**Human Computer Interaction (Hindi mein)**

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**User Perspective: Lecture 4 part 2**

**Lec16**

[Sangeet] Chaliye hum aage badhte hain. Brainstorming in user research. Toh vichaar vimarsh ke madhyam se bhi hum users ke baare mein achhe se jaante hain. Jahan pe hum charcha karte hain. Toh brainstorming is a creative problem solving technique used to generate a large number of ideas and solution in a short period of time. Jahan ki humne pehle bhi discuss kiya hai ki humein yahan pe uh brainstorming mein yeh ensure karna hai ki koi bhi idea chhota bada nahi hai. Humein jaldi se jaldi kuch ideas ko batana hai. Jo bhi aapko dikkatein lag rahi hain ya problem lag rahi hai. Toh it encourages free thinking and exploration without immediate judgment and helping teams to think out of the box. Toh iska purpose aap ek tarah se dekh sakte hain ki yeh humein madad karta hai dher saare diverse vichaaron ko aur solutions ko for a design problem to foster collaborative environment where idea is a consider regardless of how unconventional it may be seen. Jaisa ki humne bola ki hum kisi ko chhota bada nahi maan rahe hain. Yahan pe bas ideas alag-alag aa rahe hain aur yahan pe kya suit karta hai. Charchaon ke baad hum usko select kar sakte hain. Toh ensure the team explores multiple perspective aur humein yeh bhi madad karta hai ki har tarah ke log hain jo ki is system ko use kar rahe honge. Toh us case mein kaise hum isko unke alag-alag drishtikonon ko apne solution mein incorporate kar pa rahe hain. Toh process ismein yahi hai ki aap pehle problem ko paribhashit kariye. Kuch ground rule set kariye, generate kariye, naye-naye vichaaron ko aur phir un ideas ko jo hai usko group kariye aur usko use kariye. Toh define the problem mein clearly articulate the design challenge or problem to be solved. Set ground jaisa ki maine bola no idea to small, aur isliye in all participant to participate aur jab participant suggest as many as possible within a set of jo ek fix set of time aur focus quantity, focus on quantity not the quality. Pehle ek baar dher saari cheezein hongi toh hum usmein sab quality cheezein nikal lenge. Jaisa ki humne pehle discuss kiya tha Google ka A test hai jismein 8 minute mein aap ek tarah se aath possible ideas nikalte hain aur phir us farther discuss karke kuch ko throw away kar dete hain, kuch ko leke aage badhte hain aur baaki logon se usko charcha karte hain. Toh key principle, no judgment, encourage wild ideas and build on the ideas of others. Toh ek tarah se kabhi-kabhi aapne kuch point bola toh woh mujhe trigger karta hai uske upar kuch aur sochne ka. Toh ek tarah se build on ideas of others aur ek tarah se yeh team work hai jahan pe team can improve or combine ideas to create a stronger solution. Ek achha bada samadhaan aap nikalne mein madad kar sakte hain. Toh brainstorming jaise aap dekh sakte hain jaise ab hum apne project ki baat karein toh humein yahan pe ek app banana hai jo ki

visually impaired student ko Braille effectively aur independently seekhne mein madad kare aur jo teacher, instructor hai unko progress follow karne mein madad kare aur jo organization hai usko isko scalable banane mein madad kare. Toh ek tarah se mainly in teen cheezon ko karna hai. Toh brainstorming aap dekh sakte hain alag-alag ideas alag-alag logon se aa gaye. Ab next kaam basically humko yeh karna hai ki kaise hum isko aur vishleshan kar sakte hain. Iska use kar sakte hain. Toh brainstorming session goal, toh ismein basically hum pehle kya karte hain? Jo alag-alag ideas features aaye hain to assist visually impaired student in the learning Braille. Toh hum usko explore karte hain. Personalized learning experience, enhance accessibility and improve progress tracking for all stakeholder. Yahan pe teen tarah ke stakeholder ki baat humne ki thi. Jo student Braille seekh raha hai. Jo teacher Braille sikhane mein madad kar raha hai aur status ko progress ko follow kar raha hai aur jo organization hai jo ki isko scalable banana chahti hain. So identify solutions for scalability and affordability in distributing the app further. Toh ab jaise teen tarah ke stakeholder humne bataye. Chaliye teeno ke baare mein bari-bari se baat karte hain. Toh jaise pehle jo phase hota hai woh diverge phase hota hai. Jahan par hum bas generate ideas karte hain. Toh beginner ke liye kya ho sakta hai? Unko ek interactive tactile learning app chahiye jahan pe haptic feedback ke madhyam se student jo Braille ke letters hain usko feel kar sakein on their device. Uske baad virtual Braille books with tactile input agar ho jisse ki student can us usko touch karke feel karke character ko seekh sakein. Toh aisa hum ek student ki expectation hai. Audio guidance hona chahiye jahan pe text to speech ho aur Braille character ko woh sun sake. Words ko sun sake jisse ki learner can hear the sound of character as they study. Jaise jo bhi cheez jo bhi letter woh seekh rahe hain jo jo bhi word seekh rahe hain woh sun ke bhi sunai do jisse ki woh ek taalmel baitha sake. Add voice command for the student to ask the effort help when they are stuck. Toh ek tarah se keval sunne ka hi nahi, jab unko koi doubt ho, koi prashn ho toh woh bol ke bhi apne prashn ko pooch sake aur system ko usko madad karne mein koi kami nahi chhodni chahiye. Jo beginner learner hai woh yeh bhi chahta hai ki yeh jo seekhna ho woh keval seekhna na ho. Usko hum kaise aur gamify kar sakte hain. Jaisa ki humne pehle bhi discuss kiya tha ki human centered design mein it should not be just functional. It not should not be just usable. Thoda sa agar hum usmein enjoyment daal dein, usmein khushnuma mahaul daal dein, usko ek learning mahaul daal dein toh better hoga. Toh gamification ke case mein develop interactive Braille games that challenges learner to identify learn Braille characters quickly. Mujhe yaad hai jab main bachpan mein angrezi seekh raha tha computer pe toh alag-alag kya hota tha ki typing seekhne ke liye computer pe alag-alag balloons upar jaate the aur usmein alag-alag letter likhe hote the. Toh aap keyboard ke madhyam se aap dekhte the screen mein kis color ka balloon aaya ya kis letter ka balloon aaya. Aap usko type karte the ya aap aise bhi kar sakte the ki kisi balloon pe koi word likha hai toh us word ko aap turant type karein aur woh balloon bust tabhi karta tha jab aap sahi letter ya sahi word ko type karte the. Toh ek tarah se yeh aapko seekhne mein madad karta hai. But at the same time with the gamification with limited time. Uske baad jaise ki humne bataya ki alag-alag jo upyogkarta hain unke strength alag hai, weakness alag hai toh usko personalized learning app banana. Toh create adaptive learning paths where the app adjusts difficulty based on the learner progress. Agar koi tezi se seekh raha

hai toh usko usi hisaab se diya jaaye. Toh agar main phir se wapas usi example par aaun toh usmein yeh tha ki jaise-jaise aap achha karte jaate hain aapko points milte jaate hain, score aate jaate hain. Balloons aur tezi se jaane lagte hain. Us pe aur complex word aane lagte hain. Toh is tarah se aap keh sakte hain ki aap unko challenge karte hain. Unko seekhne mein aur madad karte hain. So include visual head that that helps students understand the spacing and patterns of the bread. Yeh usi tarike se hai. Toh jo doosra stakeholder hai hamare paas woh hai teacher aur instructor jahan pe woh chahta hai ki ek dashboard ho jahan par woh student har student ki progress monitor kar sake. Har student ki personalized feedback de sake. Toh in real time jahan se ki woh usko dekh sake aur unki zarooraton ke hisaab se woh alag-alag lesson plan customize kar sake. Jaise is class mein 10 student hain. Har student alag-alag zarooratein hain unki. Alag-alag requirements hain. Jaise kuch student hain jo abhi letter seekh rahe hain. Kuch student hain jo letter seekhna achhe se seekh gaye hain. Word seekh rahe hain. Toh unke hisaab se aap customize kariye listen plan ko. Interactive training mode jahan pe ek mode hoga where teachers can demonstrate how to write Braille while explaining the process to students. Toh ek tarah se training mode mein aap unko sikha sakte hain. Aur last mein jo hamara teesra stakeholder tha disability organization wahan pe ek tarah se scalable distribution hum kaise kar zyada se zyada logon tak kaise is app ko pahuncha sakte hain? Kaise woh use kar sakte hain? Irrespective of their language, irrespective of their other constraint. Toh institutional licensing hum kaise kar sakte hain? Multilingual support kaise kar sakte hain? Toh in sab cheezon ka jo requirement hai woh hai. Ab agar hum ab teeno stakeholder ko ek saath leke batayein toh jo combined general feedback hai toh accessibility setting chahiye, offline setting chahiye, offline functionality chahiye, feedback on community support chahiye. Toh is tarike se yeh general feature hain jo ki saare stakeholder ke liye chahiye. Toh toh ab finally ab hum isko converge karte hain. Pehle toh diverse sab kuch chahiye tha. Yeh bhi chahiye tha, woh bhi chahiye tha, yeh bhi chahiye tha. Lekin ab sab kuch toh nahi kar sakte na. Toh isliye ab usko converge karne ki zaroorat hai. Toh brainstorming ya convergent phase mein ab hum idea jo alag-alag ideas aaye alag-alag stakeholder se, alag-alag logon se. Ab hum usko converge karte hain. Toh convergence is tarah se hua. Haptic feedback chahiye hoga. Real time progress tracking chahiye hoga. Gamified ho chahiye hoga aur institutional support chahiye hoga. Toh yeh chaar cheezon ke saath hum aage badhte hain. Toh isiliye aap keh sakte hain the best way to predict the future is to create it. Toh empathy mapping hum karte hain. Empathy mapping, empathy mapping mein aap dekh sakte hain ki yeh basically madad karta hai alag-alag user ke emotions, thoughts aur behavior ko samajhne mein. And it helps design team build deep human centered understanding of a user need, motivation, pain points and experience. Toh, iska purpose clear hai. Yeh empathy banata hai. Empathy for the user of virtually visually mapping their thoughts, feeling and behavior. Aur yeh user research jo interview, survey hua hai, usko actionable insight mein convert karta hai. Aur align the team around the shared understanding of the user perspective. Jisse ki dono log samjhe ki user perspective kya hai? Unki zarooratein kya hai? Aur the process iska yeh hai ki conduct user research to gather the data from, interview, survey, observation alag-alag tarikon se. Uske baad usse hum ek empathy mapping banayenge aur empathy mapping ke baad jo bhi

humein mila hai usko hum divide karenge chaar bhaagon mein. Jo hai says, bolna, jo bol rahe hain; think, jo soch rahe hain; does, jo kar rahe hain; feel, jo mehsoos kar rahe hain. Toh group insight ek tarah se aise ho jayega. Organize and synthesize the data into these categories. Direct jo directly bola gaya hai statement users ke dwara. Things jo ki socha gaya hai but unhone bola nahi hai. Does jo observe karte hain apne behavior aur action ke madhyam se. Feel emotion aur mood the user experiences. Toh is tarike se dekh sakte hain jo hum apna web project ki baat kar rahe hain. Is teen tarike se stakeholder ke liye jab humein empathy mapping banate hain. Toh ek tarah se dekh jitni bhi feedback aur brainstorming ke madhyam se information mili usko hum in chaar bhaag mein baant diye. Kya bola, kya socha, kya mehsoos kiya aur kya karte hain. Aur yeh ek tarah se grouping humein bahut madadgaari hoti hai designer ke liye ki ab humein karna kya hai? Jo bola karna hai jo soch rahe hain jo toh yeh humein basically overall ek achha system banane mein madadgaar saabit hota hai. Toh jaise agar hum wapas apne project ki or aayein toh says mein aata hai. Beginner learner ne bola I struggle with remembering all the Braille character. Toh yeh usne bola. Teacher ne bola I need a tool to monitor my student's progress efficiently. Kaise main apne students ki progress ko aur achhe se monitor kar sakti hoon. Student bolta hai ki mujhe jo alag-alag Braille character hain unko yaad karne mein pareshani hoti hai. Institution bolta hai main isko kaise aur scalable aur bhi zyada tar logon tak bade aasani se pahunch bana sakti hoon. Aur common insight yahi hai ki sabhi ne bola ki ek better accessibility progress tracking aur easy learning path wala ek app chahiye ya ek solution chahiye. Unhone socha kya? Am I ever going to be read Braille fluently. Woh apna batate hain ki woh soch rahe hain main seekh bhi paunga ki nahi paunga. Teacher bhi bolta hai main kaise kabhi kar dekhungi ki student mere apne se progress kar pa rahe hain ki nahi kar pa rahe hain apne se. Institution kabhi sochega kabhi main distribute kar paunga ki nahi school organization ko effectively waghera-waghera. Toh is tarike se aap dekh sakte hain ki yahan par think mein common jo teen stakeholder hain woh kya sochte hain aur kya group insight hai. Similarly yeh kya karta hai? Toh yeh practice Braille using tactile interface and may ask her help from the teacher. Toh yeh student jo hota hai woh Braille practice karta hai aur jab bhi usko madad ki zaroorat hoti hai teacher se poochta hai. Usi tarike se agar aap teacher ka dekhenge toh teacher progress kar jo student ka progress hai usko manually aur existing tool ke madhyam se usko dekhta hai kya progress kar raha hai alag-alag. Similarly aur extra resources usko batata hai ki aap isko padhiye isko aise dekhiye usko aise kariye. Institution kya karta hai? Distribute that to student, train instructor to use it. Aur jo unka program hai usmein integrate karne ke liye bolta hai. Aur common insight ek tarah se yahi hai ki action use the app is happening across all group but there is a room for better integration of tracking and personalized learning. Aur last mein jo feel woh mehsoos kya karta hai? Kuch samay frustrate mehsoos karta hai kyunki aur kuch samay motivated bhi mehsoos karta hai jab cheezon ko achhe se karta hai. Achhe se Braille characters ko seekhta hai aur nahi kar pata toh frustrate bhi karta hai. Teacher hopeful hai ki technology ek din Braille education ko aur achha bana payegi. But kabhi-kabhi stress bhi rehti hai ki kaise seekhegi. Kaise hum isko curriculum mein apne integrate karenge aur organization optimistic hai ki chaliye hum kuch toh jeevan mein badlaav layenge. Aise students ko but wahi sochta hai ki

bhai iska kharch kaun uthayega? Common insight yahi hai. There are mix emotion feeling ranging from frustration to hope ki kuch toh hoga aage. Toh summary hai poore combined insight ki jo ki hum empathy mapping se nikale hain. Learner ke liye they need personalized learning tool, interactive feedback aur motivation to keep progressing. Teacher, they need a tool to help them track student progress and offer tailored guidelines, guidance aur customize you can say study material. Institution ko chahiye they need scalable solution that is cost effective, bahut mehenga na ho, sasta ho aur sabhi tarah ke log, saare students irrespective of their disability bade achhe se isko use kar paye. Toh yahan pe design ke liye kya opportunity, hum kya ek aisa personalized learning app bana sakte hain beginner ke liye? Kya hum ek aisa progress tracking bana sakte hain teacheron ke liye? Kya hum ek aisa scalable app bana sakte hain jo ki aasani se alag-alag organization aur institution mein bade aasani se accessibility standard ko milke bana. Toh is tarah se aapne dekha ki humne empathy mapping, empathy mapping banai aur user ko samjha, user ki zarooraton ko samjha aur uske hisaab se ab usko aage le ja rahe hain. Toh main aapse darkhwast karta hoon ki kya aap usi tarike se empathy mapping bana sakte hain cab booking app ke liye, running app ke liye, online gaming exam ke liye, gym training app ke liye and so on. Toh ismein aapko karna hai jo alag-alag stakeholder hain unko identify karna hai. Unke liye create karna hai empathy mapping aur divide into yeh jo chaar ghatak humne bataye. Soch raha hai, kya bol raha hai, kya mehsoos kar raha hai, kya kar raha hai, usmein aap divide kariye. Ek cheez aur main kehna chahunga ki normally jab bhi hum stakeholder banate hain, hum koshish karte hain ki usko teen se paanch group of stakeholders mein hi banayein. Toh jaise ki aap keh rahe hain ki agar persona bana rahe hain, toh hum koshish karte hain ki chaar se paanch persona hi banayein project ke liye. Toh persona banane ke liye aap dekh sakte hain yahan pe use collected data to create three to five persona that represent key user group. Jaise key user group hamare pichle case mein kaun tha? Student tha, teacher tha aur organization tha. Toh yahan pe focus on demographics, motivation, behavior and challenges, persona for Braille learning app. Jaise yahan pe hum banate hain. Toh yahan pe humne baat ki thi teen stakeholder the. Beginner, Braille learner, teachers aur organization. Toh agar hum aage badhein toh is app is particular work mein humne teen persona banaye hain. Toh pehla jo persona hai ek Vimansh naam ka student hai jo ki 9 saal ka hai aur beginner hai. Toh yeh basically ab iske baare mein aap jaise humne bataya tha jab bhi hum persona banate hain toh hum ek detailed information dete hain unke baare mein. Unka, bhale hi yeh kalpanik hai lekin unke baare mein hum aur bhi detail cheezein dete hain. Unko naam batate hain jaise yahan pe uska naam Viman Arora hai, beginner hai, 9 saal ka hai, fourth grade mein hai. Ab bright ninth year old student recently lost her vision. Toh yeh recently apni eyesight ko loose kiya hai. Usi tarike se aap dekh sakte hain Vimansh, although Braille seekh raha hai lekin usko difficulty hai usko samajhne mein nayi language ko karne mein. Vimansh, Vimansh ke baad agar hum agle persona ki baat karein Bhargavi ki jo ki intermediate keh sakte hain level pe hai. 27 saal iski umra hai, MA kar rahi hai aur woh born blind hai. Toh again iske alag-alag strength aur weaknesses hain. Teacher jo Akanksha Oberai ji hain keh sakte hain ki unka 7 saal ka year of experience hai, anubhav hai aur Akanksha ji is a well versed with the field. However she has been losing motivation kyunki bachhe seekh nahi pa

rahe, motivation nahi ho pa raha hai unka toh that is something. Kaise hum usko aur achha bana sakte hain. Yeh ek tarah se hai. Toh usi tarike se aap dekh sakte hain ki aap persona ko aur detail bana sakte hain jaise I may have lost sight but I will never stop explore. Toh ek tarah se uske goals kya hai? Uski frustration kya hai? Uske baare mein kya details hai? Similarly aap jo bhi aapne teen persona liye hain unke achhe se bana sakte hain. Toh teach them to find their way and they will navigate the world in their own. Us tarike se aapne similarly jo yeh teacher ke liye banaya aur yeh jo intermediate level ki student thi uske baare mein banaya. Uska goal kya hai? Frustration kya hai? Uske baare mein kya detail hai? A words that have power waghera-waghera. Toh isi tarike se main aapse darkhwast karunga example ke taur pe, activity ke taur pe ki aap e-commerce app ke liye aap persona banaiye. Jaise ki humne Sofia ka baare mein kuch-kuch details di hai. Demographics kya hai? Motivation kya hai? Goals kya hai? Aur frustration agar aap add karna chahe, frustration bhi add kar dein. Aur toh yahan pe aise likha hua hai pain point kya hai? Behavior kya hai? Toh usi tarike se kya aap sports ke liye bana sakte hain. Microsoft Office ke liye bana sakte hain? Kya aap Air BNB ke liye bana sakte hain? Toh aap is tarike se kaafi achha kaam kar sakte hain. Toh benefit of using persona in HCI toh ek tarah se aap dekh sakte hain empathy humein pata hota hai. Sahanubhuti hota hai kis-kis tarah ke log hamare application ko hamare system ko use karne ja rahe hain aur uske hisaab se aap customize solution bana sakte hain. Toh yahan pe focus hota hai. Help prioritize features that matter most to the target user. Toh is tarike se example ke taur pe ek fitness app hai jo ki reminder bhejta hai health conscious logon ko samay ke hisaab se. Toh yeh humein yeh bhi madad karta hai ki aap consistency ke saath ek common goal ke saath aap bana sakte hain. Ek effective communication provide kar sakte hain jo aapke stakeholder hain unke requirement ke hisaab se. Jaise using persona in presentation to explain why certain design and decision made. Toh ek tarah se woh decision lena bhi, usko samjhana bhi, justify karna aasan ho jaata hai. Toh tips for creating effective persona. Kaise aap ek achha persona bana sakte hain? Toh base person on data rather than assumption. Keep persona realistic. Aap unse relate kar paayein aur usko bahut zyada generalize na karein, idealize nahi karein. Jaisa aap real life mein dekhte hain koshish karein uske aaspaas rahein. Include both goals and the pain point. Ki unka goal kya hai? Lakshya kya hai? Unko kya-kya chunautiyon ka samna karna pad raha hai? Limit the number of persona, jaise ki maine bola pehle teen se paanch ke aaspaas rakhiye. Update regularly, samay ke saath usko update bhi kariye kyunki technology badal rahi hai, requirement badal rahi hai. Aapke stakeholder badal rahe hain. Toh persona should be seen as living document and it evolving with the product. Jaisa ki Meena ji ne bola tha. Challenges in using persona. Toh over generalization nahi karna chahiye. Outdated data nahi use na karna chahiye. Toh yeh sab cheezon ka dhyan rakhte hue humein persona ka nirman karna chahiye. Aur misinterpretation, kabhi-kabhi misinterpretation bhi ho jaati hai. Toh make sure ki aap usko avoid kariye. Because different team members may interpret persona differently. Toh woh cheezon ko bhi dhyan dena chahiye ki as woh jitna clear concise ho utna achha hai. Ambiguity ke chances na ho. Ignoring edge cases. Persona mein normally hum edge cases ko nahi banate hain. Otherwise woh overall ek galat message designer ke paas jaata hai aur woh galat kaam, galat basically karya kar pata hai. So, toh

ab jaise aapko healthcare app ke liye banana hai toh aap kaise aap bana sakte hain yeh cheezein aap dekhiye. Yeh healthcare app design persona such as caregiver Sara, patient John us tarike se aap yeh kaam kar sakte hain aur best practices aap kar sakte hain. Engage stakeholders, visuals use kariye jisko dekh ke usko samajhna aasan ho. Incorporate scenarios, alag-alag situation, scenarios ko daliye. Chota rakhiye. Bahut bada rakhenge toh usko samajhna, cognitive load badhega. Toh conclusion dekhiye iska yahi hai. Persona are essential tools in HCI helping designer create user focused solutions when based on solid research. Persona improve empathy, focus, communication. Aisa research bhi kehta hai. Toh apne persona ko in sab cheezon pe base karte hue, data pe base karte hue aap banaiye aur bilkul uska laabh aapko milega. So remember that personas are guidelines not the rigid rules. Toh they should adapt the adapt as user needs evolve. Samay ke saath jaise aapke upyogkartaon ki zarooratein badalti hain, usi tarike se isko bhi badalna chahiye. Toh uske saath chaliye ab hum data synthesis pe aate hain. Toh data synthesis mein aap dekh sakte hain ki kaise samay ke saath aapko alag-alag data mila. Kaise aap usse key insight nikal pa rahe hain. Toh data synthesis is a process of organization and analyzing qualitative and quantitative data collected from user research. Toh jisse ki aap alag-alag patterns ko, alag-alag nishkarsh nikal paayein jo ki aapko design mein madad karti hain. So it is a key steps in transforming raw data into actionable items. Toh kyun data synthesis ki humein zaroorat hai? Yeh humein madad karta hai alag-alag key site nikalne ke liye, meaningful themes nikalne ke liye from data. Alag-alag pattern hum isse spot kar sakte hain, nikal sakte hain. Trend nikal sakte hain. Hum jo alag-alag user ki zarooratein hain, usko bhi hum bata sakte hain ki kya unki zarooratein hain, kya zyada zaroori hai. Kya kis baat pe humein mukhya roop se dhyan dene ki zaroorat hai. Drives design decision. So inform the creation of personas, point of view and guides ideation. Toh data synthesis ki alag-alag techniques hain jinmein affinity mapping aur data clustering mukhya roop se popular hai. Toh affinity mapping mein hum basically kya karte hain ki hum jo similar data points hain unko group karte hain to identify common user needs and patterns. Jaise HCI team conduct a user interview and group feedback using sticky notes. Ab un sticky note ko aap alag-alag tarike se theme ke hisaab se divide kar sakte hain. Jaise ease of use, navigation issue, feature request, emergence waghera-waghera. Data clustering ek tarah se aap keh sakte hain ki clustering technique hai to categorize jo aapke upyog karta hai unko alag-alag group mein baantne ke liye. Jaise example ke taur pe ek digital platform e-commerce platform pe aap unko alag-alag group mein baant sakte hain. Based on their purchasing behavior, based on their distinct groups like bargain hunters, loyal buyers, jisse ki aap unko alag-alag offers bhi de sakte hain. Alag-alag UI bhi dikha sakte hain. Jaise HDFC Bank ke, for example, mere paas do account hain. Ek mein main privilege member hoon toh mujhe alag UI aur alag interface dikhta hai. Mujhe khaas dikhane ki koshish karta hai. Ek doosra normal account hai jismein normal normal user ki tarah dikhaya jaata hai. Toh affinity mapping basically also known as affinity diagram, diagramming. Toh ismein basically yeh method used to organize, synthesize qualitative data by grouping related items based on their natural relationship. Toh ek tarah se aap keh sakte hain ki hum kaise ek effective grouping kar sakte hain unke alag-alag characteristics ke hisaab se, themes ke hisaab se jo humein madadgaar saabit hote hain aage alag-alag user user ki

zarooraton ko samajhne mein. To identify connection between data points to find emerging themes and insight and visually categorize user feedback, observation and the ideas. Toh affinity mapping basically aapko help karta hai makes sense of chaos by finding the pattern hidden within it. Kyunki ek tarah se aapne itna data collect kiya alag-alag user research ke madhyam se, agar hum unse saare useful insight nahi nikal payenge toh woh dikkat ho jayegi aur jo ki jin baaton ka humein zyada se zyada dhyan dene ki zaroorat hai. Toh ab hum isko process kaise karte hain? Jaise humne pehle bataya aap pehle data collect karenge user research se alag-alag madhyamon se. Uske baad each data point ko sticky notes pe ek tarah se likhenge. Uske baad phir group similar notes to form the alag-alag cluster mein. Uske baad har cluster ko hum ek naam de sakte hain, label de sakte hain based on the emerging themes. Jaisa hum yahan pe dekh sakte hain ki agar hamare paas jo hamara same project tha Braille learning app, uski agar hum baat karein toh yahan pe ek tarah se keh sakte hain ki identify the categorize key insight and ideas related to Braille learning app. Toh yahan pe ek tarah se pehla step hoga gather data. Data collection ke baad hum phir hum usko categorize karenge. Alag-alag themes ko identify karne ki koshish karenge. Affinity cluster, uska naam hum bolenge aur usko phir uske baad organizing insight and actionable ideas jo ab usko humein aage karna hai us theme ke hisaab se aur finally us key insight for design karenge. Toh jaise yahan pe agar hum affinity mapping ki baat karein toh is given problem ke liye humne alag-alag affinity mapping ki hai. User need, useron jo aapke alag-alag upyog karta hai unki zarooratein kya hai? Technical need, design needs and scalability need. Toh ek tarah se jo uh mukhya roop se, mukhya roop se jo humein affinity labels the yeh ho gaye aur uske hisaab se jo sticky notes the humne usko unmein daal diya aur yahan pe aap unko prioritize kar sakte hain ki humein inko prioritize karne ki zaroorat hai. Toh affinity mapping aur in sabko hum apne tutorial mein bhi discuss karenge. Aap dekh sakte hain. Toh step one mein jaisa ki humne bataya ki aap data collect karenge. Toh yahan pe alag-alag ideas, data point, pain point, observation yeh humne kiya aur jaise example ke taur pe aap dekh sakte hain beginner learner se humein data mila. Struggle with memorizing character, need clear simple feedback on mistakes. Jab bhi hum frustrate aur demotivate ho jaate hain when progress is slow. Toh humein koi guidance ki zaroorat hoti hai jo ki humein aur Braille material de jisse hum independently kar paayein aur humein more engaging aur interactive learning methods ki zaroorat hai aur humein tactile feedback over ko hum zyada pasand karte hain visual aids ke comparison mein. Similarly, teacher ki dekhiye apni alag-alag jo data points the yeh nikal ke aaye. Aap dekh sakte hain ki real time mein progress tracking chahiye. Customization plan chahiye, tool chahiye, monitor karne ke liye, unko aur madad dene ke liye. Similarly, agar hum organization ki baat karein toh unko scalable ek tarah se solution chahiye, app chahiye aur ek sasta technology chahiye jo ki hum zyada se zyada logon tak organization, schools tak apni pahunch bana sake. Woh accessible hona chahiye aur jo standards, guidelines alag-alag hain accessibility ke usko follow karna chahiye. Humein multilingual support chahiye jisse ki hum alag-alag bhashaon ko bolne wale logon tak pahunch sake aur yeh aasani se manage aur licensing ho sake. Is tarah ke jo data humein milkar aaye, toh uske basis pe agar hum categorize karne jayenge toh pehli category ek tarah se thi learner need jahan pe hum seekhne ki zarooraton ke baare mein baat karte hain. Alag-alag points

ki baat karte hain. Uske baad hum teachers' needs ki baat karte hain. Jahan pe alag-alag dekh sakte hain ki teacher ko kya zarooratein hain. Agar hum institution ki baat karein toh hum dekh sakte hain kaise-kaise alag-alag institution ki zarooratein hain. Category four mein agar hum dekhein toh finally general feature for all, all stakeholder, jo saare logon ko chahiye. Toh alag-alag hum yahan pe feature ki baat karte hain. Usi tarike se agar hum affinity mapping ki baat karein toh usmein hum alag-alag themes bana sakte hain. Jaise pehle theme mein hum user engagement and motivation ki baat karte hain. Toh yeh points aap dekh sakte hain. Jaise learner, teacher aur organization ke engagement aur motivation ke baare mein points hain. Theme two ki baat karein toh personalized learning and progress tracking hai. Usi tarike se hum theme three dekh sakte hain. Accessibility aur inclusivity ke upar hai. Toh yahan pe learner require an app to tactile, auditory and interactive to meet diverse learning apps. Institution ki usi tarike se aap dekh sakte hain teachers ki alag-alag accessibility aur inclusivity se related requirements hain. Scalability and affordability ke baare mein. Institutions are looking for affordable solution. Teachers want easy to distribute. Learner need affordable. Toh agar alag-alag tarike se scalability and affordability se related cheezein hain. Toh ek tarah se ab iske baad jo next step aata hai actionable ideas ka. Toh user engagement ke liye humein kya karne ki zaroorat hai? Jaise focus on interactive learning pe humein focus karne ki zaroorat hai. Incorporate game like features karne ki zaroorat hai. Provide clear instant feedback to avoid any confusion and frustration. Usi tarike se jo agla keh sakte hain ki actionable item hai, personalized and adaptive learning, uske liye how to design a dynamic curriculum that adapts to the learner space, implement progress tracking tool for teachers to assess performance and adjastation. Usi tarike se agla actionable ideas jo hai, accessibility aur multilingual support ke liye. Kaise hum ensure karenge ki accessibility standard follow ho rahe hain. Multilingual support diya ja raha hai. Scalability and affordability. Kaise hum isko cost effective tarike se develop kar sakte hain, bana sakte hain aur yeh kaise cross platform kaam kar raha hai. Usi tarike se last step aata hai ki insight for design. Toh hum interactive feature bana sakte hain, progress tracking kar sakte hain, scalability kar sakte hain. Multilingual support kar sakte hain aur isko affordable bana sakte hain. Toh iske baare mein aap yahan padh sakte hain, dekh sakte hain ki in alag-alag cheezon mein hum kya kar sakte hain. Jaise interactive feature mein hum haptic feedback dalenge, voice guided navigation dalenge aur gamification dalenge beginner ke liye. Usi tarike se progress report ke liye customize dashboard for teacher banayenge student monitor ke liye aur usi tarike se baaki cheezein hum dekh sakte hain. Toh data synthesis ek data clustering technique hai jismein hum alag-alag group ko quantitative aur qualitative tarike se unke similarity ke aadhaar pe unko hum divide karte hain. Toh ek tarah se yeh humein iska purpose yeh hai, yeh reveal karta hai hidden data patterns in data, categorize user based on their similarity, behaviors and needs, inform decision for targeted uh design strategies. Toh iska purpose hai, ek tarah se hum dekh sakte hain, to reveal hidden pattern, to categorize user based on the similar behavior, to inform decision for targeted decision strategies. Toh ek tarah se hum dekh sakte hain ki teen popular techniques hain clustering ki. K-means, hierarchy, DBScan. Iske baare mein aap aur jaankari le sakte hain, apne se dekh sakte hain. Toh ab chaliye design thinking ko revisit karte hain. Quickly, humne baat ki

thi understanding jahan pe emphasize aur define ki baat ki thi. Kaise hum jor lagao jis pe jor lagate hain aur paribhashit karte hain. Doosra hota hai explore jismein hum ideate aur prototype karte hain. Teesra hota hai materialize jahan pe hum isko test aur implement karte hain. Ab in cheezon ko agar aap dekhoge toh iterative nature mein kaise ek ke baad ek hoti hain aur yeh humein madad karti hain. Toh design thinking mein empathize hai jo ki creation of persona jo hota hai woh yahan pe bade achhe se fit hota hai aur define ke case mein hum ek tarah se POV, point of view banate hain jo ki hum aage dekhenge. Ideate ke case mein hum how might we banate hain jo ki kaise possible solution hote hain. Prototype ke case mein develop tangible representation of the best ideas from idea stage. Uske baad phir hum prototype banate hain jo ki hum tangible representation de sakte hain from best ideas from the ideation state. Toh yahan par hum kuch MVP banate hain. Minimal viable product banate hain aur mockup karte hain. Ab finally hum iterate karte hain prototype based on the user feedback jisse ki hum alag-alag persona banayein aur POV ko mind mein rakhte hue aur finally usko hum launch karte hain in saari cheezon ko incorporate karke real world logon ke liye. Toh persona jaise humne bataya ki yeh emphasize stage mein fit hota hai aur role jaise fictional hota hai. Data ke hisaab se hum iske banate hain aur why it matters, provides context, empathy for the user ensuring the design process. Doosra humne baat ki point, point of view, uska paripeksh kya hai? Toh yeh basically define stage mein aata hai. The POV is a clear and concise problem statement that reflect the user's need. Toh yeh zaroorat kyun hai? Kyunki focus on specific problem making it easier. Toh isko hum example ke madhyam se batayenge aage toh aur aasan hoga. Jaise hum batate hain POV formula aise user usko kya chahiye? Kyun chahiye? Toh ek tarah se yeh aap mil jaate hain. Toh aap jo bhi sentence requirement hai usko is form mein hum baant daal sakte hain. Toh aap is link pe jaake iske baare mein aur dekh sakte hain. Jaise user who is experiencing the problem, need, usko kya zaroorat hai, insight aur use kyun isko karne ki zaroorat hai. Yeh humein madadgaar saabit hoti hai isko banane mein. Aap jaise koi bhi sentence hum aise ismein banate hain. We met, we surprised, we wonder, it would be game changing. Toh is tarike se hum POV bana sakte hain aur uska madad le sakte hain. Toh jaise yahan pe aap dekh sakte hain urban mobility ke liye, online learning ke liye aap alag-alag POV bana sakte hain. Yeh aapke liye karne ke liye hai. Grocery ke liye banaiye. Financial literacy ke liye banaiye. Next hum dekhte hain jaise humne how might we. Toh ek tarah se yeh aapke ideation, define aur ideation stage ke beech mein ek bridge ka kaam karta hai. Jahan pe aap how might we questions ke daur ke madhyam se aap basically ek open-ended solution provide karte hain. Jaise bolte hain how might we make it easy for the user to find trusted reliable scenarios, sources in search result. How might we. Toh ek tarah se aap bata poochte hain kaise hum kar sakte hain? Kaise kar sakte hain? Toh yeh aapko navachar karne mein, vichaar karne mein bada aasan hota hai aur define se jo ki aap jo problem statement ko aapne paribhashit kiya hai, wahan se aap start karke aap ek vichaar ke taur pe possible solution ki taraf badhte hain. So next jab aap vichaar kar lete hain ki yeh saari cheezein hain. Yeh saari cheezein ho sakti hain. Toh uske baad MVP pe aate hain jahan pe kuch tangible output nikalne ki koshish karte hain. Toh ek tarah se dekhein toh yeh ek tarah se bridge hota hai ideation aur test stage ke beech mein. Toh minimum viable product banne ke baad uska

jo simplified version hota hai kuch core enough feature ke saath aap usko test karte hain. Us pe phir feedback dete hain jisse ki aap us pe further development kar sakte hain. Aur final jo step hota hai woh launch step hota hai. Jahan pe aap design thinking process ke mein aap dekh sakte hain ki jab sab saare feedback ko aapne incorporate kar liya tab aap usko aage launch kar sakte hain aur de sakte hain. Toh uh Airbnb ke case study ke madhyam se humne yahan pe saari details de rakhi hai. Toh hum yahan pe ab detail mein nahi jayenge. Yeh hum aapke liye chhodte hain ki aap isko dekhein. Kaise user research kiya gaya hai to understand need, preference and challenges of traveler and host. Persona kaise create kiya gaya hai, woh aap dekh lijiyega. Usi tarike se kaise hum alag-alag traveler aur host ke user research ke data collect kiye hain. Chahe woh interview ho, chahe gather data from survey ho. Us tarike se hum kar sakte hain. How might we question hum kaise pooch sakte hain? How might we make finding unique and affordable accommodation? Toh how might we ke questions aap aise pooch sakte hain. Prototype aap bana sakte hain. Ek minimal viable product jo mockup bhi kar sakte hain aur uske baad ek user friendly search function bana sakte hain ki jaise aap budget friendly home, home friendly, apne interest ke hisaab se aap ghar dhoond sakte hain. Booking kar sakte hain aur finally usko aap validate kar sakte hain is mulyankan ke dwara. Toh aap wahan pe conduct usability testing kar sakte hain. Gather feedback kar sakte hain aur us hisaab se aap isko kar sakte hain. Toh yeh main aapke upar chhod raha hoon aur finally aap isko implementation ka dekh sakte hain. Kaise kar sakte hain? Kaise aap ek final product target audience ke upar de sakte hain aur usko kar sakte hain. Toh usi tarike se jaise humne Airbnb use case ke baare mein baat ki. Yeh alag-alag problems hain. Main chahta hoon ki aap isko iske baare mein dekhein, apne se karein aur with this yeh is saptah ki summary hai ki kaise user perspective jo user paripeksh hai woh central hai kisi bhi HCI base system ka, ek good design jo hota hai woh diverse user base, ensuring usability, accessibility and satisfaction ke baare mein batata hai. Humein us pe zor dena chahiye. Kaise ongoing research adaptability stay relevant in challenging technical landscape aur humne aur bhi jaise dher saari baatein kaise positive user experience foster loyalty, encouraging repeat use aur positive word of mouth. Humne persona ke baare mein baat ki, point of view ke baare mein baat ki. How might we ke baare mein baat ki. MVP ke baare mein baat ki, trade ke baare mein baat ki aur finally launch ke baare mein baat ki. Kaise yeh key stages hain kisi bhi human centered design ko banane ke liye. Aur is saptah mein hum tutorial, demo aur panel discussion bhi karenge jo ki aap baaki digital material mein dekh sakte hain. For further readings aap yeh saare research resources ko dekh sakte hain jo ki bahut hi mahatvapurna aur bahut hi laabhdayak hai. Aur isi ke saath main is saptah mein se aapse alvida leta hoon. Dhanyavaad. Agle saptah mein phir se milenge.