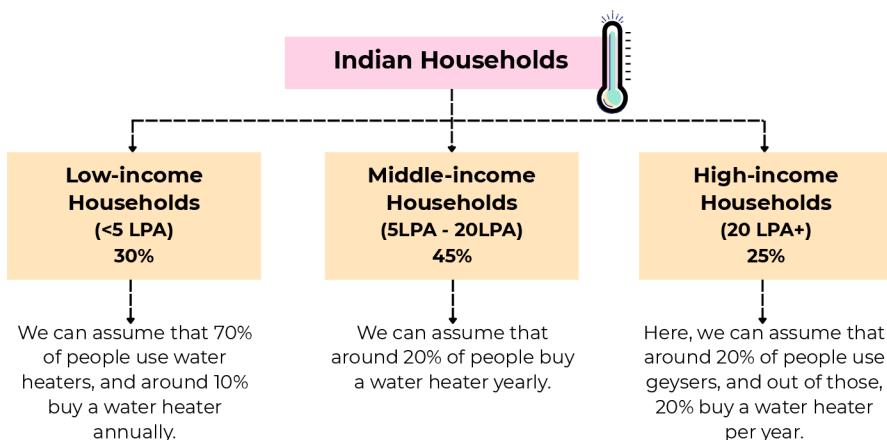


Solution

Here we will estimate number of Immersion rods and geysers. Let's make an economic division of Indian households.

$$\text{Total households} = 150\text{Cr}/4 = \mathbf{37.5\text{Cr Households}}$$

People generally buy water heaters in the rainy and winter seasons. They do not buy them in the summers. Poor households typically maintain heaters more. Lifestyle in India has improved, so almost every household uses hot water. More affluent households have moved to better options like solar heaters and panels.



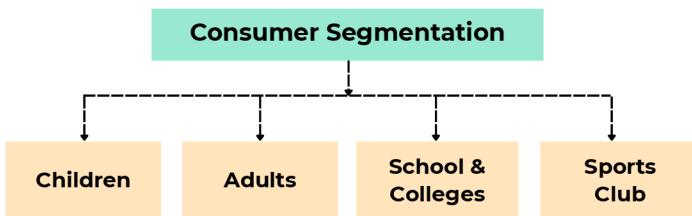
Total: $37.5\text{Cr} * (30\%*70\%*10\% + 45\%*20\% + 25\%*20\%*20\%) \sim 4.54 \text{ Cr}$
water heater are sold per year



Estimate the market size of the cricket bat industry in India.



Solution



Children:

Approximately 20% of the total population falls within the 0–18 years age group.

About 70% of them are cricket enthusiasts who buy bats.

$$\text{Total} = 70\% * 20\% * 150 \text{ Cr} = 21 \text{ Cr}$$

Enthusiastic Adults:

The age group 18–35 years constitutes approximately 15% of the total population.

We assume that around 30% of individuals in this group are able to take time to play cricket and therefore own bats.

$$\text{Total} = 30\% * 15\% * 150 \text{ Cr} = 6.75 \text{ Cr}$$

Schools and Colleges:

From above, children population is around 20%. Assuming literacy rate in this age to be around 80% and student size in a school to be around 1000, we get:

$$20\% * 80\% * 150 \text{ Cr} / 1000 = 2.4 \text{ lakh schools}$$

Assuming on an average per school buys 5 bats.

$$\text{Total} = 12 \text{ Lakh.}$$



For colleges, the student age group is approximately 18–25 years, which makes up about 15% of the total population. Assuming a literacy rate of 75%, an average college with 2,500 students, and that each college purchases 20 bats, we get:

$$15\% * 75\% * 150 \text{ Cr} * 20 / 2500 = 13.5 \text{ lakh}$$

Sports Club:

Assuming that, on average, a Tier-1 city has 200 sports clubs with good cricket facilities, and there are 8 Tier-1 cities in India. Similarly, assuming a Tier-2 city has around 50 clubs on average, and there are approximately 100 Tier-2 cities in India. Finally, we assume that each club purchases around 25 bats.

$$\text{Total} = (200 * 8 + 50 * 100) * 25 = 1.65 \text{ lakhs.}$$

Total: 21 Cr + 6.75 Cr + 0.135 Cr + 0.0165 Cr = 27.9015 Cr ~ 28 Cr

Therefore, the cricket bat industry size in India is 28 Cr.



Estimate the number of Weddings conducted per year in India



Solution

Interviewee: Should court marriages also be considered?

Interviewer: Yes.

In India, the prime wedding seasons are from November to January and from April to June.

We will consider maximum weddings happening in these months. The average age of marriage in India is around 26 years for men and 23 years for women. It is assumed that the majority of marriages take place by the age of 30. India's sex ratio can be considered approximately 50:50.

Males:-

Males from 25–30 years constitute around 20% of the total population..

Out of this we assume around 50% are already married and 25% are planning to get married this year.

Total: $25\% \times 20\% \times 50\% \times 150 \text{ Cr} = 3.75 \text{ Cr}$

Thus, a total of 3.75 crore males are planning to get married this year

Females:-

Females in the 23–30 age group constitute around 20% of the population. Of these, let's assume that approximately 50% are already married.

Among the remaining 50%, around 40% are planning to get married, as women are often encouraged to marry earlier.

Total: $40\% \times 50\% \times 20\% \times 150 \text{ Cr} = 6 \text{ Cr}$

So, approximately 6 crore women are planning to get married this year.

As the count of males is less, we can assume that to be the count of marriages.



Total = 3.95 Cr marriages

Additionally 10% marriages can be considered which will be court marriages = 0.395 crore

Total = 4.18 Crores

Therefore, a total 4.18 Cr weddings are conducted per year in India.



Estimate the revenue of McDonald's outlets from burger sales.



Solution

Interviewee: Should I estimate revenue for 1 day or 1 month?

Interviewer: Estimate it for a day.

Interviewee: Should I consider only dine in order?

Interviewer: Yes.

Let's first try to calculate the number of McDonald's outlets in India.

Assumption:

- There are 8 Tier-1 cities and around 100 Tier-2 cities in India that have outlets. The rest can be assumed to not have such an option.
- We can also assume that there are 50 outlets in tier 1 cities and 1 outlet in tier 2 cities.

Total outlets: **8*50 + 1*100 = 500 outlets**

McDonald's see a good rise in revenues on weekends than on weekdays.

On a weekday: We can assume that on regular weekdays, outlets in Tier-1 cities receive around 200 orders per day, while those in Tier-2 cities receive around 100 orders per day.

On a weekend: We can assume that on weekends, outlets in Tier-1 cities receive around 400 orders per day, while those in Tier-2 cities receive around 200 orders per day.

Total average orders every day: **(400*200*5 + 100*100*5 + 400*400*2 + 100*200*2)/7 = 1.15 lakh orders**

McDonald's has a decently large variety of burgers but we can safely assume around Rs. 150 as the price of one burger.

Total revenue: 1.15 lakh*150 = 1.72 crore orders.



Estimate the number of soaps sold per day in India.



Solution

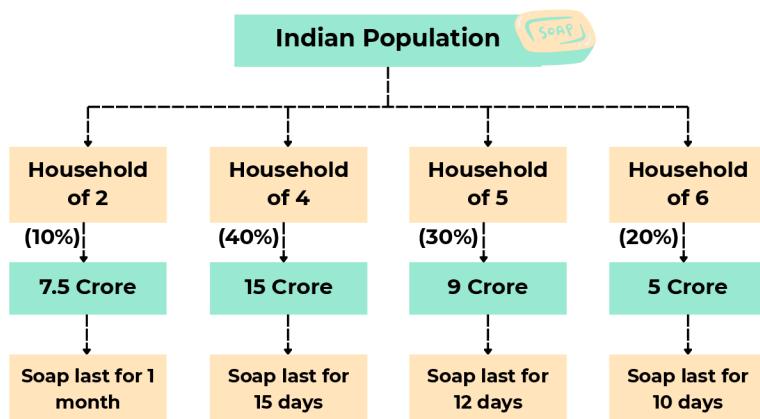
Interviewee: Should I consider only normal soap or liquid or paper soaps?

Interviewer: Consider normal and liquid soaps only.

Interviewee: Should I consider soaps used for bathing only or for other purposes like washing utensils, etc?

Interviewer: Consider only bathing soaps.

In India, primarily solid soaps are used. Liquid soaps are used by people who are generally travelling multiple times and have some skin issues. We can assume liquid soaps sold to be 10% of the total solid soaps sold. Assuming on average a solid soap is used by one man within 60 days.



Soaps purchased in one month
= $7.5\text{Cr} \times 1 + 15\text{Cr} \times 2 + 9\text{Cr} \times 2.5 + 5\text{Cr} \times 3$

= 75Cr soaps sold in one month

= 2.5 Crore solid soaps sold per day.

Additionally, 10% liquid bathing soaps, constituting a total of **2.75 Crore** soaps per day



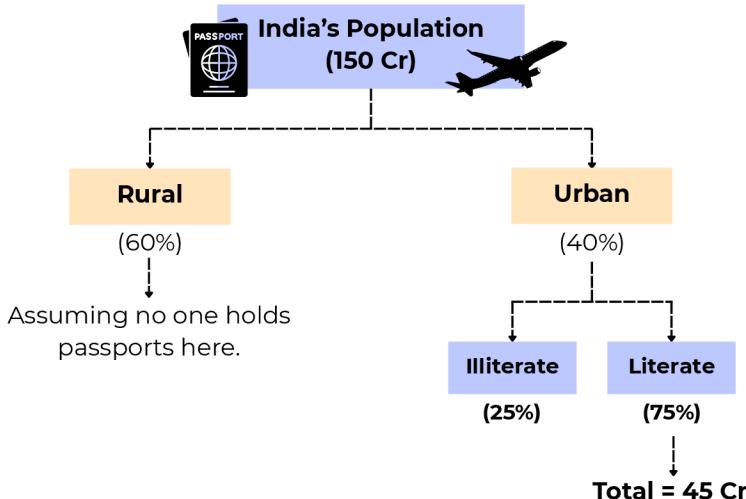
Estimate the number of people in India with passport.



Solution

Generally, people from urban background have more passport holders. Literacy matters as well. We can safely assume that illiterate people do not have passports.

Assuming India's literacy rate is 75%,



Out of urban literate people, we can assume an economic divide of:



Total= 20.25 Crore passport holders in India.

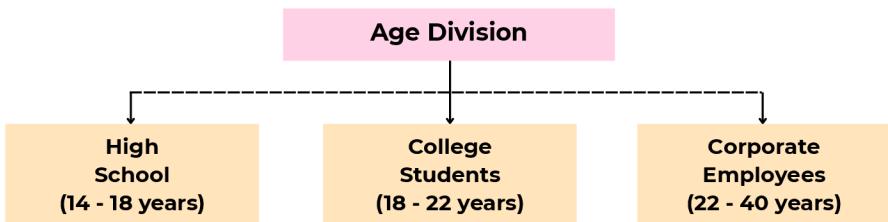


Estimate the total number of Gmail accounts in India.



Solution

Generally, people having Internet access have atleast one gmail account . Apart from general use some people have multiple gmail accounts. High School, College students and corporate employees have multiple accounts.



High school students :- 14-18 years of age.

We assume around 5% of total population constitute this group.

We assume these people have two gmail accounts per head.

$$\text{Total : } 5\% \times 150 \text{ Cr} \times 2$$

$$= 15 \text{ Crore}$$

College Students :-

Generally this age group (18–22 yrs) makes up around 10% of total Indian Population. Assuming a literacy rate of around 90% here.

Here we assume 3 accs / head where two are personal & one is college Gmail ID.

$$\text{Total : } 150 \text{ Cr} \times 10\% \times 90\% \times 3$$

$$= 40.5 \text{ Crore}$$

Corporate Employees :- 22–40 years of age

We can assume that around 40% of the population falls within this age group. It is also assumed that each person in this group has approximately three Gmail accounts — two personal and one provided by their company.

$$\text{Total : } 40\% \times 150 \text{ Cr} \times 3 = 180 \text{ Cr}$$



In these above age groups, we can assume around 90% people have internet access.

$$\text{Total} = 90\% \times (180 + 40.5 + 15) \text{ Cr} = 211.95 \text{ Cr}$$

For the remaining 45% of the population, we estimate that around 50% have internet access and maintain one Gmail account. .

$$\text{Total} = 45\% \times 50\% \times 150 \text{ Cr} = 33.75 \text{ Cr}$$

$$\text{Total} = (211.95 + 33.75) \text{ Cr} = 245.7 \text{ Cr} \sim 246 \text{ Cr}$$

Total 246 Cr Gmail accounts in India.



Estimate DAU of any quick commerce services.



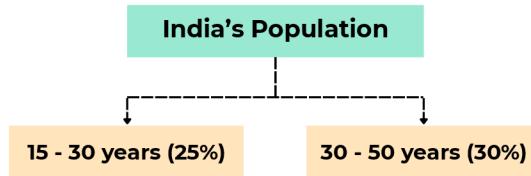
Solution

DAU stands for Daily Active Users. Currently, India is a booming space for quick commerce services with companies like Blinkit, Instamart, Bigbasket.



Users of such apps are generally youngsters and working class people. We can consider that children, particularly those aged 0–15 years, are not among those users.

Moving on to our active users.



15–30 years → This age group comprises of youngsters, young adults and adults. These people are the most active users of such apps.

Such apps are generally actively used in urban cities of India. Such companies have not tapped into rural India.

We assume a 40:60 urban rural split in India.

Out of these people:



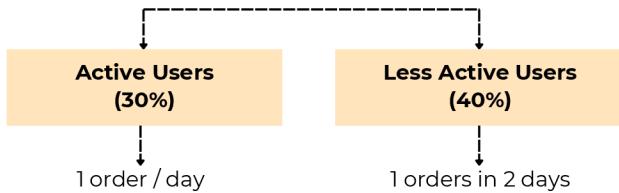


Assuming the population of India to be 150 cr.

$$\text{Total} \rightarrow 150 \text{ Cr} \times 25\% \times 40\% \times (30\% \times 2 + 40\% \times 1) = 15 \text{ cr}$$

30–50 years → People generally buy groceries and similar products here.

Similar division can be made for this category :



$$\text{Total} = 150 \text{ Cr} \times 30\% \times 40\% \times (30\% \times 1 + 40\% \times 2) = 19.8 \text{ cr}$$

Total 34.8 Crore DAU of any quick commerce services.



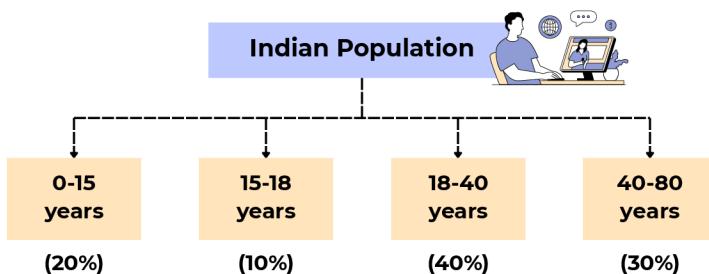
Estimate the number of people who read digital newspaper everyday.



Solution

Interviewee: Should I consider people with multiple subscriptions of such newspapers as different users?

Interviewer: Yes



Assuming the population of India to be 150 cr.

Currently, reading of the newspaper is a declining habit.

People are either moving to digital newspapers or online news applications like Google News, Inshots, etc.

0-15 years:-

People here don't have internet access, and it can be assumed that no one reads digital newspapers.

15-18 years:-

Here, people generally have internet access but are hesitant about digital newspapers.

We can assume that around 5% of people read only one digital newspaper daily.

$$\text{Total} = 150\text{Cr} \times 10\% \times 5\% \times 1 = 75 \text{ lakhs}$$

18-40 years:-

Here, people should be categorized based on the usage of newspapers.

Sample Space →
College Students (50%)
Employees (30%)

The remaining 20% are unemployed and illiterate people.



It can be assumed that around 30% of college students use digital newspapers, out of which 20% have 2 subscriptions and 10% have 1 subscription.

$$150\text{Cr} \times 40\% \times 50\% \times (20\% \times 2 + 10\% \times 1)$$

Total = 15 Cr

For employees, we can assume that around 60% are corporate employees, and almost all of them have 3 digital newspaper subscriptions

$$\text{Total} = 150\text{Cr} \times 40\% \times 30\% \times 60\% \times 3 = \mathbf{32.4 \text{ Cr}}$$

40-80 years:-

We assume that here people are old and prefer traditional hard copy newspapers and hence there would be negligible subscribers.

$$\text{Total} = 0.75\text{Cr} + 15\text{Cr} + 32.4\text{Cr} = 48.15 \text{ Cr} \sim \mathbf{49\text{Cr}}$$



Estimate the number of SRK fans in India.

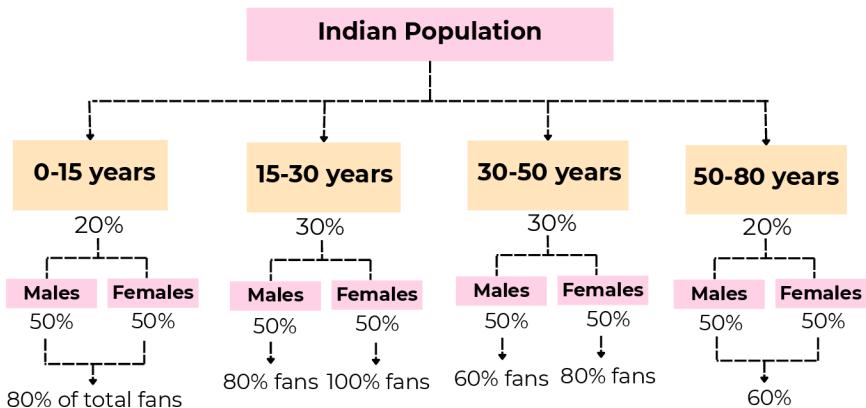


Solution

Shah Rukh Khan is an extremely famous Bollywood celebrity.

We can safely assume that every Indian knows about him.

Girls form a majority of the fan base of the actor.



Total Fans : $150 \text{ cr} * (20\% * 80\% + 30\% * 50\% * 80\% + 30\% * 50\% * 100\% + 30\% * 50\% * 60\% + 30\% * 50\% * 80\% + 20\% * 60\%) = 114 \text{ cr}$



Estimate the number of routers sold in India per year.



Solution

Routers are purchased by individuals in their homes, corporate offices, banks, cafes, restaurants and malls.

On an average, we can assume average life of a Wi-Fi router is 5 years.

Households : We will assume that Indian households consist of 4 members, therefore there are 37.5 crore households.

In India, the upper income class (>20 LPA) people only purchase routers. These account for 30% households.

Therefore, the total number of households purchasing router per year are : $(37.5 * 30\%) / 5 = 2.25$ crores.

Corporate Offices and Banks : We can assume a total of 20 routers are required by one corporate office and bank.

Generalizing the number of offices and banks in India, where we are seeing a noticeable shift and expansion in corporate world, we can say there are around 30 lakh offices and 40 lakh banks operating offices and branches.

Therefore, total number of corporate offices and banks purchasing router per year are : $(30 \text{ lakh} + 40 \text{ lakh}) / 5 * 20 = 2.8$ crore.

Restaurants, Cafes and Malls : We can assume there are around 5000 malls having a total of 100 routers each.

Apart from this, for restaurants and cafes we can assume there are around 1 crore restaurants and 50 lakh cafes.

Out of this, we can assume 40% of them have a router.



Therefore, the total number of routers purchased by restaurants, cafes and malls purchasing routers per year are : $(5000 * 100 + 1.5 \text{ Cr} * 0.4)/5 = 0.13 \text{ Cr}$

Therefore, **the total number of routers purchased in India per year are :**
 $2.25 \text{ Cr} + 2.8 \text{ Cr} + 0.13 \text{ Cr} = \mathbf{5.18 \text{ Cr}}$



About Communiqué

Established in 2006, Communiqué is the official soft skills society of the Indian Institute of Technology Kharagpur. Since its inception, Communiqué has been carrying the legacy of empowering students with the necessary skills to build successful careers.

Here's a glimpse into the diverse range of initiatives undertaken by Communiqué:

- **Global Model United Nations (GMUN): GMUN is our biggest and Annual flagship event.** It has been endorsed by various Indian ambassadors across the globe, including those from Canada, Armenia, and Santiago. This international simulation of the United Nations brings together students from around the world to engage in diplomacy, negotiation, and debate on pressing global issues. Participants assume the roles of diplomats representing different countries and tackle some of the most pressing issues in global governance. GMUN also facilitates valuable networking opportunities and cultural exchange.
- **Placement Bootcamp:** An intensive week-long program designed to help students gain industry-relevant knowledge across six key fields: Software Development, Consulting, Data Science and Analytics, Product Management, Core, Finance and Investment. Each session is led by experienced professionals and covers a range of topics, including career journeys, recruitment process, key attributes recruiters value, preparation strategies, internship opportunities, and general career advice.



About Communiqué

- **Internship Training Week:** A series of sessions equipping students with skills and insights for internships. These cover various fields including Finance, Consulting, Core, Product, Software Development, and Data. We also organize a CV Review Drive where seniors provide feedback to improve students' CVs and a Mock Interview Drive where students experience real-world interviews and receive feedback from mentors.
- **Communiqué's Medium Publication:** This platform features a series of interviews with IIT Kharagpur alumni and students who have secured positions or internships in prestigious companies across diverse sectors. These interviews are categorized into several series, each focusing on a specific industry or role, including Product Management, FMCG, Consulting, Finance, Data Analytics, Core Engineering, and Software Development.

Overall, Communiqué IIT Kharagpur offers a variety of programs and resources to help students develop their soft skills, gain industry knowledge, and prepare for successful careers.