

## Design an oven for a person in a wheelchair

**Clarify** - What, Why, Goal? Male/female? Completely crippled? Or partially - can stand up? Demography? What type of company are we? Any resource constraints or deadlines to design?

**Goal** - Design an oven for a completely crippled person living in a house in India. There are no resource constraints and you are free to make any other assumptions.

### Customers/Users -

1. A person who is not crippled should also be able to use the oven as the crippled person might be living with his/her husband/wife/family - The regular customers  
Motivation - Use the oven for simple and complex cooking activities with ease
2. A person who is crippled and can't walk - Crippled/Wheelchair user  
Motivation - Use the oven for simple day-to-day activities with ease and comfort

### Pain Points -

#### 1. Crippled users -

Can't easily access the oven because of its height and position.  
Want a simple and easy way to heat items in oven  
Want a simple way to access oven-friendly bowls and plates  
Easy way to heat up a variety of items in the oven according to their specific requirements

#### 2. Regular users -

Might use the oven for regular as well as complex cooking - like grilling, convection heating, etc.  
Want the oven to be in a regular fixed position and orientation so that they can access it easily.

### Pain Point Prioritization -

As the product is mainly meant for crippled users, we should prioritize their pain points. Also, the requirements of crippled users and regular users are slightly conflicting.

Crippled users > Regular Users

### Design -

1. **Oven mobility stand cum dish holder** - The stand comes with 2-3 position and orientation modes. For ex, one mode for the crippled, one for the husband, and for the kids. The stand can adjust its height and turn around the face of the oven's door in a

specific direction. Once the button is pressed, the oven's position will become whatever is suitable for the user.

The stand should come with a dishes and a plates holder. This stand should be fixed and not move with the mobility stand. Will hold the oven friendly dishes and plates.

2. **Oven design** - A minimal oven with buttons for start/stop, increase/decrease time and 3-4 buttons for some quick modes - like milk, water, gravy, bread and soup. Oven should make a noise once the items are ready.

#### **Pros/Cons -**

Pro - Oven is easily accessible. Simple and easy to use. Cheap as not a lot of technical capabilities

Cons - Might be useful for complex cooking, regular users might not use it.

**Success Metrics** - All the metrics are physically tracked in nature. Don't make such sense. But if asked suggest the metrics

1. Acquisition - # of sales daily/weekly/monthly, top n channels, bounce rate,
2. Retention -
3. Support - # of complaints daily/weekly/monthly, # of issues resolved, # of issues pending, Avg. time spent for resolution
4. Monetization -

### How would you improve image search?

**Clarify** - What? Why? What company are we? Any specific pain point? Any resource constraint or deadline?

**Goal** - Say, we want to improve the user experience for google image search. You are free to assume any user segments and their pain points

#### **User Journey -**

Go to google.com – Enter a search query – Persian Cat – Shows all the relevant cat images on the first page – Also after clicking the images tab, shows all the relevant images – user can expand images by clicking – go to the actual site for viewing the image

#### **User segment -**

1. **Students**

**Pain points -**

1. Pain in downloading the image and then editing the image locally on their machine. As these students are always preparing something or the other for their projects, they need interactive images and not the raw images that are available on the internet
2. Sometimes, it is difficult to understand all the elements of the image. For example, if they search for Shivaji Maharaj, various images of shivaji maharaji will pop up and also some images of them with their soldiers, wife, etc. will also popup.  
Solution - Integrate Gemini and let gemini analyze images for users and let it give info related to the image using Gemini
3. Need an easy way of downloading images locally. If a student wants to download 10 different images, he/she has to manually download each and every image.  
Solution - Allow users to select multiple images (only images that can be downloaded) and download images.

## **2. Working professionals -**

## **3. Old-aged**

Prioritizing students here as google search is their major option when it comes to searching images. Also, student size in india is a very big market. 15-25 years of age use google for getting their images. Accounts for roughly 20-25% of the indian population.

**Pain points priority** - Track the number of iterations a user has to make until he/she does the CTA (for ex, downloading or visiting the external site)

1>3>2

### **Solution -**

Once a user clicks on an image, if it is an open-source image, give the user an edit option by clicking on the more button.

The image editing will not be very heavy. Only include simple features like - brightness, contrast, saturation, adding/editing captions, temperature, etc.

### **Alternate solution -**

Integrate with Google Photos. Allow users to directly add these images to their google photos. And then allow them to edit it on the Google Photos Web App.

### **Pros/Cons -**

### **Metrics -**

1. **Acquisition** - # of new users, # of clicks on edit button (D,W,M), Top N channels for image editing (from home page, from image search page)

2. **Activation** - # of users editing images (daily, weekly, monthly), # of edited images downloaded, ratio of edits/image opens (D,M,W)
3. **Retention** - Avg time spent editing, # of repeating users weekly, monthly, churn rate, bounce rate,

## Design an educational product for Youtube

Clarify - What type of education? Till 12th, or engineering, or post-grads? - All

Why? Goal - user acquisition, increasing revenue sources? Improve user acquisition of students

### Goal -

Improve user acquisition of students by designing an educational product for Youtube

### User Segments -

1. Junior KG students
2. Senior KG students like students between 1-5 standards
3. High School Students between 6th to 10th Standard
4. Junior College students - 10th - 12th
5. **Undergrads**
6. **Postgrads/Masters students**

Focusing on 6 and 7 user segments as this is a major chunk of students who uses Youtube to study. Also, the syllabus gets more and more conceptual with subjects coming Complex Mathematics, Physics, Chemistry, Biology and needs the best teachers.

### Pain Points -

1. Even though they learn a concept in school/college, they try to learn it from any online source - sometimes its authentic and sometimes it isnt
2. Waste a lot of time in trying to find the right educational resource for them.
3. Students need a mentor who can answer their questions efficiently and rightly in the language they understand.
4. Students have the least amount of patience and want to learn a concept as quickly as possible.
5. They want easy and quick ways to remember a particular concept and how the concept can be applied in real life.

### Prioritizing the pain points -

1 > 2 > 4 > 5 > 3

Trying to objectively prioritize these pain points, will need to do market research, figure out the time spent to learn a particular topic on Google, Youtube. Figure out the times a particular

educational topic was searched. # of sites surfed to read about the topic - Time spent on those sites maybe.

## **Solution -**

### **Youtube for Students -**

A one-stop solution for all the educational content for students.

Curated content

Only gather creators, schools and institutes who create content around education

To ease their pain of trying to find the right topic within the shortest amount of time -

- Let them search by topic
- Provide a hierarchy of topics  
For ex, Physics - Theory of Light - Concept of light, Concept of light diffraction and reflection, etc.

These would be the popular topics that are watched on youtube

- Written and interactive section below the youtube video - images to explain clearly, flowcharts  
Summary about the topic, real-life connection between the topic and the theory

### **Alternate solution -**

Create a students section -

Ask the students a couple of clarifying questions - Which standard are they studying in? What are their interests? What do they want to learn? What do they want to become? And more...

Then, recommend videos that will help them learn the concepts that they really want to learn.

### **Tradeoffs -**

Pros -

1. Will boost the # of students consuming educational content on youtube because of personalization
2. Help generate more revenue by advertising
3. Increase the overall time spent on Youtube

Cons -

1. Might face backlash from educational institutions like schools judging the authenticity of the content
2. May not be able to teach what's exactly taught in school resulting in lesser score for the students in their academics
3. Student just gets more confused after consuming the content on youtube and their school

### **Success Metrics -**

1. Acquisition
  - # of new users on youtube for students
  - Top N channels for students acquisition
  - Bounce rate
  - Click through rate
  - Avg. Time spent on explore page
2. Activation
  - # of first time users
  - # of users buying youtube premium
3. Retention
  - # of repeating users daily/weekly/monthly
  - Number of videos watched per day
  - Time spent watching
  - # of likes, comments, saves, downloads, dislikes
  -
4. Monetization
5. Referral

Design a vending machine for hotels. Then, estimate the market size for this product in your hometown.

**Clarify -**

What kind of vending machine? - Will it offer products like coke, chocolate, biscuits, etc. or something else?

Who will use it? - Kids, Young, Elderly?

Why do we want to design a vending machine for hotel? To attract users/increase revenue?

Do we know when will users interact with this machine?

What kind of hotel is this?

What kind of company are we? Are we Google? Or LG/Samsung?

**Assumptions -**

1. Assuming that this vending machine will offer coke, chocolates, energy bars, energy drinks, etc.
2. Its for people over > 18 yrs age, basically not for kids
3. The overall objective for having this vending machine is to bring one more revenue source
4. There is no particular time when users will interact with this machine
5. It is a chain of franchise hotels, like Taj, Lemon Tree, etc.
6. We are tech equipment manufacturer company like LG

**Company -**

We are LG and the mission of LG is to help people live a good life by infusing technological and innovative solutions

### **User Segments -**

1. Business class people
  2. Tourist groups
  3. Old Aged
- 
1. Business class people
  2. Economy class people
  3. Lower economy class people

This is a wrong user segmentation - this is not mutually exclusive and collectively exhaustive

Focussing on business class people as they are the ones who frequently visit such hotels. However, a proper market research will need to be done to estimate the number of business class people visiting such hotel chains.

### **Customer Journey -**

Urge to buy a coke - Goes near the vending machine - Presses the button to indicate the product to buy - Inserts money to proceed with the transaction - Receive the product from the vending machine - DONE

### **Pain Points -**

1. Don't have the exact change of money to buy cheap products. For ex, coke for 15₹, or energy bar for 27₹
2. Can't easily find the products that they are looking for.
3. Don't really know if they are buying the right product or not.
4. Don't have the motivation to walk from their hotel room till the vending machine
5. When they are in their rooms, they don't really know if the vending machine has the items that they really want to buy.
6. Don't want to keep a particular product that they have just bought from the vending machine

### **Prioritizing the pain points -**

Currently, I'll focus on the pain points 1,2,3 as they are the most basic ones when it comes to transacting with a vending machine

### **Design Solution -**

1. A vending machine with a touch screen and a POS terminal attached to it.
  - The vending machine has products categorized like Soft drinks, Chocolates, Cigars, etc. helping people find products easily
  - The touch screen will have the following customer journey - showcase the product category on the home screen - Select a product category - Showcase

products under that category - Allow user to add it to the cart - Allow user to add more products to their cart - Proceed to cart - Checkout - Pay with various payment modes using the POS terminal attached - Available modes - UPI, Credit/Debit Card, Tap to pay, Pay later, etc.

- This design will solve the problems when users don't have the exact change amount to pay as they will be paying via UPI, Credit/Debit cards, etc.
- Ask the users for their mobile number to send them the bill of the purchase

### **Alternate design solution -**

#### **Moonshot design solution -**

1. A vending machine that showcases its product list in the tablet that's present in the room and also an app that allows users to interact with the vending machine
  - Allows users to directly order the products to their room
  - The app will allow users to interact with machines across the various hotel chains where this vending machine is installed
  - The app will have a similar interface like the touch screen on the vending machine
  - App will allow users to request for a particular item if its not currently present
  - This app will solve the problems for the users who don't have the motivation to walk till the vending machine
  - Will solve the problem of the users who want to figure out whether a particular item is present in the vending machine or not

### **Pros/Cons -**

1. Impact - Solution 2 > Solution 1
2. Effort - Solution 2 > Solution 1
3. Reach - Solution 1 > Solution 2 - as this is more simple to use and interact
4. Confidence - Solution 1 > Solution 2

Initially, the organization should go ahead and implement solution 1.

### **Success Metrics -**

1. Acquisition - Top N hotels by sales,
2. Engagement - # of items sold daily/weekly/monthly, Avg time spent to order, Avg. # of items bought per order
3. Retention - # of repeating users, Avg. # of clicks per order
4. Monetization - Avg. daily/monthly/weekly sales, Avg. revenue per order and per user, Revenue by payment methods,
5. Negative metrics - # of failed transactions, # of daily/weekly/monthly errors, bounce rate

### **Summary -**



Implementing a vending machine with a touch screen UI and a POS terminal attached to it solves the major points at hotel chains like Taj, Lemon Tree, etc. where business people have the problems like they Don't have the exact change of money to buy cheap products OR they can't easily find the products that they are looking for OR they don't really know if they are buying the right product or not.

This solution can be easily expanded to other franchises of Taj, Lemon Tree, etc.

### **Market Size -**

Estimate the market size for this product in your hometown

### **Assumptions -**

1. Hometown - Mumbai, India
2. Market size means the number of customers that can be served using our vending machines
3. Focussing on five star and four star hotels at the moment and user segment is business class

### **Calculation -**

Assuming that there are 15 five star hotels and 25 four star hotels in Mumbai

Daily footfall of business class people to these hotel estimation -

Let's say each hotel has roughly 15 rooms and on each floor. And there are 6 floors on an average in such hotels.

So, the number of rooms per hotel - 90

Total number of rooms across all the hotels in Mumbai -  $90 * 15 * 25 = 33,750 \sim 35,000$

Generally, business users travel in groups of 2. Let's say on a weekday, 60% of these rooms are occupied by business class people.

# of business class people - 42,000

Out of these, not everyone will use the vending machine. Assuming that 30% of the users use the vending machine - 12,600 people

So, daily **12.5k** business class people can use the vending machines that would be installed at the five star and four star hotels chains across mumbai

Rant about organizing a child's 1st birthday party

Customer journey -

Make a list of guests - Send invites - RSVP - Make birthday arrangements at the venue - Get the kid and everyone ready - The birthday celebration - Birthday gifts and return gifts - Post birthday experience - Upload videos and photos on social media

Pain points -

1. Whom to invite?
2. How to send the invitations?
3. What message do I send on the invites?
4. What will be the budget if I invite X number of guests?
5. How to make sure that a particular guest is coming to the party?
6. What props do I need for the birthday?
7. Where should I order the birthday cake from?
8. What food arrangements should I make? And how should I make it?
9. How to find the right place where we can have the 1st birthday party?
10. Who will manage all the kids at the birthday venue?
11. How should my kid dress up for the birthday?
12. How should I dress up for the birthday?
13. What songs to play at the birthday hall?
14. How to manage the gifts that are given by the guests?
15. What return gifts should I buy?

What is your favourite physical product?

Well, my favourite physical product is my bike - the KTM Adventure 390. Just to tell you, I'm passionate about bike riding and I recently completed an 800 kms bike ride to Goa where I led a group of 5 bikers.

**Three top reasons why it is my favorite product -**

1. Serves the purpose - The 390 CC engine provides 43.5 PS of power @ 9000 RPM torque, which is the right amount of power and torque that I need for my touring purposes. The 14.5L fuel tank takes me to around 350 kms in a single stretch without having me refuelling it again and again.
2. It is innovative - The bike comes with a digital speedometer, displays the speed, has data for 2 trips, and displays the range of the bike. The display also shows directions to a particular destination when connected with a phone via bluetooth.
3. Amazing product design - Whenever I take my bike on the road, it makes sure that people turn around and take a look at this marvel once again before it leaves. And I just love that feeling. The bike looks like a sturdy, big bad machine ready to intimidate the roads. People make sure that they give the side for this bike to run and create its own way on the road.

So, to summarize I like it because it is useful, it is innovative and has an amazing product design.

How would you improve it?

I would like to first chalk down the pain points and then the solutions for the same -

1. Sometimes, when I get a call on my mobile phone and I'm busy riding, I don't have the option to let the other person know that I'm busy riding. And sometimes, it is kind of dangerous to pick up the call while you are riding even though you are wearing a wireless bluetooth device inside your helmet.
2. Sometimes, I don't know what the lights indicate on my bike's display. For example, when I was on the Goa trip, there was one light blinking on the display and I knew that something was wrong. But what was wrong? I didn't know where to find a service center in such a remote location. And how to temporarily fix the problem by myself if there was no service center around.
3. Sometimes, whenever my friends were bored riding their bikes, we used to switch the bikes. And one of my friends was a bit short in terms of height. And he did not feel confident as his legs were not reaching the ground after he sat on the bike making it an unsafe riding experience for him.

I would like to improve the customer satisfaction of the bike by making it more safe and convenient.

#### **Solutions -**

1. Reject call from bike - Automatically send a default message in 5 seconds if rider does not select from any other options available.  
For example, - Default - Hi, I'm busy bike riding. Can I call you in sometime?  
OR Hi, I'm busy riding near Rajkamal Chowk, and will reach the home in 15 minutes.  
Can I call you after that?  
OR any other specific message set by the rider
2. A one-stop app which connects to the bike over bluetooth - tells the user about the health of the bike, and teaches them about the different lights blinking on the bike. Allows them to troubleshoot issues, points them to the right service center.
3. Height adjustable seat - Allow the seat height to be changed by adjusting the suspension of the bike making it accessible to different types of people.

How would you prevent "bad" content from being uploaded to a social media platform?

### **Clarify -**

1. What do you mean by bad content? Child pornography, accidents, harmful content, or something like bad content for the platform youtube shorts where people are uploading shorts of movies which don't make sense and reduce the overall watch time of shorts?
2. What social media platform are we talking about it? Instagram, Facebook, Whatsapp, Tiktok?
3. What's the objective? - To acquire more users/user retention/user experience?
4. For whom are we building this feature? Kids/elderly or any other user segment?
5. Are there any existing pain points of the users?

### **Assumptions -**

1. Bad content can be anything like child pornography, accidents, harmful content, sensitive videos, etc.
2. Social media platform is Instagram
3. The objective is to improve the overall user experience
4. No such user segment in mind currently
5. You may go ahead and think of some pain points

### **Structure -**

Company -> User Segments -> Pain Points -> Pain Point prioritization -> Ideas -> Tradeoff analysis of the ideas -> Success Metrics -> Summary

### **Company -**

Instagram wants to entertain people by helping them share their memories with others

### **User Segments -**

1. **Creators**
2. Consumers/Viewers

Let's focus on creators, as they are the ones who may be generating the bad content on Instagram. And consumers/viewers already get an option to report content that is harmful/misleading, etc. and Instagram takes action on it.

### **Pain Points and Needs -**

1. Sometimes, creators don't know whether their content is really bad for the platform or not.
2. Creators want their content to be as famous as possible and they think that posting bad content is a quick way to get there
3. Creators want to make quick money using bad content
4. Creators don't know the purpose of the Instagram platform, for example, they may post a car accident video which they feel is news that must be shared with everyone, however, ideally it should be posted on news channel and not on Instagram.

## Pain Point Prioritization -

1 > 2 > 4 > 3

A proper market research will need to be done to objectively understand which is the biggest pain point that must be solved to address the issue.

## Solutions -

1. AI based content analysis (only for content creators) -  
Ask creators to describe their video/photo in a short, simple sentence. Analyze the statement to get more context about the video and then do an AI based video/photo analysis. If the video turns out to be a bad video, don't allow to post it.
2. Incentivize creators -  
Incentivize creators for posting videos that have very minimal or zero number of viewer reports for bad content. Incentives can be in the form of a free boost of their content for 1-2 days. Or allowing them to reach to a particular user segment via the platform. Or giving them premium analytics to help them gain deeper insights into their viewers.
3. Disallow earning money on bad content -  
As soon as Instagram comes to know that a particular content is bad content. Immediately stop monetizing that content for the creator.  
And warn them of the rule/regulation that they have broken. And take their content down.

## Tradeoff analysis

	Pros	Cons	Impact	Effort
Sol 1	Automated way of checking the content whether it is good or bad	AI may fail to differentiate between a good and bad video. Also, there may be cases of false positives and true negatives leading to discomfort among the creators	High	High
<b>Sol 2</b>	Creators will be motivated to upload content that's good for the society	Need a strong and robust way to make sure that bad content is not getting circulated on the platform	High	Med
Sol 3	Will definitely help in keeping the platform clean as creators would not want to lose their content, money and account	A stricter way to disallow bad content which may make creators apprehensive about the platform	Med	Med

**It makes more sense to go ahead with and implement solution 2 by looking at the tradeoff analysis.**

### **Success Metrics -**

For solution 2

User engagement

1. # of content uploaded daily/weekly/monthly
2. Avg. time spent by creators
3. # of repeating content posted monthly - meaning how many creators have posted more than one content in a month

User experience

1. # of creators incentivized daily/weekly/monthly
2. # of content reports daily/weekly/monthly
3. # of bad content posted daily/weekly/monthly

Negative metrics -

1. # of content that was falsely reported as a bad content
2. Creator NPS

NS - Overall time spent on the Instagram platform

## **Design a product for event gathering for Google**

### **Clarify -**

1. What? What does it mean by event gathering? - acting like aggregator platform/arranging events by ourself/buying and selling tickets online on Google platforms?
2. Why? What's the objective to enter the event gathering market?
3. What geography does Google want to enter? Any particular country/region?
4. Any user segment in mind?
5. Any other resource/tech/time constraint?

### **Assume -**

Let's say Google wants to act like an aggregator platform for events. So Google will be collaborating with platforms like BookMyShow, Paytm, Zomato, etc. and host their events on Google events. Users will be able to checkout more about the event on Google and then land up on the booking platform to book their tickets

### **User Segments -**

**Users from Tier 1 cities -**

- Students
- **Working professionals**
- Retired

Tier 2 cities -

Prioritizing working professionals - bigger user segment in tier 1 cities. 1.3 Bn - Urban - 30% - 400 Mn - Working professionals -  $\frac{3}{7} * 400 = 160 \text{ Mn}$  total addressable market

### **User journey (existing) -**

Urge to go out - check out events on either zomato, bookmyshow, paytm, etc. - explore through multiple apps - decide on dates - check with friends/family/partner - check for offers - book multiple tickets - Go to the event - Enjoy with friends - Post event experience - upload photos and videos on social media platforms

### **Pain points -**

1. Confused with so many options on the app. Music shows, drama, stand up comedy, etc.- personalized recommendations
2. Generally free on weekends, however, don't have an idea which event is happening where - aggregate and show
3. Want to check with friends if they are willing to go with them for a particular event or not - easy share of the event/motivate friends to join by various promo
4. Don't really know how the event would be, how many people are going to be there, would there be food arrangements, toilet, etc.
5. Want an easy way to book cheap tickets - allow to compare ticket prices across platforms/have platform rating
6. Want an easy way to check the offers for a particular event - personalized offers from Google

### **Design idea -**

Google events -

1. Google takes the cut - allows higher customer inflow for platforms like Zomato, BookMyShow, etc. Allows platforms to host their events on Google events, google promises higher conversion rates, greater customer inflow, and better reach
2. User visits Google Events - Show personalized recommendations on home page - Quick option to check top 2-3 events by upcoming dates -
3. Easy option to share. Partner with external platforms and provide personalized recommendations to users based on the data that Google has about them
4. Show quick options about - food availability, toilet availability, wheelchair accessibility, crowd level, # of people at the event, etc.
5. Allow users to compare prices between various platforms and then book the ticket

### **Alternate -**

1. Once the user has booked the tickets, integrate and automate their workflow by connecting them with various google apps - Gmail, calendar booking, show commute using google maps, show good options nearby - show places to explore near by - recommend videos/music on the way by the artist of the event - offer to read more the artist

### **Success metrics -**

#### **Acquisition -**

1. Top N channels for acquisition
2. # of daily visits - users checking out the google events at least once per day

#### **Activation**

1. Avg. # of events checked daily
2. # of users who booked their first event
3. Hottest events weekly/monthly - most checked by users in a week/month

#### **Retention**

1. # of users who booked more than one event
2. Avg. time spent by users on the google events daily/weekly/monthly
3. DAU/WAU/MAU
4. # of customers who are visiting google events more than once in a month

#### **Referral**

1. # of events shared
2. # of users who shared the events
3. Most shared event for the month
4. Least shared event for the month
5. # of bookings via referral

#### **Revenue**

1. ARPU
2. Top N platforms by sales
3. Profit by platforms
4. Customer lifetime value

### **Summary -**

## **Design a web search engine for children below 14 yrs age**

### **Clarify -**

What is the purpose of the search engine? - to help in education/entertainment like videos, comics/to help acquire new skills/something else?

What's the objective? - Revenue generation/market expansion?



For what kind of children? - Children with some disabilities/smart kids/children who has very little knowledge of tech?

Where? Where do we want to launch this search engine?

### **Assumptions -**

1. Build a search engine to help children to improve their learning experience - they want to learn new subjects, new skills, language, history, geography, poems, bicycle, etc.
2. The objective is that we see potential growth in this market segment and hence we want to design a product for them
3. For normal children who are capable of using a search engine
4. Let's say Indian demography

### **User Segments -**

1. Kids are technologically sound - techie kids - easily understand new tech
2. Naive kids - kids who need some time to learn

### **Pain Points and Needs -**

1. Kids are bored easily - whenever they are reading something, they get bored and distracted easily - important to keep them retained on the platform through some tricks
2. Kids want information in the shortest and sweetest way possible. They don't want to read big articles/blogs/magazines, etc. - right recommendation
3. Kids usually love games - any sort of games - which give them rewards - they want satisfaction
4. Important to give the kids an idea about how much time it will take for them to learn a particular topic/subject
5. Kids want to see things that resonate with their mind/behaviour - home page which is customized to them (science, comic, passion BG)

### **Prioritizing important pain points -**

All these pain points should be considered while designing this new search engine for kids as this is the first time we will be launching this product

### **Design idea -**

Google for kids -

Explore fun educational articles, learn new skills and gain knowledge by learning how things work in the real world

### **Features -**

- We can create some gamification effect to push the kids upwards. For example, create badges - silver, gold, platinum based on the number of articles they have read/questions they have solved. Allow kids to compete with each other

- The article recommendations of this search engine should be short and crisp - no fillers/no BS
- Install small educational playable games on the home page of the search engine - teach them stories about great historians using games - for example, world war II or I can be easily explained via games
- Show the estimated time that's needed to read a particular piece of content - For ex, 20 mins to reach till the end - keep them motivating by keeping a timer on the side
- The home page should be customizable according to the needs of the want - some kid may be passionate about aeroplanes, ships, or some may geography, a particular movie character, etc.

### **Alternate design -**

Why to keep a physical search engine for kids by going on [googleforkids.com](http://googleforkids.com)

Instead - install google for kids on Google home, Alexa, other home smart devices - tell stories, play games, play quiz, etc.

### **Success metrics -**

1. Acquisition
  - # of first-time visitors
  - Top N channels for acquisition
  - Top N reasons for acquisition - why is the kid here?
  - Click through rate
2. Activation
  - Avg. time spent daily/weekly/monthly
  - # of users who made their first search
  - # of users who read their first article
  - Bounce rate
3. Engagement metrics
  -
4. Retention
  - Avg. # of daily/weekly/monthly sessions per user
  - DAU/WAU/MAU
  - # of articles read
  - # of searches made daily/weekly/monthly

**NS** - # of searches made daily/weekly/monthly

How would you improve Grammarly?

### **Clarify -**

1. Why? Any existing pain points?
2. Objective? UX, User acquisition, revenue generation?

3. What aspect do we want to improve? Spell check/sentence check/tone check/AI assistant?
4. For whom do we need to improve? Students/working professionals?
5. Any other resource constraint? Time/money/tech constraint?
6. Mobile extension/Website extension/Desktop application extension/Grammarly keyboard?

### **Assumptions -**

1. Need to improve the overall experience will lead to user satisfaction which will lead to retention and acquisition
2. You can think of areas that we can improve upon
3. You can think of the user segments that we want to improve upon
4. No resource or time constraint
5. For Website extension

### **User Segments -**

1. Students
2. **Working professionals**
  - Juniors - Devs, assistants, etc.
  - **Senior - Manager, Leads, CXOs, etc.**
3. Retired

To focus on that user segment because - biggest users of grammarly, has a higher user base, need to have good writing sense in their writings

### **User Journey -**

Install grammarly => writes something => pops up on the side of the screen => starts showing suggestions => spell check, sentence check, tone, AI writing assistant => accept suggestions => move on to next suggestion

### **Pain Points -**

1. Sometimes, the grammarly apps keep annoying and distracting by keeping on moving in circles
2. **Managers have to write a lot of mails - have to go through the long email chain, understand the context and then reply**
3. Managers and leads have to create product requirement documentations - but have to do basic work of creating the structure, writing repetitive things again and again and then writing the actual content
4. Managers create lots of presentations, and if the presentations have grammatical errors - leaves a bad impression

### **Prioritize pain points -**

Focussing on pain point #2, lots of mails sent daily, bigger problem, wider audience, everyone sends mail

### **Solution -**

1. Grammarly context based mails -
  - Let grammarly understand the context of the entire email chain.
  - You start writing and grammarly starts to chip in. For example, if a conversation is happening on the latest product release, grammarly knows what features have been launched, what work was done, who were involved, etc.
  - A user can ask grammarly to write a mail that the feature set look good to go. And grammarly composes the mail. Boom
  - Send the mail only

### **Alternate -**

Grammarly context based email templates -

For example, there is a conversation going about a new hire. Should we take him or should we not?

Grammarly automatically recommends two different email templates - one talking for the candidate and why he should be chosen

And other one talking against the candidate why he should not be selected

### **Tradeoff evaluation -**

#### **Success metrics -**

1. # of users writing emails daily/weekly/monthly
2. Time spent to write emails after grammarly suggestions
3. Avg. time spent on Grammarly daily/weekly/monthly
4. # of recommendations taken from Grammarly
5. # of recommendations rejected

NS - # of recommendations taken from Grammarly

### **Summary -**

## **Design a library for the future**

### **Clarify -**

1. What kind of library? - Books, e-books, videos, music, entertainment content, articles, magazines, etc.? - **Books**
2. What's the objective? - Make money/Delight users/Only acquire new market? - **Only to delight users and keep them retained on our platform and make money**
3. What kind of users are we targeting? - Avid readers, Regular readers, Students, People interested in a certain topic? - **No such thoughts**

4. Is this an online space/physical library? - **Online space**
5. Any other considerations? - No

### **Goal -**

Design an online library of books for the future where our goal is delight users, retain them and make money

### **User journey (traditional book library) -**

User goes to the library => Explore sections => Goes to a particular section of interest => Explore books there => Find the book => Either read in the library => Issue it for a certain period => Go back and read at home => Come back to return it

### **User Segments -**

Students

- School students (Upto to K12)
- College Students (Undergrads)
- **Higher college students (Masters)**

Needs -

1. Want to carry the library in their pocket. Don't want to physically visit the place, issue books and read
2. Want an immersive feel while reading the books. For example, if they are reading about the world war II, they want to experience it and feel it
3. Want to easily issue books and maintain the books with them on their account
4. Want to read their books in peace without anyone disturbing them

### **Design Idea -**

1. A VR experience-based library
  - User has options to visit publicly hosted libraries across the world. Can go, explore books by sections and categories, read a couple of pages, figure out if they like it or not, borrow it on the platform - Take it back to their shelf - Their shelf also has other books - Read it according to their comfort on a VR experience - Bookmark, read and eyeball tracking based page turning feature
2. An online platform with video content for the chapters
  - Suppose there's a book about World War II - There are 12 chapters - Users get a short trailer video about the chapter and what it entails inside - Gives the brief about the chapter - Enhances the experience - Allow user to even add the book to their own account for a certain period
3. A touchscreen device with pages that act like a book
  - A touchscreen device with only 5-10 pages. Loads the content of the first 5-10 pages from a 200 pager book - once the user reads the first 10 pages - reloads the next pages on the same limited pages - Giving user a feeling of reading a real book
  - The device would be able to load any book from the library

- The device would be like a book with 10 pages, but everything touch screen, interactive.

### Tradeoff analysis -

	Pros	Cons	Impact	Effort
Sol 1			High	Med
Sol 2			Med	Low
Sol 3			High	High

### Success Metrics -

Design an alarm clock for people over age of 70 years

Clarify –

1. Why is the current alarm clock not working?
2. Are there any existing pain points of the users?
3. What does it mean when we say alarm clock? Is it just an alarm clock or should also show the time and have other functionalities?
4. Is there a particular demography where the users lie?
5. What kind of company are we? Are we a clock manufacturing company like Titan, Bajaj or a tech company like Google, Samsung?
6. What is the business goal? Is it focused on user acquisition or revenue generation?

Assumptions –

1. The current clock does not work because it is hung on the wall and does not have any alarm setting functionality. It only serves the purpose of time. And old aged people in India generally do not use phones to set their alarm.
2. Assuming that we need to design an alarm clock and we are company like Samsung which has tech + manufacturing experience.
3. And we need to design this alarm clock for the old aged people in India.

Goal –

Design an alarm clock for the old aged people in India whose age is more than 70

User Segments –

1. Old aged above 70
2. Younger Children of old aged people around 30-40 years old
3. Other family members like grandkids
4. Caretakers

Focusing on the old aged above 70 years now as this is the user segment for whom we are primarily designing the product for. However, we will also need to make the alarm clock user friendly for other user segments considering that they might use it at least on some instances.

Typical User Journey –

Get up – Go near the clock – Set the time and frequency for alarm– Keep the alarm clock back at its place – Alarm rings – User goes to put it off OR Snooze it

Pain Points –

1. Difficult to track time to take medicines, watch their favorite TV show, call their kids who are living away from them.
2. Cannot use mobile phone as they have a complicated user experience to set alarms.
3. Cannot use their current wall clock to set the alarm as it is only for the purpose of showing time.

Solution –

1. A big alarm clock with a digital face (around 7-8 inches) which shows the current time and date.

Design –

- The watch face shows numbers in big font size
- User clicks on `ALARMS` button on the HOME face of the watch and sees all the currently active and inactive alarms. Show the time and frequency of the alarm along with its status – ON/OFF and a `DELETE` button
- On the ALARMS face, give an option to `SET NEW ALARM` - Allow user to enter the time and frequency of the alarm and give some snooze options. And allow user to name the alarm – For ex, Take medicines and allow user to save the alarm. Return to the HOME face
- The alarm rings with a pleasant tone along with the name of the alarm. For ex, Take medicines with a pleasant background sound. User goes near the watch and turns it off using a big physical button to turn alarm OFF at the top of the watch.
- There will be an alarm snooze button on the side and once the button is pressed, the clock will give a loud feedback saying – the alarm will next ring in 5 mins.

Alternate design -

2. A voice-input based clock with which a user can interact using their voice and the watch will have a big digital face to show the current time and other prompts.

Design

- User will say the prompt word to wake up the watch and use its functionality.
- `Hey Ruby, what's the time? OR Hey Ruby, tell me the currently active alarms OR Hey Ruby, when is the next alarm scheduled at?`
- Users will be able to set the alarm as follows - `Hey Ruby, set an alarm for tomorrow at 5 AM` and then the watch will ask a couple of follow up questions to the user asking the purpose of the alarm, alarm frequency and snooze details.
- User will need to answer the question to set the alarm

- Or User can simply say - `Hey Ruby, set an alarm for tomorrow at 5 AM and don't ask me any further questions`. Then the watch will set the alarm by making the default settings for purpose, alarm frequency and snooze details.

- Users can put off the alarm sound by saying - `Hey Ruby, turn off the alarm` OR `turn down`

#### Pros Cons

Solution 1 - Much like a traditional watch with which most of the people are familiar

- The user interface would give more details to the user - Old aged people might not be comfortable with using touch screen devices

- The number of clicks involved is large which might result in less usage of the alarm clock

Solution 2 - Easy to use as everything will be based on voice input - Initial friction would be high to learn how to set alarms

- Sometimes, the voice input may not be clear resulting in a substandard experience of the clock

#### Success Metrics

1. Acquisition –

- # of sales daily/weekly/monthly

- Top N channels for sales

- Bounce rate

2. Support –

- # of complaints daily/weekly/monthly

- # of complaints resolved

- Avg. time taken to resolve the complaint

- Customer satisfaction score

- Net promoter score

3. Revenue –

- Sales revenue by state daily/weekly/monthly

- Profit by state

Uber is facing high number of cancellations after the driver arrives near the location. Evaluate the situation and find ways how uber can improve?

#### Clarify –

1. What does it mean when we say that the cancellations are happening after the driver arrives near the rider's location?

2. Do we know who is cancelling the ride? Is it the driver or the rider?

3. Is this happening during a particular time of the day?

4. Are the cancellations happening for a particular gender?

5. Is this specific to particular demography?

6. Is it happening for a particular ride type or destination on Uber?



#### Assumptions –

1. The cancellations are happening when the driver is in proximity of 100-200 mtrs and it has also been observed that the driver is able to see the rider and then the cancellations happen
2. We have observed that the number of cancellations happening from the driver's side are more than the rider's side
3. The cancellations are not related to a time frame within the day.
4. The cancellations are happening more for the males.
5. Observed in India and not specific to any location or geography within India
6. We have observed the cancellations across the varieties of ride options on uber.

#### User Journey –

Rider opens the app – Enters the destination details – Select from a variety of ride options – Confirm – Driver arrives near the location with the cab – CANCELLATION HAPPENS

#### User Segments –

1. Rider
  - Students
  - Working professionals
  - Users going to railway station/airport/bus stop
  - ...
2. Driver
  - Owns the car
  - Is driving a rented car

#### Pain Points –

Considering that the ride is being cancelled from the driver's side, focusing more on their pain points –

1. Uber drivers want to get rid of the commission that they need to pay to Uber if they directly take the rider to the destination
2. Sometimes, there are untimely payments from Uber's side
3. Drivers don't feel the motivation to drive for Uber as they feel that they will not be able to generate enough profit
4. The rider looks shady and the driver does not want to offer him a ride
5. Drivers don't have a clear idea about how much will they earn by driving for that month
6. Drivers don't have an idea of the exact location of the destination

#### Prioritizing the pain points –

1 > 3 > 2 > 5 > 4 > 6

A proper market research and user research will need to be done to prioritize the pain points. For ex, we will need to track the # of drivers getting untimely payments, driver's satisfaction score, Avg. # of daily rides by a driver, Avg. duration spent by drivers on Uber, ...

#### Solutions for prioritized pain point –

1. Create a gamification effect for drivers. Unlock new rewards after 1, 5 and 8 rides daily. Rewards could be like discount on commissions, Offers at their favourite shops, Coupons, etc.

This will motivate the drivers to complete a greater number of daily rides on Uber and increase driver retention on the Uber platform.

## 2. Alternate Solution –

Give the driver a tool to calculate their monthly income on Uber. For example, ask the driver the number of rides they can complete daily, or the number of hours they can drive daily and then give them a rough estimate of how much they can earn monthly.

Suggest them that if they complete X number of rides daily/monthly, they will be able to increase their earnings by Y rupees. This will motivate them to drive more with Uber.

This will help the drivers efficiently plan their finances on Uber.

## Success Metrics –

### Retention metrics

1. % change in driver cancellation MOM
2. # of daily/weekly/monthly driver cancellations
3. Avg time spent by drivers daily/weekly/monthly
4. % change in the # of the rides driven by riders MOM
5. # of rewards claimed by drivers