Top Guesstimate Questions to Nail Your Next Interview

What Is a Guesstimate?

The term “guesstimate” is a portmanteau of “guess” and “estimate.” Guesstimates are approximations based on the available limited information. A guesstimate is an information-based guess, not an accurate answer.

Guesstimates have the following five characteristics:

* Meaning: Understanding the problem, figuring out its purpose, and why you want to solve it
* Definition: The explanation, the object in question, and the input/output of the process flow
* Guessing: Thinking and reaching a conclusion
* Estimate: Coming up with an estimate based on the numbers you must work with
* Generate an idea: Taking the concept and implement it with research and development

Tips for Data Science Guesstimate Questions

Although guesstimate questions don’t produce pinpoint accurate answers, you can still embrace certain habits and tactics that can improve the quality of your answers. Keep these tips in mind:

* Remember, there's no such thing as a correct answer: So please don't get yourself worked up looking for a precise solution; it's not going to happen.
* Write things down: Write every part of the question down, and if the question requires segmentation, create a flowchart showing each segment. The interviewer may want to see your calculation sheet, so don’t make the sheet illegible or filled with rough calculations.
* Practice rounding: Don’t be worried about fractions or decimals—round your figures to the nearest whole number.
* Facts top feelings. Avoid relying on your gut feelings. Logic and facts (even if you have only a few) carry more weight than how you feel or believe.
* Stay unflappable: You may get a weird question, but don’t let that rattle you. Every question has an answer, no matter how strange.
* Take a moment and think things through: You don’t get points for speed. Pause and reflect on the question; quiet your mind and think things through rationally.
* Clarify your thoughts, then voice them: Once you’ve had the chance to consider all the angles and employ whatever facts at your disposal, come up with an answer in your head, then express it.
* Remember, there’s no wrong answer: This concept is important enough to repeat. There are no correct answers! If you hold off on answering until you come up with the perfect answer, you’ll be dead in the water, and the interviewer won’t be impressed.

**What is Guesstimate?**

Guesstimate is an approximation based on the available information. Most of the time, only limited information is available. It has more to do with understanding the approach toward the problem. Consider feasible parameters that influence the problem. Interviewers ask such questions to understand if the candidate can come up with a solution to a problem within a set time frame.

**Importance of Guesstimate Interview Questions**

**Guesstimate questions** are prepared on the basis of limited details and information. These questions compel the interviewee to use their reasoning and problem-solving abilities. Such questions are valuable in several fields where you may have to make decisions based on the availability of a few resources. Through these questions, one can gain a different perspective on how a problem can be solved. Guesstimate interview questions are often asked in MBA interviews.

**Types of Guesstimate Questions Asked in Interviews**

Guesstimate questions can be of different formats. The aim of these questions is to assess whether the candidate has the capability to handle unfamiliar scenarios. The following types of guesstimate interview questions are common.

1. Population Estimation Guesstimates

Population-based guesstimate questions require candidates to estimate the number of people within a specific area. The aim of these guesstimates for interview is to assess the candidate’s capability to segment populations based on the information available.

**How To Answer Guesstimate Questions Related to Population Estimation?**

While answering these guesstimate questions, the candidate needs to first start with the total population of the country.  Afterwards, segmentation of demographics will be needed.

The following questions are guesstimate examples to be considered before going to the interview:

* How many people buy smartphones in India annually?
* How many people purchase milk daily in urban areas?
* How many people watch Netflix in India monthly?
* How many people use online food delivery services monthly?
* How many people use metro services in major metropolitan areas?

2. Market Sizing Guesstimates Questions

These types of guesstimate interview questions are meant to assess the size or potential value of a market. These**guesstimate questions for interviews** are common when it comes to consulting and marketing roles. Through these questions, the interviewer tries to determine whether the professional is capable of understanding the size of the target market before making strategic decisions.

**How To Answer Guesstimate Questions Related to Market Sizing?**

To answer this type of **guesstimate interview questions**, candidates need to first break down the population into relevant segments. They further need to consider factors that can influence the market sizing such as consumer habits, market penetration and consumption habits.

Here are some Guesstimate examples:

* How many refrigerators are sold annually in India?
* What is the total market size for contact lenses in the US?
* How many pizzas are ordered in New York City on a daily basis?
* What is the potential market for smartphone screen protectors in Europe?
* How many pairs of running shoes are sold every year globally?

3. Resource Allocation Guesstimate Interview Questions

Resource allocation guesstimate interview questions require candidates to estimate the resources required for an event or project including seats, materials, or facilities. These guesstimate questions for interview are asked by interviewers for operations and event management roles. The aim is to assess the planning skills of the candidate.

**How To Answer Guesstimate Questions Related to Resource Allocation?**

For these guesstimate questions, candidates need to first start with the number of participants. Based on the number of candidates, resource requirements for each person need to be calculated. Any other additional factors must be included with this.

The following Guesstimate examples are relevant to the resource allocation category:

* How many textbooks should be allocated to rural schools in India?
* How many hospital beds are required in a tier-2 city?
* How much drinking water should be allocated to a village?
* How many ambulances are needed in a metropolitan area?
* How many internet towers are required in a rural district?

**Top Interview-Based Guesstimate Questions and Answers**

Management students are asked such questions by interviewers to analyze their decision-making and estimation capabilities. Candidates are expected to approximate the answer based on the little information that they are provided with.

Basically, your approach to answering the question is assessed. There is no actual calculation involved. Aspirants who plan to pursue a career as a consultant should also be aware of the concept. You can find below a list of interview-based guesstimate questions with solutions that can be useful to you.

**Q1. What is your strategy for solving a guesstimate question?**

**Ans.** The four-step strategy as given below is quite useful for answering guesstimate interview questions:

Step 1: Clarify unclear terms asked in the question.  
Step 2: Break down numbers into small and easy-to-estimate pieces.  
Step 3: Estimate each piece mathematically and by using background knowledge.  
Step 4: Consolidate every piece to conclude the result.

**Q2. What are the different types of Guesstimates based on an approach to solutions?**

**Ans.** Following are the different types of Guesstimates based on the approach to solutions:

* **Household Approach:** This approach is used for solving household-based guesstimate questions.
* **Population Approach**: For solving population-related questions guesstimate questions such as finding the number of people consuming something or the number of people living in an area.
* **Structural Approach**: This approach is used for solving guesstimate questions such as finding the number of aeroplanes landing in a single day.

**Q3. Can you provide examples of guesstimate questions?**

**Ans.** Some examples of these questions would be:

* How many packs of Mama Earth face packs are sold each day in India?
* Number of iPhones users in India at present
* The average number of bikes sold in Delhi during the last month
* How many teacups were consumed in Bangalore last week?

**Q4. How many iPhones users are there in India at present?**

**Ans.** Suppose, we are considering all models of the iPhone.

* There are 1.39 billion Indians. Out of which, 40% of the population includes children and senior citizens. This means that children and senior citizens will be excluded which leaves us with 834 million people that can own an iPhone.
* Now, out of all these people, we will consider the upper class and upper-middle class who can own an iPhone. For this, we will exclude the lower middle class, which is around 14%.
* This brings the probable number to 717 million. As per the statistics, the market share of the iPhone is 3.2%. This means there can be 22 million possible iPhone users in India.

**Q5. How many refrigerators are sold in India every year?**

**Ans.** First of all, clarify whether we will consider domestically produced refrigerators or both domestically and internationally manufactured refrigerators.

* Suppose we are considering both, then we will exclude segments based on a few factors.
* Consider the population of India and now, divide it by the average number of members in Indian Households i.e. 4 members per household.
* Now, further segment the population into urban (tier 1), suburban (tier 2) and rural (tier 3).
* Classify these tiers as per availability of electricity (1.3 million Indians do not have access to electricity).
* Exclude the number of people below the poverty line.
* Your approximation should also include the annual demand for new refrigerators and replacements.
* Consider the average life of a refrigerator (10 years) and the annual projected growth rate of refrigerators in your calculation.

**Q6. What is the average number of laptops sold in Mumbai every day?**

**Ans.** Here, we will consider both the demand and supply of laptops. I assume that supply is more than demand since the location is Mumbai.

* The ‘18-45’ age group will be the target market for the suppliers which is around 70% of the population of Mumbai.
* The average cost of a laptop is around 40,000 rupees and assuming that any person who earns more than this amount can buy a laptop.
* This comprises about 70% of the population of Mumbai.
* Assuming that 70% of this population already owns a laptop and only 30% might purchase a new one.
* Let us now assume that the demand for personal computers will increase by 20% whereas the demand for buying laptops will increase by 80%.
* So, the average number of laptops= total of the above-mentioned metrics divided by the number of days in a year.

[***Learn to solve guesstimates and puzzles in a job interview***](https://www.shiksha.com/online-courses/solving-guesstimates-and-puzzles-in-a-job-interview-course-grlel811)

**Q7. What number of tennis balls can fit inside a room?**

**Ans.**First of all, you need to know the size of the tennis ball. You can do one of the two things: ask the interviewer or assume its size.

* Now, calculate the volume of the room and divide this volume by the volume of tennis balls. You need to consider that the balls are round and a regular arrangement will leave empty space due to their shape.
* Suppose, the room has only 4 seats. The room may fit 5 chairs in the vertical direction and 10 chairs in the horizontal direction. It seems as if this arrangement can be repeated 10 times to fill the room. This means that the room can roughly fill 500 seats.
* The total space occupied by the seat should be considered here (sp). Here **sp**= (4 x 2 x 1)ft = 8 ft. This means that the room’s volume is approximately **sp x number of seats** = 8 x 500 = 4000 cubic ft.
* The tennis ball seems to occupy 4 cubic inches of area, the number of balls = volume of room/ area occupied by balls = 1000 balls.
* Since tennis balls can be packed up to 70%, hence the total number of balls is 700.

**Q8. How many balls should you take out of a bag that has red and green balls in order to get two matching balls?**

**Ans.** Suppose that you take out a red ball and then a green ball. After two times, you will automatically get either a red or green ball which means you will own a pair of matching balls the third time.

**Q9. How many cups of tea were consumed in Delhi in a month?**

**Ans.** We will assume that fewer people will consume tea during the weekend since these are not working days. The next number to consider is the population.

There are 20 million people in the city and let us assume that 20% of youngsters do not consume tea. Out of the rest, 30% consume tea on a daily basis, 20% consume tea occasionally and 10% do not consume tea. Let us say that daily drinkers could be having three cups of tea in a day and occasional drinkers consume tea twice a week.

Then, the total number of cups of tea consumed will be:

* Daily drinkers – 3 x 0.2 x 7 = 4.2
* Occasional drinkers – 1 x 0.2 x 1 = 0.2
* Non-drinkers= 0
* Total= Daily + Occasionally + Non-drinkers = 4.4 cups in a day
* Per month = 4 x 4.4 x 1.4 crore = 24.64 crore cups.

**Q10. What is the weight of the Ashoka Hotel?**

**Ans.** This is one of the guesstimate examples that the interviewer will ask to test what factors to consider. While approximating such a question, you would also include the dimensions of the hotel, then you will include the weight of the material used for building the hotel. Whether there are people in the building or not, will also be important for the final approximation of the hotel’s weight.

**Q11. How many people live in your housing society?**

**Ans.**  Suppose that society has only apartment-style of flats. Recall the number of apartments is numbered from 1 to 40 which means that there are 40 apartments. Each apartment block has 9 floors with 3 apartments. So, 9x3x40 = 1080 flats.

On average, Indian households have 5 members. Some apartments may be unoccupied. If assuming that 10% of apartments are unoccupied. So, the number of people living in the society will be 1080\*0.9\*5 =4860.

**Q12. How do you fill 8 litres from 7 and 9-litre buckets?**

**Ans.** Let us understand this step by step.

* Fill the 7L bucket completely with water.
* Pour the water from the 7L bucket into the 9L bucket. The 9L bucket now has 7L of water, and the 7L bucket is empty.
* Fill the 7L bucket completely once again.
* Carefully pour water from the 7L bucket into the 9L bucket until the 9L bucket is full. Since the 9L bucket already had 7L of water, it only needs 2L more to be full. So after this step, you will have 5L of water remaining in the 7L bucket.
* Empty the 9L bucket completely.
* Transfer the 5L of water from the 7L bucket to the 9L bucket. The 9L bucket now has 5L of water, and the 7L bucket is empty.
* Fill the 7L bucket completely again.
* Pour the water from the 7L bucket into the 9L bucket. Since the 9L bucket already has 5L of water, it can only take 4L more. This will leave you with exactly 3L in the 7L bucket.
* Empty the 9L bucket completely once more.
* Transfer the 3L of water from the 7L bucket to the 9L bucket. The 9L bucket now has 3L of water, and the 7L bucket is empty.
* Fill the 7L bucket completely again.
* Pour the water from the 7L bucket into the 9L bucket. The 9L bucket now has 3L + 7L = 10L, but since it can only hold 9L, you will have exactly 1L left in the 7L bucket.
* Empty the 9L bucket completely.
* Transfer the 1L of water from the 7L bucket to the 9L bucket. The 9L bucket now has 1L of water.
* Fill the 7L bucket completely again.
* Pour the water from the 7L bucket into the 9L bucket. The 9L bucket now has 1L + 7L = 8L of water.

**Q13. How much paint will be required for painting a 20 m x 20 m wall?**

**Ans.** Let us estimate the amount of paint required for every square meter. Now, we will find the area to be painted.

* The wall to be painted will have the main area as 20 m x 20 m which is 400 square meters.
* Let us assume that the depth is 1 mm.
* We will also consider that the oil in half of the paint has dried after a few hours of the paint application on the wall.
* Let us consider the width of the paint to be considered as 2 mm.
* Thus, the volume to be painted is 400 square meters x 0.002 meters = 0.8 meters cube of paint is required.

**Q14. Estimate the number of televisions sold in india every month. Show your assumptions & calculations in your answer along with the final number.**

**Ans.** Let us start with the population of India since this is an official figure we know. Currently, there are 1.40 billion people in India.

* Approximately 66% of the households own television in India.
* Most households have an average of 1.2 televisions.
* As an estimate, 231 million television sets are bought each year in India.
* On an everage, most televisions, be it an OLED, LED or LCD have an average lifespan of 10 years.
* Industry average for television replacement rate is 10%
* As an average, number of new households that are build every year is 0.5% of the total population

Now, let us come to the calculation part:

* Number of households owning television will be 0.92 billion.
* Number of televisions in each home 1.10 billion
* Average lifespan of a television is 10 years
* Approximate number of televisions that are replaced every year 1.10 billion x 10% = 110 million televions
* Average number of televisions replaced every month = 110 million/12 = 9.16 milliom  television
* Number of new household formed every year = 1.40 billion x 0.5% = 7 million households
* New television for the new households = 8.4 million households

Final estimate: 9.16 million + 8.4 million = 17.56 million televisions

**Tips To Answer Guesstimate Questions**

These are some of the **sample guesstimate questions with answers for the interview**. While answering any guesstimate question, you need to keep in mind the following points:

* There is no definitive answer to such questions, only an educated guess.
* Get clarity on the conditions expected by the interviewer for each question.
* Create a flow to answer a question without trying to find a definitive answer.
* Focus on the most factual information within a question to decide a flow in the question.
* Determine the definitive or an approximate value that you already know so as to find the starting point to answer the question.

**What type of approaches should we use to answer guesstimate questions?**

To answer any guesstimate question, you can use process mapping, top-down, bottom-up and layout-centric approaches.

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**How can I prepare guesstimate interview questions?**

To prepare for guesstimate interview questions, you need to have at least gone through a set of similar questions. These should be related to the industry in which you want to enter.

**What are interviewers looking for when asking guesstimate interview questions?**

Interviewers look for candidates who can think critically, use basic math and logic to solve problems, and communicate their thought process effectively. They want to assess how you handle uncertainty and ambiguity and how you approach complex problems with limited information.

**Is it possible that a guesstimate question is incorrect?**

Yes, there is a possibility that an answer to a guesstimate question is incorrect if:

* There are illogical assumptions
* Candidate has taken random numbers
* There is no systematic calculation method
* If critical estimation factors have been ignored
* In case there are mathematical inconsistent reasoning

**How to do sanity check in guesstimates?**

In guesstimates, candidates can do the sanity check by following the below-mentioned pointers:

* **Reasonableness Test**
* Ask yourself if the calculated number sounds plausible in real-world context.
* Check if the estimate makes intuitive sense when explained to an average person.
* Verify if the number aligns with general understanding of the problem.
* **Population Reality Check**
* Compare your estimate against total population to ensure logical proportion.
* Calculate what percentage of total population your estimate represents.
* Confirm that the percentage falls within reasonable and expected ranges.
* **Benchmark Comparison**
* Cross-reference your estimate with existing market research or published data.
* Check how close your calculation is to official or industry-standard statistics.
* Validate your assumptions against recognized benchmarks in similar markets.
* **Reverse Calculation**
* Start from your final estimate and work backward through each calculation step.
* Verify that each intermediate calculation follows logical mathematical progression.
* Ensure no computational errors or unreasonable assumptions were made during estimation.
* **Order of Magnitude Check**
* Confirm your estimate is in the correct mathematical scale (hundreds, thousands, millions).
* Verify the number isn't exponentially different from expected ranges.
* Check that the estimate doesn't deviate dramatically from typical industry patterns.
* **Multiple Scenario Testing**
* Test your estimate with different sets of assumptions.
* See how changing variables impacts your final number.
* Understand the sensitivity and robustness of your calculation.
* **Economic Feasibility**
* Ensure your estimate makes economic sense.
* Check if the calculated number aligns with market economic conditions.
* Verify the estimate considers financial constraints and consumer behavior.
* **Technological and Infrastructure Constraints**
* Consider practical limitations in technology and infrastructure.
* Verify if your estimate accounts for real-world implementation challenges.
* Ensure the number reflects current technological capabilities.
* **Demographic Segmentation**
* Break down your estimate across different demographic groups.
* Verify proportional distribution across age, income, and geographic segments.
* Ensure each segment's contribution appears logically consistent.

What is Guesstimate?

Guesstimate is a methodological method of theory and evaluation; it helps you work efficiently with a higher degree of accuracy. It is the study of the *data* to consolidate the result. It is also an essential part of the Business Analyst or Data Science and Data Architects or Data Techies.

1. **Meaning:**It’s about understanding the problem which you want to solve, and what is the purpose of that, why you want to solve it.
2. **Definition:**It’s about the particular object and input and output of the flow of a process. To put it in a word, explanation.
3. **Guessing**: It’s about the thought and conclusion- you are creating a particular object in your problem.
4. **Estimate:**It’s about the estimate of the numbers on a given problem.
5. **Come up with an idea**: Implement the idea with research and development.

How to Approach Guesstimate?

**The process of solving a guesstimate problem is pretty manageable:**

1. Look at the feasible parameters that may affect the final quantity and estimate its numbers.
2. Take a step back and think.
3. Clarify your thoughts.
4. Voice your thoughts.
5. Simple Math approach-

This approach is typically used when the number to guesstimate is a ratio of some sorts. The task is to obtain the numerator and denominator then we are done!

1. Per capita approach-

This approach is used when the number to guess can be thought of as a consumption item at a person, household, or population level within geography.

2. Supply & Demand approach-

This approach needs thinking of the guesstimate number from either the supply or the demand (or both) side of the item.

**Generally speaking, you can propose guesstimates in one of these two ways:**

* Top-down method
* Bottom-up method

In the top-down, you start with the largest possible universe, of which your guesstimate is a portion of.

With the broadest base at the top. To this universe, you then keep applying a set of conditions or filters (however you want to put it) that reduce the number from the universe to a number that is appropriate for your guesstimate.

**The key to the top-down estimation process lies in:**

1. It is accurately identifying the starting universe.
2. It is accurately identifying as many of the relevant conditions/filters and segments that apply to your guesstimate problem.
3. Segments: Frequently, you will have first to segment the universe into buckets and apply different filters to each segment.

**Tips for guesstimate questions for Data Science:**

1. **Practice Presenting:**We have to do the practice of presenting with the audience of the particular solution which you have completed.
2. **Practice Analyzing:**Analyzing plays a vital role to make thought processes on the given problem.
3. **Practice with Numbers:** Playing with the numbers or creating custom logic is always important.

**While solving the guesstimate questions for Data Science, you need to understand these points:**

* You’re describing this to someone who’s not in your head. The solution isn’t for you.
* At the same time, remember not to turn each aspect into an entirely new guesstimate itself! It’s easy to get swayed by your intelligence and analytical abilities.
* Focus on the question. Have you heard of analysis-paralysis?

What are the purposes of guesstimate questions for Data Science?

* To understand your capacity to understand a situation.
* To understand the scope of your ability to connect things, to reach an answer.
* To know your strength to prioritize and dismiss different parameters.
* To understand how well you work with inadequate information.
* **Here are some guesstimate questions for Data Science-**
* **Question:1** Create an Experiment with the k-means algorithm on the UCI Iris data set:
* In this experiment, Perform k-means clustering using all the features in the dataset, and then compare the clustering results with the true class label for all samples.
* Use the Multiclass Logistic Regression module to perform multiclass classification and compare its performance with that of k-means clustering.
* **Question:2**In a very simple format, explain Precision & Recall?
* **Question:3** If you have been given a data set, how do you decide on which ML algorithm to the user?
* **Question:4**Is it better to have too many false positives? Or too many false negatives?
* **Question:5**What is model accuracy and model performance? What scenario can you apply?
* **Question:6**How do you ensure you are not over-fitting with a model? Explain with an example.
* **Question:7**When you run a binary classification tree algorithm is quite easy. In the Binary algorithm, how does the tree decide on which variable to split at the root node and its succeeding child nodes?

**Question:8**How are NumPy and SciPy described?

**Question:9**Write a basic Machine learning program to check the accuracy of the dataset importing any dataset using any classifier?

**Question:10**Create a Regression algorithm to predict the price of a car based on different variables.

**Question:11**Develop a model that uses different network features to detect which network activities are part of an intrusion/attack using Binary classifications.

**Question:12**How to Group (Clustering) to find similar organizations together based on their Wikipedia description.

**Question:13** How would you predict who will renew their subscriptions next month?

* What data would you need to solve this?
* What kind of analysis would you do?
* What kind of predictive models’ algorithms would be needed?

**Question:14**How would you map nicknames (Alen, Bob, Alex, Tim, etc.) to real names?

**Question:15**Create a prediction on whether scheduled passenger flight is delayed or not using a Binary-classifier with R or python script.

**Question:16** Predict automobile prices using Linear Regression with Prepare and Cleaned the data by removing the normalized losses column.

Since it has many missing values, create an experiment and model.

**Question:17**How many ways can you split 14 people into 4 teams of 5?

**Question:18**Area under the standard normal curve is?

* Greater than 1
* Equal to 1
* Less than 1

**Question:19**Create a Regression algorithm to predict the price of a car based on different variables.

**Question:20**Your manager asked to build a random forest model with 10000 trees during your training, and you got a training error as 0.00. But, on testing, the validation error was 34.23. What basis will you assume what went wrong? How would you check your model if it’s not trained perfectly?

**Question:21**‘People who bought this, also bought…’ recommendations seen on Amazon are based on which algorithm?

**Question:22** Which algorithms are linked in recommendations you see as ‘Today’s News and views’?

**1. What are the ideal steps to solve a guesstimate problem?**

Before answering a guesstimate question, it is wise to keep some points in mind to come with a better idea. These points are as follows - Before starting answering, you should clear all your doubts regarding the question. You can ask as many relevant questions as you want to the interviewer but try to avoid questions that lead to any numerical calculation. This could have a bad impact on the interviewer. It is advisable to stick to yes or no questions to avoid any bad impression. Do not try to solve the problem all at once, instead break it into smaller subproblems and then try to solve each smaller problem. Remember that do not split your problem into more than 6 steps. This method will help you to reach the answer even through lengthy calculations.

**2. What is Guesstimate?**

Guesstimate is all about understanding the problem and finding the right approach to solve it. It is a methodological method of theory and evaluation. The most important thing in such questions is how you explain the solution.  
Guestimation can feel like a daunting task, especially when you first look at the kind of questions asked. From the market sizes of large conglomerates to revenues and populations, calculating some of these quantities even close to a ballpark is realistically impossible.

**3. What are the different approaches to solve a guesstimate problem?**

Simple Math approach - This approach is mostly in the cases where the number to estimate is some kind of a ratio. Per capita approach - this approach is used when the number to guess can be thought of as a consumption item at a person, household, or population level within geography. Supply & Demand approach - this approach needs you to think about the number either from the supply side or the demand side.

**Guesstimates:**

How many laptops are being used in Delhi?

You need to come up with a number that must closely resemble the actual number in about 3–4 minutes. There is no right or wrong answer. Even though the name itself has “guess”, you can not just wild guess and say a number. There are few things to consider while framing your answer. Before that let’s see what a guesstimate actually is.

Guesstimate is a methodological method of theory and evaluation. It helps you work efficiently with a higher degree of accuracy. It is the study of the data to consolidate the result. It is also an essential part of the Business Analyst or Data Scientist and Data Architects or Data Techies.

You can go through a detailed solution for above problem here:

One of the simplest ways to approach the problem is to follow a top down approach, branching at every step. It’s basically taking a decision based on several parameters. Interviewers focus on your **selection of parameters/conditions**, explain them why you chose them and what results they yield.

Remember -No **ANALYSIS PARALYSIS**. Don’t turn each output into a new guesstimate. Human brain is capable of working much complex problems. So, explaining a simple short solution might be challenging. The best way to avoid this is to break the problem into maximum 4 levels of branching. Prioritize & dismiss parameters.

There are 2 ways to move forward with the problem- supply/demand way & per capita (population) way.

Explaining the guesstimate solution can be tough sometimes. You must know that the **solution is NOT for you**, it is for someone else who’s not in your head. While you come up with the solution, just try to keep it short, simple and crisp, given the time constraint.

Also, it is very likely that the interviewer might ask a guesstimate/case study based on the domain (of the organization you have applied). As in, if its a bank, it might ask you how many users use their cards in a particular country. Or if its a food/beverage company- How many customers may use their app in a small town. So its better to prepare use cases based on the type of industry.

Overall, the guesstimates helps interviewers know your decision making skill, how good you are with numbers, whether or not you understand a situation, scope of your ability to connect things & understand how well you can work with inadequate information.

2. **Acing puzzles:**

Puzzles are the fun part of the interviews! Puzzles help to assess the **logical ability** of a candidate. One doesn’t really need a full fledged prep for this, but with my experience, most of the questions are repeated and easily available on the web. Mostly, you might encounter a probability puzzle. Just go through below links & try to solve them in your free time. That’s all that you’re gonna need! Once you solve them all, you’ll know how to approach an unknown puzzle, if encountered.

**Guesstimate 9 : The number of people wearing watches in Bangalore**

Ans:      Let’s assume population of Bangalore as 10 million and the day today is a working day for every age group

And age group wise population assumption would be

0–15 yrs: 30%; 15–25 yrs: 20%; 25–50 yrs: 30%; >50 yrs: 20%

Income wise population would be

Above poverty line: 75%

The people below poverty has negligible chance to use a watch, so I am eliminating this 25% population from every age group.

Now we have 75% of aforesaid % in every age group. As below poverty is eliminated 0–15 group mostly have school children and infants I assume 5% of them wearing watches today. So the count would be 2.25 million\*5%=112500

15–25 age group have majority of higher education students who spend most of their time using mobile phones, so people using watches may be nearly 25% which gives 1.5 million\*25%= 375000

25–50 groups have professionals working somewhere for their survival whose generation recently entered the smartphone culture. So most of them use watches. If out of this group, if 90% are couples, we will approximately have 20% housewives in it. As there is less chance of housewives wearing watches we can neglect it. The remaining 80% population say 90% wear watches, then count would be (80%\*2.25 million)\*90%=1620000

Coming to >50 group say 25% are working somewhere having 90% of them wearing watches again and in remaining 75% let 20% wear watches as we see many of our grandfathers wearing watches even in house. So count would be (25%\*1.5 million)\*90%+(75%\*1.5 million)\*20%= 562500

**Total= sum of all these**

**=2.67 million wear watches**

**How to estimate the number of ambulances on the road ?**

Ans: Let’s start with the population of the country ~ 1.3 Billion (1300 million)

Rural – 70% = 900 million Urban 400 million

Let’s divide the Urban population into three groups based on income level – Low |High |Upper High

I would divide as : Low: 30% High - 50% Upper High - 20%  
So Urban Low: 120 million High - 200 Upper High - 80 million

Now out of Urban Low I would assume 10% have driving as occupation (Rise of taxi services etc. (only considering 4 wheeler drivers))  
= 12 million (120,00,000)

Out of these I would assume 1–1.5% are ambulance drivers = 120000

So we can say almost 1,20,000 ambulances are available in the country at any time.

Now generally ambulances are available on calling, that means, at least a half of them are always on backup. let’s assume that 70% of them are on idle at any given point of time.

Also since their average journey time is of 20–25 minutes,

so we can say not more than 10% of ambulances would be on road at any time

So we can say 10% are on roads at any time = 12000 ambulances on road across Urban India.

**Guesstimate 4 : Estimate the total length of roads in your city**

If we take Mumbai and say Blue Dart, it will take 1 delivery truck for a region like Andheri from the regional distribution centre.

Andheri is **assumed** as approximately 25km^2 in area.

A delivery truck driver would work for 7 hours a day driving, at a speed of 30–40 kmph (Andheri being congested).

So kilometers he clocks in a day: 30\*7 = 210 km.

Now generally the delivery schedule is planned in a such a way that all deliveries happen in the most efficient way. (*Operations Guys at the firm would be getting paid lakhs for ensuring this shit!*, *but then technology rules!*)

**So assuming up and down journey, I would assume length of the roadways in Andheri area as 210/2 = 105 km.**

But provisioning for some scope of redundancy during the travel, I would take 70% uniqueness factor.  
That gives us ~ 70km

Also some of the areas would be covered by bike delivery

guys: say 30% of what truck covers (as bikers cover short distances) = ~20km

Also 10–15 km for postman/walker delivery personnel : ~

10km

So total road length for Andheri ~ 100km  
Now, Mumbai city area: 600km^2  
So Andheri like region = 600km^2 / 25 = 24  
Assuming a coverage ratio of the courier service to be 90%  
Regions covered: ~22

**So total road length ~ 22\*100 = 2200km.**

**Guesstimate 3 – How many paan shops are there in India ?**

Ans: We will use the method of Demand and Supply

Total population of India = 1.2bn or 1200 Mn

Male = 700 Mn & Female = 600 Mn ( 900 women per 1000 men )

The ratio of Female/Male for Pan consumption is very small.

Female in india those consume pan on regular basis = 2% = 600Mn\*.01 -> 12Mn

Divide male on the basis of age groups :

0–15 ->  Neglect this section

16–22 -> 15% of 700Mn   
= 105Mn -> 5Mn ( This is the college age & as per my own college scenario 5 students consume pan out of the 100)

23–50 -> 35%of 700Mn  
= 240 Mn -> 20% people consume -> .2\*240 -> 48Mn

51–80 -> 20% of 700Mn  
=140Mn -> older age, various problems like in teeth -> .05\*140  
-> 7Mn

**Total demand of pan = 12+5+48+7 = 72 Mn**

Using Supply :

Time taken to make 1 pan = 2min -> 30 in 1 hour

Lets pan shop opens for 10 hours -> 30\*10 = 300 pan

**Number of pan shops in India= 72 Mn/ 300 = 2,40,000 ~ 2.5 lakh**

**Q1. Estimate the number of office chairs sold in India.**

Approach:-

To estimate the numbers of office chairs sold in India, we will proceed by estimating, working population in India.

Lets say, out of 120 crore population in India, 60% are people that are above the age of 15, i.e. equal to 72 crore.  
Approximately 50% people are employed, which is equal to 36 crore of the working population in India.

Lets now assume 20% of the working population work from office where in we exclude the farmers, street vendors and drivers, etc).  
Approximately 7.2 crore people in India work from office.

Thus, there are 7 crore people existing office chairs in India. Now we can either assume the time frame or ask the interviewer.

If we assume, we can calculate the chairs sold in a year.

Hence, we can conclude that approximately 70 lakh office chairs are being sold in India.

**Q2. How many total Gmail users are there in India?**

Ans:  The population of India is – 1300000000.

       Internet penetration in India is – 30%

      Population Distribution –

* 0-20 : 25%
* 21- 60 : 60%
* >60 : 15%

        people of age between 0-20 using internet = 0.25\*390000000 = 97500000 =        **100000000**(aprrox.)

        Similarly people of age between 21-60 and >60 using internet will be **230000000** and **60000000** respectively.

People of age 0-20 usually do not need an email account. But we may consider 5% of them do have it. Therefore email users of 0-20 age group = 0.05\*100000000 = **5000000.**

The major proportion of email users are the employed people. Since in India employment rate is 75% but not all of them need an email account. We will assume 75% of employed people use an email account.

Therefore email users of age 20-60 = 0.75\*0.75\*230000000 = **130000000(approx.)**

Out of 60000000 people aged above 60, 25% of them use an email account. So email users of this age group = 0.25\* 60000000 = **15000000.**

So total email users in India = 5000000 + 130000000 + 15000000 = **150000000.**

Gmail is a free and most prominent email service provider. So the nearly 85% of email users use Gmail.

     Therefore number of Gmail users in India = 0.85\*150000000 = **127500000**.

**3. Estimate how many items in a jar ?**

Ans:  We will take a circular jar base, to use the simplest mathematics formula we will use the basic shape of a jar to calculate the number of candy pieces.

Also the jae will change its diameter.

Lets assume the diameter is 5 cm wide, hence, radius is 2.5 cm. The area of the base is r^2 times Pi. therefore, area = 2.5\*2.5\*3.14 = 19.63.

For volume, we will assume a cylinder and later add a few pieces.

We take area and multiply it with the height of the cylinder. Lets estimate this again, making the final results inaccurate as it all depends on how good we are at estimating.

Height of the candy is 7 cm, hence V = 7\*19.63 = 137.4 cubic cm.

Lets use 0.8 as a value, as thats the normal size of a candy.

If we split the jar into four sides and count the candy pieces, there are about 25 extra pieces on each side. So we add 100 to the equation. Ans- 272 pieces.

**6. How much is the surf excel detergent usage in a day in India?**

Ans:   India has a population of approx 1.2B People.

About 20% are BPL and would therefore not use surf excel. Remaining population: o.8\*1.2B = 0.96B people.

Assuming a family of 4 people that is 0.24B families.

Rural:Urban = 30:70 (0.072B:0.168B)

Assuming only about 10% of people use surf excel in ruler areas, due to the availability of other cheaper mediums that will be 16M Families.

Due to competition and availability of substitutes in urban areas, assuming surf excel has a market share of 40%, that will be about 28M families.

Total user base: 44M Families.

Everyday usage must be at least 10 grams, total usage = 440 Million gms of surf excel everyday.

**9. How many red colour Swift cars are there in Delhi ?**

Ans:  Let’s start with the population of Delhi which is 2 Crores.

We will divide this population into two groups-

1. Family(80%) = 0.8\*20000000 = 16000000 family members

2. Bachelors(Individuals) (20%) = 0.2\*20000000 = 4000000

Number of families(assuming 4 members in each) = 16000000/4 = 4000000.

Guessing that 50% of families have cars, so the number of families with cars = 2000000.

In Delhi, we can assume that 25% of the families belong to high class society so they can afford 2 cars on an average and the rest can afford only one car.

Therefore number of cars with families = 0.25\*2000000\*2 + 0.75\*2000000\*1 = 2500000.

Now let’s say only 10% of the individual population can afford a single car.

Therefore, number of cars with individuals = 0.10\*4000000 = 400000.

So the total number of cars in Delhi can be estimated as 2500000+400000 = 2900000 which can be rounded of to 3000000 for simple calculations.

Since Maruti being the Indian market leaders in car sector so we can safely assume 50% of cars on the roads of Delhi are of Maruti, i.e., 1500000 cars.

Swift is one of the most common and affordable models along with Alto, WagonR, Omni and 800. So let’s assume there are 200000 Swifts.

White, silver, grey, black are the most common colors. So 75%(approx) of Swifts will be of these colors.

Now we are left with 50000 Swifts of different colors. Considering red, yellow, blue, maroon and orange as possible other colors,we can guess that there are nearly 10000 red Swifts in Delhi.  
\*\*

Guesstimate questions are a common feature in data science interviews, designed to evaluate a candidate's analytical thinking, problem-solving skills, and ability to make reasonable assumptions based on limited information. Here are some effective tips and tricks to excel in guesstimate questions during interviews:

**Understanding Guesstimates**

A guesstimate is essentially an educated guess based on available data and logical reasoning. The goal is not to arrive at an exact answer but to demonstrate your thought process and how you approach complex problems.

**Approach to Solving Guesstimates**

1. **Clarify the Question**:
   * Ensure you fully understand what is being asked. Ask clarifying questions if necessary to avoid assumptions that could lead you astray.
2. **Break Down the Problem**:
   * Divide the main question into smaller, manageable components. This helps in organizing your thoughts and makes it easier to estimate each part.
3. **Make Reasonable Assumptions**:
   * Use your general knowledge and any context clues provided in the question to form assumptions. It’s crucial to balance realism with creativity; avoid making assumptions that are too far-fetched or overly simplistic.
4. **Use a Structured Approach**:
   * Employ frameworks that suit the context of the question, such as top-down or bottom-up estimation methods. For example, if estimating the number of coffee cups consumed in a city, you might start with the population (top-down) or analyze coffee shop sales (bottom-up).
5. **Perform Calculations**:
   * Use simple math and round numbers for ease of calculation. This not only speeds up your process but also helps avoid errors.
6. **Validate Your Answer**:
   * After arriving at an estimate, check if it falls within a reasonable range based on your assumptions. This step ensures that your final answer is plausible.
7. **Communicate Clearly**:
   * As you present your answer, articulate your thought process clearly. Explain your assumptions, calculations, and the rationale behind them, as interviewers are often more interested in how you think than in the final number.

**Practice Regularly**

Regular practice with various guesstimate questions can significantly enhance your confidence and ability to tackle these problems effectively. Familiarize yourself with common types of questions, such as estimating:

* The number of pizza deliveries in a city.
* The daily consumption of a specific product (like tea or coffee).
* The total number of flights at an airport per day.

**Key Considerations**

* Focus on being structured rather than seeking precision; interviewers value your approach more than the accuracy of your final answer.
* Avoid analysis paralysis; while it’s important to think through your assumptions, don’t get bogged down by overthinking each detail.
* Remember that guesstimates often involve multiple parameters; be prepared to segment these parameters logically.

By following these strategies and practicing regularly, you can improve your performance in guesstimate questions during data science interviews, showcasing both your analytical skills and your ability to communicate effectively under pressure.  
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Q:-Are there specific frameworks that can help in breaking down complex guesstimate problems  
Yes, several frameworks can assist in breaking down complex guesstimate problems, helping to structure your approach and make reasonable assumptions[1](https://thedatamonk.com/guesstimate-questions-asked-in-analytics-interview/)[6](https://admitstreet.com/blog/guesstimate-questions-isb-interviews-tips-examples/). Here are some common and effective frameworks:

* **Top-Down Approach**: Start with a broad, high-level number (e.g., the population of a country) and narrow it down using logical segmentation[6](https://admitstreet.com/blog/guesstimate-questions-isb-interviews-tips-examples/). This involves breaking the total population into smaller, more manageable groups based on relevant criteria such as age, location, or consumption habits[3](https://insideiim.com/how-to-solve-guesstimates-in-an-interview).
* **Bottom-Up Approach**: Build estimates from smaller components and aggregate data points to reach the final figure[6](https://admitstreet.com/blog/guesstimate-questions-isb-interviews-tips-examples/). This method involves estimating individual elements and combining them to form a larger estimate.
* **Household Approach:** Estimate based on the number of households, suitable for products or services purchased at the household level, such as cars[3](https://insideiim.com/how-to-solve-guesstimates-in-an-interview).
* **Population Approach:** Base your estimate on the number of people, which is useful for individual consumption items like pens[3](https://insideiim.com/how-to-solve-guesstimates-in-an-interview).
* **Structural Approach:** Identify bottlenecks or constraints that control the entire operation, such as runway capacity when estimating airplane landings[3](https://insideiim.com/how-to-solve-guesstimates-in-an-interview).
* **Demand-Supply Dynamics**: Analyze both the demand-side (consumer needs) and supply-side (available resources) factors, particularly useful for market-sizing questions[6](https://admitstreet.com/blog/guesstimate-questions-isb-interviews-tips-examples/).
* **Process Mapping**: Map out the process flow to identify key steps and estimate values for each step[3](https://insideiim.com/how-to-solve-guesstimates-in-an-interview).
* **Clarify, Map, Calculate, Validate**: A 4-step approach to answering guesstimate questions[5](https://thinkinsights.net/strategy/guesstimates). Begin by clarifying the question, map out your approach, perform calculations, and validate your results[5](https://thinkinsights.net/strategy/guesstimates).

When using these frameworks, remember to:

* **Clarify the Question**: Ensure a clear understanding of the problem before proceeding[2](https://ivyproschool.com/blog/how-to-solve-guesstimates-for-your-next-analytics-interview-part-1/).
* **Break Down the Problem**: Divide the question into simpler components that are easier to estimate[1](https://thedatamonk.com/guesstimate-questions-asked-in-analytics-interview/)[2](https://ivyproschool.com/blog/how-to-solve-guesstimates-for-your-next-analytics-interview-part-1/).
* **Make Reasonable Assumptions**: Use general knowledge and any provided information to make educated assumptions[1](https://thedatamonk.com/guesstimate-questions-asked-in-analytics-interview/)[4](https://blog.geetauniversity.edu.in/guesstimates-the-art-and-science-of-estimation/).
* **Use a Structured Approach**: Organize thoughts and calculations in a structured manner[1](https://thedatamonk.com/guesstimate-questions-asked-in-analytics-interview/).
* **Round Numbers**: Simplify calculations by rounding off complex figures[1](https://thedatamonk.com/guesstimate-questions-asked-in-analytics-interview/)[5](https://thinkinsights.net/strategy/guesstimates).
* **Validate the Answer**: Ensure the answer is within a reasonable range[1](https://thedatamonk.com/guesstimate-questions-asked-in-analytics-interview/)[5](https://thinkinsights.net/strategy/guesstimates).
* **Communicate the Approach**: Clearly explain assumptions, calculations, and reasoning[1](https://thedatamonk.com/guesstimate-questions-asked-in-analytics-interview/).

By applying these frameworks and following a structured approach, you can effectively tackle complex guesstimate questions and demonstrate strong problem-solving skills[1](https://thedatamonk.com/guesstimate-questions-asked-in-analytics-interview/).

**How do I validate the reasonableness of my guesstimate answer.  
Validating the reasonableness of your guesstimate answer is a crucial step in the estimation process. Here are some effective strategies to ensure that your answer is plausible and grounded in reality:**

**Strategies for Validation**

1. **Check Against Known Benchmarks:**
   * **Compare your estimate with existing data or statistics related to the topic. For instance, if estimating the number of coffee shops in a city, look up the actual number or similar cities for reference.**
2. **Use Logical Reasoning:**
   * **Assess whether the answer makes sense logically. Consider factors like population size, market demand, and other relevant metrics that could influence your estimate.**
3. **Perform Sensitivity Analysis:**
   * **Test how changes in your assumptions impact the final estimate. Adjust key variables slightly to see if the outcome remains reasonable. This helps identify which assumptions are most critical.**
4. **Cross-Check with Different Approaches:**
   * **Use different estimation methods (top-down vs. bottom-up) to arrive at similar conclusions. If both approaches yield comparable results, it adds credibility to your estimate.**
5. **Consider Extreme Scenarios:**
   * **Analyze best-case and worst-case scenarios based on your assumptions. This can help you understand the range of possible outcomes and assess whether your estimate falls within a realistic range.**
6. **Estimate Timeframes and Frequencies:**
   * **If applicable, consider how often an event occurs (e.g., daily, weekly) and how that aligns with your estimate. For example, if estimating daily coffee consumption, think about how many cups a person might realistically drink per day.**
7. **Seek Peer Feedback:**
   * **If possible, discuss your guesstimate with peers or mentors who can provide constructive feedback and alternative perspectives on your assumptions and calculations.**
8. **Stay Aware of Cognitive Biases:**
   * **Be mindful of biases that may affect your judgment, such as overconfidence or anchoring bias. Regularly question your assumptions and be open to adjusting them based on logical reasoning.**
9. **Articulate Your Thought Process:**
   * **Clearly explain how you arrived at your estimate, including all assumptions and calculations. This not only helps you think critically about your answer but also demonstrates your reasoning to interviewers.**
10. **Use Simple Math Checks:**
    * **Perform quick mental checks or rough calculations to ensure that your numbers add up logically (e.g., if estimating total sales, ensure that unit prices and quantities align).**

**By employing these validation strategies, you can enhance the credibility of your guesstimate answers and demonstrate strong analytical skills during interviews or problem-solving scenarios**

Q:-What are some common indicators of a reasonable guesstimate  
ANS:-When evaluating the reasonableness of a guesstimate, several indicators can help determine whether the estimate is plausible and grounded in reality. Here are some common indicators to consider:

**Common Indicators of a Reasonable Guesstimate**

1. **Alignment with Known Data**:
   * The estimate should be consistent with existing statistics or benchmarks. For example, if estimating the number of coffee shops in a city, compare the result with known data from similar cities or industry reports.
2. **Logical Consistency**:
   * The assumptions and calculations should follow a logical progression. Ensure that each step in your reasoning is coherent and that the final estimate makes sense given the context.
3. **Sensitivity to Changes**:
   * A reasonable guesstimate should demonstrate stability when key assumptions are slightly altered. If small changes in input lead to drastic changes in output, it may indicate that the estimate is overly sensitive or based on weak assumptions.
4. **Range of Estimates**:
   * Providing a range (e.g., a low and high estimate) rather than a single figure can indicate a more nuanced understanding of uncertainty. This approach acknowledges variability and helps communicate potential outcomes effectively.
5. **Realistic Assumptions**:
   * The assumptions made during the estimation process should be grounded in reality and informed by context. Avoid assumptions that are overly optimistic or not supported by any evidence.
6. **Cross-Validation with Different Methods**:
   * Using multiple approaches (e.g., top-down vs. bottom-up) to arrive at similar estimates can enhance credibility. If different methods yield comparable results, it adds weight to your final guesstimate.
7. **Consideration of Constraints**:
   * A reasonable estimate should acknowledge any constraints or limitations in the data or methodology used. Understanding these constraints helps contextualize the estimate and its potential inaccuracies.
8. **Feedback from Peers**:
   * Seeking input from others can provide valuable perspectives and highlight any overlooked factors or biases in your assumptions, leading to more robust estimates.
9. **Documentation of Uncertainty**:
   * Clearly documenting the uncertainties, assumptions, and limitations associated with your guesstimate helps communicate its reliability and encourages informed decision-making among stakeholders.
10. **Comparison with Expert Opinions**:
    * If available, comparing your estimates with insights from subject matter experts can provide additional validation and enhance the credibility of your guesstimate.

By considering these indicators, you can better assess the reasonableness of your guesstimates and ensure they provide valuable insights for decision-making processes.

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**How to Solve Guesstimates**

A semi-guide to solving these engaging questions.

Guesstimates have now become an important part of several interview processes and B-School competitions. They are also a lot of fun!

When I first encountered guesstimates and looked them up on the internet, it wasn’t easy to find a lot of solutions. For someone like me who loves to learn by observing, this isn’t very helpful. In the upcoming weeks, I’ll upload some of the approaches taken by me in competitions while solving these guesstimate questions.

The process of solving a guesstimate problem is pretty simple: Look at the possible parameters that may affect the final quantity, and estimate its numbers. Confusing? Let’s look at an example —

***Q. Guesstimate the quantity of chocolate (in all its forms) used in Delhi in a day.***

**Step 1 : The Umbrella**

There are multiple approaches to this problem:  
1. Estimate the **consumption side**:end customer, grams per person etc.  
2. Estimate the **production side**:bakeries, chocolate factories in Delhi or the estimated consumption of chocolates in the country and extrapolate the consumption of Delhi by allocating it an appropriating share based on the population, income etc with respect to the rest of the country.

Which umbrella do you choose? The answer should depend upon how easy you think it is to guess/obtain the amount for the parameter by general observation. The goal is NOT to reach the exact answer. The goal is to develop the approach to such problems. However, there exists a dilemma here:

1. Use assumed parameters? (eg : consumption per person)  
2. Use realistic parameters that are possible to obtain? (eg : consumption of chocolate in the country)

From a competition perspective, the first approach would be more advisable. A three-level classification is usually considered good enough and this approach gives you plenty of room to do just the same. The second approach makes more sense in case you’re doing it for research purposes.  
Personally, I find the first approach more fun and engaging.

**Step 2 : The Assumptions**

So far, so good. The next step is simply to divide these categories further and allocate them appropriate numbers. We can break down the ‘*End Customer*’ in the following ways:

1. Age Group  
2. Heavy/Medium/Light consumers  
3. Diabetic and Non-diabetic and so on.

Remember that each of the above would have further classifications which could be any of the others.

**Step 3 : The Numbers**

After you’ve chosen your Umbrella and your Assumptions, it is time to start the guesswork. Apply your general awareness of the environment you’re dealing with to come up with numbers. The golden rule is to use beautiful numbers. Sure, you may get the exact population of Delhi as 18,686,902 with a simple Google search but it sure doesn’t sound as pretty as 20,000,000. How many people to assign to different age groups? Work in percentages. We’re a young country, so the maximum weightage goes the 15–40 year group. Pretty simple, right?

Over the course of next few weeks, I’ll be uploading some solutions to different guesstimate questions such as “Guesstimate the number of Whatsapp messages sent in NCR everyday”. Find the list [here](https://medium.com/@soumya.gupta/what-would-you-like-to-read-today-19eb2229b7d4#.kaogzdtfc).

**Guesstimate — Total Revenue earned by the Australian Tourism Industry**

*Q. Guesstimate the total revenue earned by the Australian Tourism industry in February and March 2015.*

This guesstimate was solved by [Priyanka Banerjee](https://medium.com/u/7ae35c6174ac?source=post_page---user_mention--de08486cbc50---------------------------------------) and I in February 2015 as part of a competition. Shoutout to her for being an awesome partner!

**Jumping straight to the solution:  
Assumptions:***//These are to make our calculations easier and referential. Moreover, they also clarify your thought process to yourself and anyone else.*

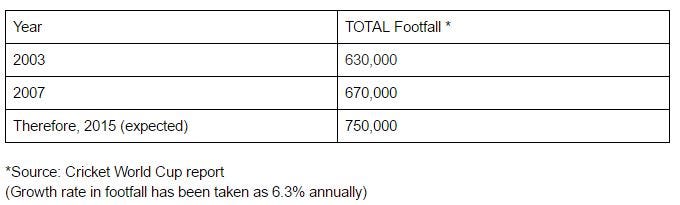
* The guesstimate is for the year 2015
* Average number of days spent by a tourist is taken as 7 days
* The expenditure has been calculated with [reference](http://www.numbeo.com/cost-of-living/country_result.jsp?country=Australia) to the cost of living in Australia*//List sources used for reference for a competition that requires submission. Use round figures from the same.*
* **Weather : Autumn —**Because Australia sits in the Southern Hemisphere, Sydney’s warmest weather and peak tourist season occurs from late December to early **February**

We will assume the number of people who visit Australia for reasons other than the ones mentioned below to be about 200,000 per month, which adds up to 400,000 for the months of February and March. This figure is based on the [this](http://www.tra.gov.au/documents/forecasts/Tourism_Forecasts_Autumn_2014_FINAL_18062014.pdf) document and that almost the same number of people come for exploring a new city as the number of people who come with an objective.

Possible reasons for tourists to visit Australia:

* **ICC Cricket World Cup** : To be hosted by Australia and New Zealand from 14th Feb to 29th Mar. Australia will hold 26 of the 49 matches.

According to past trends, people who attended



% of attendees from outside Australia: 20% (approx)

**Hence, tourists for the ICC World Cup 2015: 150,000**

* [**Festivals/Events**](http://www.australia.com/en/events.html)



* **Educational:**Since the educational session starts in early February in Australia, there would be a considerable inflow of people into Australia (parents/prospective students). In 2010, there were 450,000 international students studying in Australia. Assuming ⅓ of them to be joining the education system every year and including a realistic growth rate, we take students/families flying in as 180,000. A bulk of these would be in the months of Feb, when the year starts (approx 90%). Hence, **Estimated students/families flying in during Feb/March: 162,000**
* **Total inflow of tourists:**ICC World Cup + Events + Educational + Seasonal tourists = 150,000 + 300,000 + 162,000 + 400,000 **=1,012,000**

**Calculation of Revenue:**

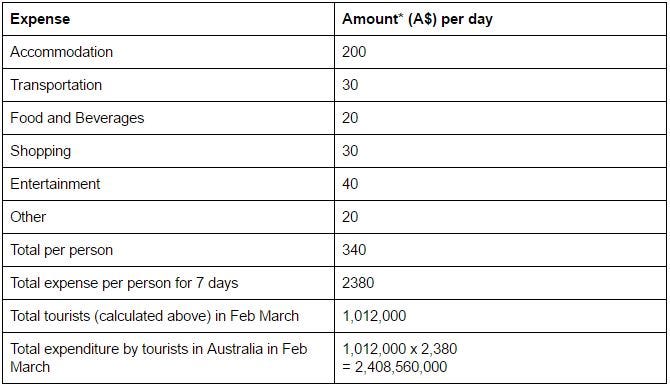
• Airline fares/Transport costs

• Accommodation/Food and Beverages/Entertainment, museums, movies, zoos etc

• Shopping, gifts, souvenirs

• Others (phone, postage, medical expenses, repairs, dry cleaning etc).

**Revenue flowing into Australia**



\*An average estimate has been made

Therefore, **Total Revenue earned by the Australian Tourism industry is A$ 2,408,560,000.**

**1.  Understand the question (Clarify)** – Try and extract the exact information from the interviewer on what he wants you to calculate. In the previous example, for all you know, the interviewer might be interested in finding out the total number of red light bulbs in Delhi. Hence, it is imperative to be on the same page as the interviewer. Always ask first before you attempt any guesstimate.

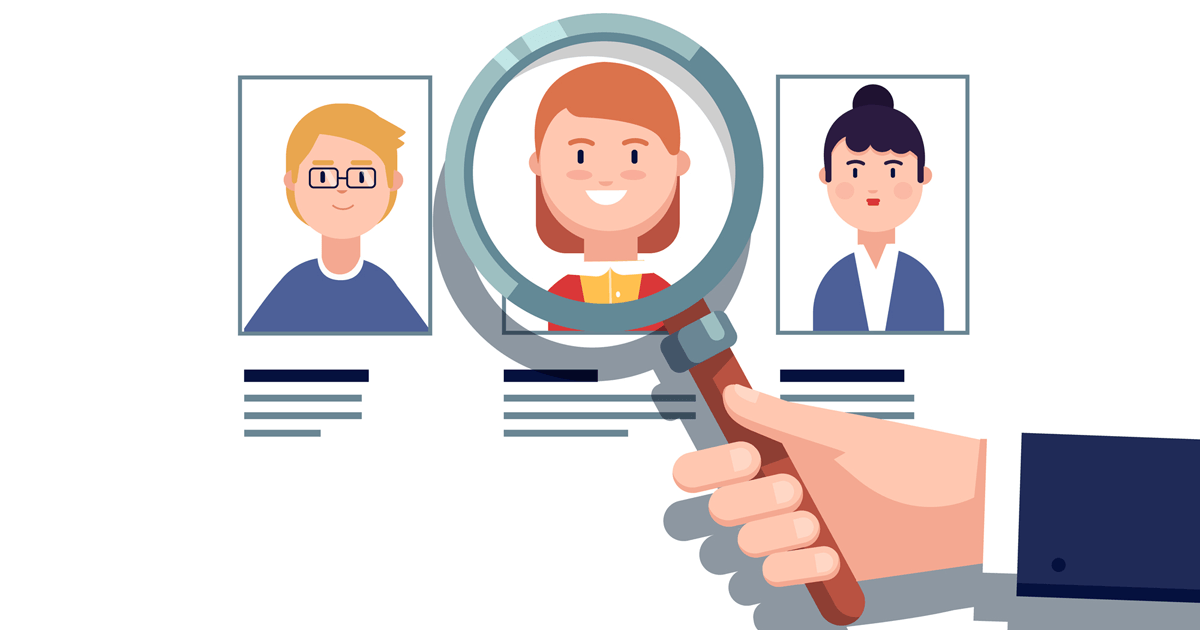
**2.  Devise a Logical Approach (Structure)** – There is no foolproof way to approach a guesstimate. You can solve a guesstimate using several approaches – top-down, bottom-up, process mapping, layout centric, or critical comparison. The trick here is to go with the approach that helps you minimize your assumptions, a simple rule of thumb while you approach guesstimates.

**3.  Decide which Approach to take** **(Analyze)**– Once you have devised the approaches, it is time to decide which approach you want to use. Ideally, think of 2-3 steps ahead of you in the approach you decide to use and see how it works.

**4.  Put the numbers and the assumptions (Conclude)** – This is the final and the trickiest step. Once you get this right, you have cracked the guesstimate. However, once you practice enough, you develop a knack for solving it.

Let us now look at the various filters that we could apply to breakdown our problem in a systematic fashion:

**Filters to zero in on the exact Customer Segment:**

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1. Rural-Urban (Geography-wise)
2. Gender Split
3. Age Split
4. Income Split
5. Willingness

**For Example: How much sunflower oil is used in India in one year?**

Here, a good idea would be to use Geographic wise filter, as the consumption of sunflower oil is largely dependent on the region.

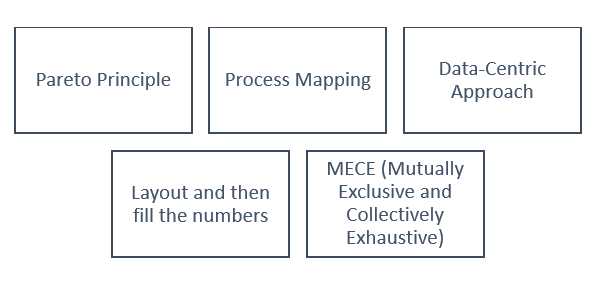
Typically, we can break the region into 4 categories:

1. East
2. West
3. North
4. South

Each of these regions can be further broken down into Tier I, II, III & IV regions. Now, we can use this filter and proceed further by making logical assumptions backed by past experience.

Note that whatever, you have calculated for one region can be used for other regions by using a suitable multiplying factor.

**Strategies to solve a Guesstimate:**

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There are various strategies to solve a guesstimate. Let us look at a few common ones:

**1.  Pareto Principle (80:20 Rule):** The idea behind this strategy is to split what we are calculating in terms of majority and minority. The basic idea is to calculate the major portion first, sideline the minority, and compute it later.

**2.  Process Mapping:** It is about deciding whether to use the push or pull approach. The same problem can be approached from consumption and production side

**For Example: Find the amount of chocolate used in India in a day.**

We can have 2 approaches for the same.

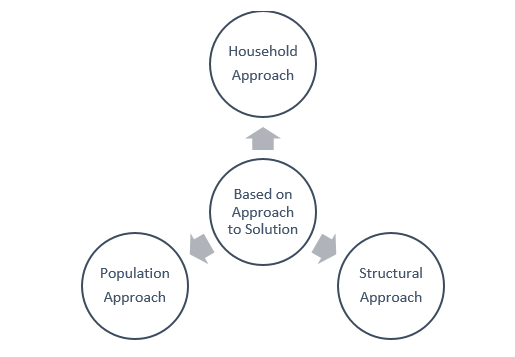
**Consumption side:** Estimating the number of end consumers (to avoid double-counting) and the units consumed by each consumer.  
**Production side:** Estimating the amount of cocoa produced, chocolate factories in a city and extrapolating it by appropriating the share based on the population of the country.

**3.  Data-centric Approach:** Appropriating the right numbers in the structure when it is ready. To find numbers of an unknown category; you could assume a safe figure by considering a similar category.

**4.  Layout and then fill the numbers:** Prepare a comprehensive exhaustive layout for the guesstimate and then start filling in the numbers.

**5.  MECE (Mutually Exclusive and Collectively Exhaustive):** Ensure that the buckets do not overlap with each other and are comprehensive when taken together.

**Types of Guesstimates based on Approach to the Solution:**

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**1.  Household Approach:** The category let's say, Cars are bought as a household purchase and hence we calculate the number of cars as per the number of households.

**2.  Population Approach:** Example: A category like a pen is bought for individual consumption and is based on the number of people. Hence, we proceed with the guesstimate about the number of people.

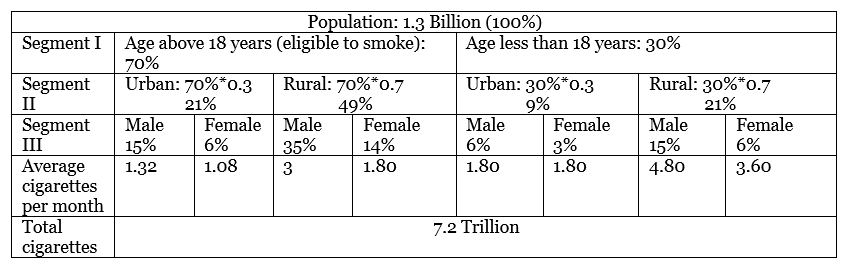
**3.  Structural Approach:** Example: To find the number of airplanes landing in India in a single day, the bottleneck would be the runway as it controls the entire operation.

**Elements of a Typical Solution:**

Clarify the question statement, have no ambiguity  
Ask preliminary questions – gather information but do not try to solve the case  
Reiterate objective function – be precise  
Take time to think  
Give detailed operating system with a possible hypothesis  
Proceed with a framework (give mini summaries), ask questions to gather data  
Understand what is the current set up of the company  
Provide conclusion and recommendations

**Example: Guesstimate the number of cigarettes consumed in India in a month**

A good starting point is to use the population of India i.e. 1.2 billion and segment it using the age filter as it is an important criterion and would help us breakdown the population into two broad categories.



**Here are the key considerations we took to arrive at the figure:**

(i) The use of geographic filter as the availability and consumption of cigarettes as a product category is different in the rural and urban areas. It is more prevalent in urban areas.  
(ii) Typically, 70% of India is rural and 30% is urban. Hence, we used the multiplying factor of 0.3 and 0.7.  
(iii) Typically, the male population consumes more cigarettes than the female population in both the rural and the urban landscape. This assumption is backed by our everyday observations.  
(iv) Smoking is more prevalent among the older age and the bulk of the population starts smoking while they start working.  
(v) Using these assumptions, we work out the average cigarettes consumed in a month and add them to find the total number of cigarettes.

**The Clinching Parameters:**

**1.  Structured Thinking:** The importance of this point can’t be stressed enough – as this lays the edifice for solving a guesstimate. This is a trait, which is appreciated by the interviewer.  
**2.  Sharp Communication:** Remember the 3V’s – Voice, Veracity, and Vocabulary. These traits come into play while you present your solution to the interviewer.  
**3.  Smart Creativity:** Build your own stories for making small assumptions, but be logical.

**Guesstimate Questions: Some Smart Ways to Prepare**

During interviews, employers may ask you questions to find out how much knowledge you have about the job, your skill set and experience, or your plans for future growth. These questions have concrete answers you can prepare for and answer accordingly.  
During a job interview, employers may ask you questions to find out how much knowledge you have about the job, your skill set and experience, or your plans for future growth. These questions have concrete answers you can prepare for and answer accordingly.

However, what happens when you are asked a guesstimate question requiring you to estimate an answer based on limited information? You can use effective strategies to approach these questions by providing an educated answer using a combination of skills you may already have or can quickly develop.

**What is the purpose of guesstimate questions?**

Guesstimate questions are an essential way to assess how you arrive at an answer to a problem where adequate information is not provided. Employers are trying to form an understanding of your approach toward the problem, so it is important to keep in mind that guesstimation is rarely, if ever, about the answer you give. The purpose is to understand if you can devise a sensible solution to a problem within a set time frame. Answering these types of questions also allows the interviewer to gain a better understanding of your thought processes.

Interviewers also use these questions to see how well you perform under pressure. They are looking to see if you know how to use best the skills and logic you already have. How you approach these questions also shows employers that you can remain calm under pressure, even when you don’t know the answer, so take your time to think things through calmly.

**Approaching guesstimate questions using your skills**

If you plan on a career in an industry that requires using guesstimates, such as consulting, management, or analytics, it is best to be as prepared as possible, even if there is no one correct answer. Going into interviews where guesstimates may be possible, it is important to plan how to handle this situation. Plus, having a plan will help build your confidence and help you remain collected.

First, make sure the problem being presented to you is clear. By asking the interviewer to clear up as much as possible, you ensure you have all the information available. It also helps demonstrate your organisational skills, giving you time to formulate your answer.

Next, instead of seeing the problem as a whole, which can be overwhelming, break it down into small chunks as much as possible and solve each chuck individually, which makes it easier to come up with an estimate.

Finally, combine all the pieces using mental math to form your answer. Be sure to recheck your answers for any errors as well. This shows your thoroughness and demonstrates how you will perform on the job.

Remember that you don’t want to take too much time when breaking down the problem so the interviewer can see that you know how to use your time wisely and think things through quickly. Instead of overthinking possible solutions, what counts the most is your structured approach to the problem at hand. The interviewer is more interested in how you come up with the most logical answer.

**Types of guesstimate questions**

Employers focus on three main types of guesstimate questions when hiring in their respective fields, each requiring a different approach. Depending on the job you are interviewing for, the emphasis may be on one type more than the others. The breakdown of the approaches are household, population, and structural approaches:

* The household approach helps pinpoint people’s habits and behaviours.
* The population approach deals with population and demographics.
* The structural approach forecasts answers by comparing two or more random variables to form predictions.

You can find examples of each online that relate closely to your desired position. First, consider which type of guesstimate approach will most likely be asked according to the position you are interviewing for. Next, depending on the approach of the guesstimate question, do the same thing you would with any other interview question—make sure you are as prepared as possible.

When answering traditional interview questions, most people prepare by applying their knowledge and skills to solve the practice problems that the interviewer will most likely ask.

**Tips for answering guesstimate questions**

Because guesstimate questions have limited information, it is useful to know some helpful tips when answering them. To ensure you come to the best conclusion, here are some suggestions that you may find helpful:

* Use your logic as well as the facts that are available to you. These skills are more important in this situation than following a “feeling” you may have.
* When dealing with large numbers, round them to the nearest figure instead of using fractions or decimals. Ranges of numbers make things more complicated and will affect the number of calculations you make, utilising unnecessary time.
* When working out your answer, consider using a sheet of paper to write out your steps. This makes it easier for you to track how you draw your conclusions and shows the interviewer your thought process if they ask to see your written thoughts. Use whatever methods work best for you, including lists and flowcharts.
* No matter how unusual or irrelevant the question seems, there is always a way to answer it. Use your and your interviewer’s time wisely by beginning to solve it instead of wondering what the question means. Remember that questions will not likely have a definitive answer but require an educated guess.  
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How to Solve GuesstimateQuestions in an Interview

Solving guesstimates can be tricky. Not only do you have to rely on unknown data and assumptions, but you also have to come up with an answer in a pressurizing situation such as an interview.

Guesstimate questions are common in interviews, especially if you are appearing for data analytics, consulting, or management roles. And you need a good command of analytical skills and creativity to solve these problems.

In this post, we have explained **how to solve guesstimate questions** with an example. We have also shared some expert tips and suggested books so that you thrive in the interview.

**What is a Guesstimate?**

A guesstimate is basically a calculated guess. When solving a guesstimate, you make an estimation based on your own logical reasoning.

GUESSTIMATE= GUESSWORK + ESTIMATION

So, it’s not about throwing a random number. Successful guesstimates involve breaking down a big question into smaller, solvable chunks.

For example, an interviewer might ask, “How many deliveries does Zomato make in a day in Delhi?”

You won’t find the exact answer in a textbook. Instead, you will need to estimate the population of Delhi, what percentage of them order from Zomato in a day, and how many times they order. You will also need to do some quick mental math to arrive at a reasonable figure.

The key here lies in demonstrating structured thinking. Even if your final answer isn’t 100% accurate, interviewers want to see how you approach the problem and justify your assumptions.

Here are some of the things the interviewer checks when you solve a guesstimate question:

* How structured is your approach?
* How comfortable are you with numbers?
* Can you make logical assumptions under pressure?
* Can you do mental calculations and validate the magnitude of numbers?
* Can you explain your process clearly, even if the path is a bit messy?

That said, now let’s see a good approach to crack guesstimates and thrive in your interviews.

**How to Solve Guesstimate Questions: 4 Simple Steps**

**1. Clarify the Question**

Whenever you are asked a guesstimate, the first thing you have to do is calm yourself and ensure you completely understand the question.

You can ask clarifying questions to the interviewer. For example, if asked, “How many phones are used in India?” you should know:

* Are we talking about active phones in use or every phone ever sold?
* Are we talking about simple feature phones or just smartphones?
* Are we interested in a specific region or the whole country?

**2. Break Down the Problem**

A guesstimate can be scary if you see the problem as a whole. But when you break it down, it gets a lot easier. So, divide the problem into 2-3 parts based on the different factors that influence the answer. To continue our smartphone example, you could break it down into:

* Population of India
* Percentage of people who likely own a smartphone (age groups, rural/urban divide)

**3. Solve Each Piece**

Now, you can estimate each piece of your puzzle. Make reasonable assumptions based on your general knowledge. You might not know the exact population of India, but you likely know it’s over a billion. You can round the numbers to make better estimates.

**4. Calculate**

Finally, put your pieces together. You will have to do some mental math to arrive at your final estimate. Remember, the goal isn’t necessarily a perfect number – it’s about showing your thought process and how you arrive at a reasonable conclusion.

**An Example to Understand How to Approach Guesstimates**

Let’s take an example guesstimate question for data analyst roles: **How many cups of tea are consumed in Delhi in a day?**

Here’s how you can solve it using the above 4 steps:

1. Clarify the question if you don’t understand it. Since this one is simple and self-explanatory, you can proceed with the second step.

2. Break down the problem into manageable parts- what’s the population of Delhi, how many of them drink tea, and how many cups of tea do they drink in a day.

3. Now, you solve each piece of the puzzle.

**Population of Delhi (x):** Delhi has a big population, let’s say around 3 crores.

**People who drink tea (y):** Tea is one of the most popular beverages in north India. So, we can expect at least 70% of people would drink it.

**Number of cups a person drinks in a day (z):**Indians generally consume tea twice a day- one in the morning and one in the evening. Some may drink more than 2 cups, some may drink only one. So let’s say it’s, on average, 2 cups.

4. Now, in the final step, you combine all the pieces of the puzzle:

Total number of cups of tea consumed in Delhi in a day:

= x.(y/100).z = (30,000,000).(0.7).(2) = 42,000,000

So our guesstimate is that Delhiwalas consume around 4.2 crore cups of tea in a day!

**3 Tips to Solve Guesstimate Questions**

The above **guesstimate interview question** was an easy one. You need a lot of practice to get better at it. The good thing is you don’t have to be naturally talented to do it, you can learn. So, here are some tips that will help you solve guesstimate questions:

**1. Have a Flexible Framework**

You don’t need a rigid formula but a mental checklist to guide you. A simple framework could be: clarify the question, break down the problem, estimate components, and calculate. This step-by-step approach makes sure you address all aspects of the question and prevents you from getting overwhelmed or jumping to conclusions too quickly.

**2. Know some Common Figures**

Knowing some basic demographics and statistics will speed up your calculations. For example, if you roughly know the population of major Indian cities, you can start estimating things like market size or potential customer base in certain regions. It’s okay to round and use general figures, but having a few key numbers gives your estimations a solid starting point.

**3. Show Your Creativity and Problem-Solving Skills**

**Guesstimate interview questions** are all about creativity and problem-solving. Instead of focusing on getting to “the right answer,” impress your interviewer with unique angles and approaches.

Can you tie the question to recent market trends or news? Can you think of an unconventional way to estimate a certain factor? Creative problem-solving would surely impress the interviewer.

**Number of Maggi sold in a day in India**

I took a bottom-up approach.  
Considering an ordinary, urban household with 4 individuals  
Number of Maggi needed per month = 10  
Therefore, per head consumption = (10/4) = 2.5 Maggi per person  
Population = 1.3 billion  
Urban population: 70% of total population  
Above poverty line population: 40% of total population  
Therefore, net population to consider:  
1300\*0.7\*0.4 = 364 million. Population distribution: (Age-wise)  
0 – 10 (consume less than 2.5 packets per month, say 2 packets): 20% of the population {which equals to (364\*0.2\*2) million packets per month = 145.6 million packets per month}  
10 – 60 (consume 3 packets per month): 65% of the population {which equals to (364\*0.65\*3) million kg per month = 709.8 million packets per month}  
60+ (consume less than 2.5 packets per month, 2 packets): 15% {which equals to (364\*0.15\*2) million packets per month = 109.2 million packets per month}  
Total approximate consumption = (145.6 + 709.8+109.2) million packets/month = 964.6 million packets/month  
Assuming a month of 30 days, per day consumption = (964.6/30) million packets per day = 32.15 million packets per day.

[**How many t-shirts e-commerce companies selling in India per day?**](https://www.avatto.com/data-scientist/interview-questions/guesstimate/#shrt-collapse-2)

We can approach this problem in two ways:  
Demand side  
Supply side  
I am going to solve using demand of t-shirts in the market  
Total population of india : 1 bn (approx) Reach to internet : 40% =400 Mn  
Reach of ecommerce companies to deliver products : 3/4th = 300Mn  
Let's assume 50% are male and 50% are female  
Lets solve for male population first: Now i have divided males in the four categories on the basis of age because demand demand of t-shirts for different age groups will be different  
0–15 yr = 45 Mn, on an average, individual own 4 t shirts -> 4\*45=180 Mn  
16–22 yr = 23 Mn, on an average individual own 4 t shirts -> 4\*23 = 92 Mn  
23–50 yr = 65 Mn, on an average individual own 3 t shirts -> 3\*65 = 195 Mn  
50 - 80 yr = 18 Mn, on an average individual have 2 t shirts -> 2\*18 = 36 Mn  
Total t shirts own by men : 180 + 92+195+36 = 503 Mn ~ 500 Mn  
Let's solve for female population now:  
0–15 yr = 45 Mn, on an average individual own 2 t shirts -> 2\*45=90 Mn  
16–22 yr = 23 Mn, on an average individual own 4 t shirts -> 4\*23 = 92 Mn  
23–30 yr = 15 Mn, on an average individual own 3 t shirts -> 3\*15 = 45 Mn  
30 - 80 yr = 67 Mn -> we can neglect this section. Only a few ladies prefer to use t-shirts in this age group.  
Total t-shirts own by females: 90+92+45 = 227 Mn ~ 230 Mn  
Total t-shirts own by men + women = 500+230=730 Mn  
Average life of a t-shirt = 2-year  
Demand per year = 365 Mn ~ 360 Mn  
Online portals provide coupons and offers but because of trust factor and fitting issues, people in India still prefer to buy offline, So I am assuming 30% of people buy a t-shirt from eCommerce portal and 70% are buying from market.  
Total number of t-shirts sold through eCommerce platform per year in India= .3\*360 = 108 Mn ~ 100 Mn per year  
Number of t-shirts sold in India per day(From eCommerce portal) = 100 \* 10^6/365 ~ 27,000

[**What are the number of smartphones sold in India per year?**](https://www.avatto.com/data-scientist/interview-questions/guesstimate/#shrt-collapse-3)

The population of India: 1200 mn Population above the poverty line: 70% 840 mn  
Population below 14 years: 30%  
Hence, proxy figure: 588 mn  
Rural Population (70%): 410 mn  
Rural Households: 82 Mn  
Rural Mobile Penetration: Avg 2 per  
household- 164 Mn  
In rural areas assume that a new mobile is bought once in 3 years. Hence, new mobiles bought In the current year- 55 Mn Urban (30%):176 Mn  
Assume Avg No of Mobiles per person: 1.5  
Urban Mobile Penetration: 265 Mn  
Assuming that a new mobile is bought once in 1.5 years. Hence new mobiles in the current year- 176 Mn  
Total New Mobiles: 231 mn  
Assuming 3 out of 10 new mobiles are smartphones  
No. of smartphones sold=70 Mn