

## **Human Computer Interaction (Hindi mein)**

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### **HCI Project**

#### **Lec06**

Hello everyone, main Harmehar hoon and aaj hum baat karenge different-different design steps ki jo ek HCAI ka project banane mein kaam aate hain. Aur hum saath hi mein ek project ke madhyam se inhe samajhne ki bhi koshish karenge ki hum inhe kaise istemaal kar sakte hain apna ek final project banane ke liye. Toh chaliye shuru karte hain. Toh pehla hamare paas hai jo sabse pehli cheez aati hai kisi bhi project ke liye use kehte hain apni problem statement ya apni pareshani ka vivaran taiyar karna. Pehla step kisi bhi project ke liye hota hai uska vishay ya fir topic dhundna jise hum problem statement ya fir samasya vivaran bhi kehte hain. Toh dekh chaliye dekhte hain ki ek problem statement hoti kya hai? Toh problem statement ko hum kehte hain kisi bhi issue ko ya kisi bhi samasya ko batana ki kya hai? Samasya kya hai jiske kaaran humein yeh project banane ki zaroorat padi. Saath hi saath hum yeh bhi baat karte hain ki hamara mudda kya hai main ek kisi bhi project ko banane ke liye aur hum use kis tarah se solve karenge ya fir hum use kis tarah se uska ek solution provide kar sakte hain. Iski humein zaroorat kyun hai? Kyunki yeh humein yeh batane ke kaam aata hai ki hum kya main pareshaniyan solve karna chah rahe hain aur uske saath hamara jo bhi upbhokta hai yaani ki jo bhi hamara user hai woh kis hisaab se use uske benefits mil sakte hain ya use kaise kuch bhi aasani ho sakti hai. Toh humein ek koi bhi problem statement choose karne se pehle ya dhundne se pehle kya-kya karna padta hai? Toh sabse pehle hamare paas iske do charan hote hain. Ya do tarike hote hain jisme se pehla hota hai identify everyday problems. Yaani ki aapke jo rozmarra ki zindagi hain unmein aapko kya pareshaniyan aap jhel rahe hain ya face kar rahe hain. Aapko unhe pehchanna padega sabse pehle. Toh think about problems you are encountering in your daily life. Wahi ki aapko kya pareshaniyan rozmarra ki zindagi mein aa rahi hain. Jaise ki aapko apna grih karya yaani homework karna ho. Koi recipe find karni hai ya kuch vocabulary increase karni hai ya apna shabdkosh badhana hai toh usmein aapko kai naye shabd dhundne mein mushkil aa rahi hai ya kuch yaad karne mein dikkat aa rahi hai toh aap ek reminder ka bhi ismein rakh sakte hain. Yeh sab cheezein aa jaati hain aapke ek everyday problem mein. Dusra hamare paas hota hai apne upbhokta yaani ki user ke baare mein sochna ya user ke perspective se sochna ki hamare user ko kya-kya dikkatein aa rahi hain aur hum use kaise-kaise solve kar sakte hain. Toh second wale mein hum apni basically audience yaani ki user define karenge. Toh hamara kaun user hai woh humein pata hona chahiye. And yeh sab cheezein hum apne problem statement mein likhenge hamesha. Toh humne ek bahut aasan sa formula bhi taiyar kara hai kisi bhi problem statement ko

banane ke liye. Uska ek structure hai ki main ek app ya website banana chahta hoon. Ek apni specific audience ke liye yaani user ke liye aur unke yeh kuch problems hain jisko main particularly solve karna chah raha hoon. Toh yahi kuch hamara ek basic formula rahega kabhi bhi koi bhi apni problem statement banane ke liye. Ek example ke madhyam se isko samajhne ki koshish karte hain. Jaise ki jo yahan par likha hai English mein I want to create an app that helps students organize their assignments and tracks deadlines in a fun and easy way. Yaani ki main ek aisi application banana chahta hoon jo ki students ke liye unki assignments ya fir deadlines ko aaram se manage karne ke kaam aaye. Toh ismein hamare humne apne dono cheezein bahut aasani se batayi hain jo hamare formula mein bhi thi ki hamara audience kaun hai? Specifically students yeh hamare user hain aur kya unki hum pareshani solve karne lage hain. That is hamara task ya fir problem jo woh face kar rahe hain. Toh aap logon ke liye ab ek chota sa grih karya hai ki aap sab do ya teen bachon ke guton mein batkar ek ya do kuch aisi choti-choti problem statements define karein. Uske baad woh aap apni class mein share karein. Toh agla hamare paas step aata hai persona ya scenario ka. Toh chaliye dekhte hain ki personas aur scenarios kya hote hain. Toh aap abhi saare jane soch rahe honge yeh persona kya cheez hai? Yeh kuch naya aaya hai abhi. Toh persona hamare paas kuch asal cheez nahi hai. Persona basically hamare paas hai ek kalpanik paatra yaani ki fictional character jo humein hamare upbhokta yaani ki user ko samajhne ke kaam aata hai aur saath hi saath woh yeh bhi darshata hai ki kaun-kaun hamare alag-alag users ho sakte hain. Users ya fir stakeholders honge hamare ek particular project ke. Jo bhi hamari app ya website ko use kar rahe hain. Iske saath humein yeh pata chalta hai ki hamara jo user hai uske pain points kya hain? Uski zarooratein kya hain? Uska vyaktitva kaisa hai aur woh apni zindagi mein karna kya chahta hai is app ke madhyam se. Toh chaliye ab jaante hain ki persona banta kaise hai? Toh persona banane ki kunji hai empathy ya fir sahanubhuti. Toh sahanubhuti sabse zyada main hai kyunki woh aapko yeh batati hai ki aapka jo user hai usko kya zaroorat hai. Woh kya chahta hai aur uski kya pareshaniyan hain. Isi ke saath yeh humein saath hi mein yeh bhi banane ke liye sahanubhuti yeh bhi prerna deti hai ki hamara user ka experience kaisa hona chahiye. Jab woh ek hamari application ya website ko istemaal kar raha hoga. Dusra hamare paas hota hai user ka hypothesis. Toh ismein hum baat karte hain ki jo bhi hamara user hai uski jansankhyak ki yaani demographic zarooratein kya hain? Aur unhe hum kis hisaab se use kar sakte hain apne ek project mein taaki woh uske pain points solve ho sakein. Toh dekhte hain abhi kuch hamare paas kis hisaab ke personas hote hain. Jaise yeh hamare paas yahan par teen alag-alag tarike ke personas hain. Toh persona mein hum kya cheez ka main dhyan rakhte hain? Woh hai sabse pehle uska ek naam vyakti ka par yaad rakhein yeh kisi asli vyakti ki baat nahi honi chahiye yahan par yeh sab aapka ek kalpanik paatra hai uska naam saath hi mein kuch uski personal details jaise ki age kitni hai umar kitni hai uski woh kaam kya karta hai pesha kya hai agar padha hua hai toh kitna padha hai woh sab likhenge saath hi mein hum uski ek tasveer lagayenge yaani ki photo yeh bhi hum uski kisi asal insaan ki uthakar nahi lagayenge balki AI se generate karke ya fir Google se humein bahut aasani se prapt hui koi image uthakar hum use karenge. Uske baad hum use likhenge ki iski zarooratein kya hain? Needs kya hain? Frustrations kya hain? Frustrations ka matlab hota hai uske pain points kya hain? Matlab use dikkatein kya aa

rahi hain? Goals kya hain hamare user ke? Woh karna kya chahta hai? Is cheez se uski motivations kya hain? Kya use protsahit kar raha hai ki woh ek cheez ko karein? Toh humne yeh kuch cheezein usmein likhni hain taaki humein aasani se pata chal sake ki hamara user asal mein chahta kya hai. Toh chaliye ek humne dhancha banaya hai. Uske upar dekhte hain ki hum persona kis hisaab se bana sakte hain. Wahi sab sabse pehle uska naam aapke paatra ka ya character ka dusra uski umar saath hi mein uska peshwa ki woh karna kar kya raha hai? Ek photo idhar dahini taraf mein hum likh rahe hain ki woh chahta kya hai? Uska goal kya hai? End goal kya hai? Woh likha humne upar uska ek chota sa bio likha. Bio mein se humein yeh pata chalega ki jo hamara user hai woh karta kya hai? Kya use dikkatein aa rahi toh ek do-teen lines mein aap usko describe kar sakte hain. Uske baad user ke frustrations aur pain points aayenge ki use kya pareshaniyan woh face kar raha hai aur saath mein usko kya uski zarooratein hain yaani needs and desires. Toh main humein kisi bhi persona ke liye inhi cheezon ki zaroorat hai. Toh iske saath ab hamare paas aa gaya ki hum apne persona ko ek scenario banane mein kaise istemaal karte hain. Toh sabse pehle wahi baat hai ki sahanubhuti ya empathy bahut hi important ya bahut hi mahatvapurna cheez hai kabhi bhi aapka persona banane ke liye. Uske baad aata hai ki aapka scenario kya hai? Toh scenario ek hamare paas ek aisi story ya kahani ban jaati hai jiske madhyam se hum yeh bata sakte hain ki hamara jo persona hai woh kis hisaab se hamare product yaani iske ismein app ya website ke saath interact karega alag-alag jagahon par ya alag-alag time par. Toh scenario banane ka goal kya hai? Scenario banane ka goal yeh hota hai ki humein yeh pata chal jaata hai jo bhi hum product bana rahe hain kya woh hamare user ki zarooratein पूरी kar bhi raha hai ya nahi kar raha hai toh wahi yahan par humne likha bhi hai. Toh scenario mein hum scenario ke saath hum yeh darsha dete hain ki hamara jo koi bhi persona hai uski life ya uski zindagi hamara product aane se pehle kaise thi before product uske ismein basically hum apne pain points likhte hain pain points jab product aa gaya tab kya hua? Yahan pe humne product introduce kara. Saath hi mein uske baad hum yeh batate hain ki hamare product aane ke baad uski life pe kya asar pada ya kya hum soch rahe hain? Kya padega after product basically ismein humne again apne benefits hi likhne hote hain jo hamare user ke pain points ko target kar rahe ho. Toh jaise ismein humne ek scenario liya hai jo ki Priya ka hai. Koi bhi ek kalpanik paatra tha CSD undergraduate IIIT Delhi mein. Toh inhe ismein bahut dikkatein aa rahi thi apna saara kuch manage karne mein ki extracurricular aur academics ko sambhalne mein. Toh ab uske baad ek humne apna app banayi aur saath hi mein uske baad yeh hamare pain points the sabse pehle toh ki unhe manage karne mein dikkat aa rahi thi. Uske baad humne product apna launch kara jiske jiske saath jo Priya hain woh apna schedule vagera time table vagera bana sakti hain easily. Uske baad kya hota hai? Yeh hamara tha product ka phase yeh wala. After product ke liye humne yeh likha ki Priya ab zyada achhe se organized hai. Apne time ka sadupyog kar pa rahi hai aur apne goals ya apne jo ambitions hain, desires hain unhe bina bhule ya unhe bina peechhe chode. Toh yeh tha kuch hamare paas scenario ka scene. Agla hamare paas aata hai user flow. Toh user flow hota kya hai? Sabse pehle yeh samajhte hain. Toh user flow humein ek step by step ya charan by charan yeh bata deta hai ki hamara jo user hai yaani ki upbhokta hai woh hamara app ke saath ya website ke saath kis hisaab se interact karega taaki woh apna ek goal jo

bhi hai uska woh use achieve kar sake. Toh agar ise bahut aasani se samajhna hai toh hum ek example ke madhyam se samajhte hain. Chaliye sochiye ki aapne koi ek ticket book karni hai jagah A se jagah B tak jaane ke liye. Toh aap kya karoge? Sabse pehle aap apna phone khologe. Unlock phone. Uske baad aap kya karenge? Uske baad aap apni application ya website par jayenge. Hum yeh soch rahe hain ki aap abhi apni kisi mobile application ka istemaal kar rahe hain. Open mobile application. Uske baad aap kya karenge? Aap application par jaakar sabse pehle apne jo aapka sthan hai jahan se aapne prasthan karna hai uska dalenge toh yaani ki source source jo bhi hai aapka saath hi mein aap usmein destination ki aap jaana kahan chahte hain. Kis tareekh ko jaana chahte hain aur anya details aap usmein bhar denge. Uske baad aapko kuch alag-alag aapki ticket ke liye aapko train se agar jaana chah rahe hain toh alag-alag train ki aapko details mil jayengi. Jismein se aap kisi ek train ko select karenge toh selection hogi yahan par. Uske baad aap booking karenge. Uske baad aap ek payment karenge aur finally aapko aapki ticket mil jayegi. Toh yeh tha hamara ek poora user flow aapka phone unlock karne se aapki ticket banne tak ka. Ab yeh dekhte hain ki hum ek user flow banate kaise hain. Toh user flow banane ke liye bhi hamare paas fir se do hi charan hain. Ek hota hai sequence of steps. Dusra hota hai scenario mapping. Toh sequence of steps kya hai? Sequence of steps jo abhi humne baat kari aapke phone unlock karne se lekar yahan se lekar ticket book karne tak ke saare charanon ko hum kehte hain sequence of steps ki aapka jo user hai usne kab-kab kya-kya kaam kara aur taaki woh apne jo bhi uska goal tha woh uske paas pahuncha. Theek hai ji. Iske baad aata hai hamara scenario mapping. Toh scenario mapping humein yeh batata hai ki humein jo bhi apna karya hai woh saare steps ko humein apni baayi maane ke left side se lekar dahini taraf yaani ki right side ki taraf likhna hota hai. Jaise ki humne is example mein bhi kara ki humne jo hamara pehla step tha unlock phone woh left ki taraf likha aur baad aage ki taraf jaate hue humne right ki taraf khatam kare. Jaise-jaise hamare woh bane aage ke steps aate gaye toh wahi humne likha hai ki aapne apne left to right mein steps ko likhna hai. Iske liye aap log online available softwares ya tools ka istemaal kar sakte hain. Kaafi commonly use hota hai Figma. Figma online tool user flow banane ke liye kaafi use hota hai. Toh aap use bhi use kar sakte hain. Secondly agar koi bhi aapne notes ya comments ya koi ideas likhna ho toh aap unhi ke neeche apne step ke neeche ek user flow mein likh sakte hain. Jaise ki maine is particular jagah par kara tha. Ek photo bana ke dikhaya ki yahan pe kya hoga. Aapko samjhaya. Uske baad neeche ek note mein maine selection likh diya. Agla hamare paas aata hai prototyping. Toh prototyping kuch nahi bas hamari ek application ko banane ya design karne ka bahut aasan tarika kar deta hai. Jiske saath humein apne jo bhi hamari app hai uska layout kaisa hona chahiye woh pata chal jaata hai aur saath hi mein user ka interaction aur user ka experience kaisa rahega hamara poora application use karte hue woh pata chal jaata hai. Prototyping jo hai woh hamare paas teen tarike ki hoti hai. Low, middle aur high fidelity. Isko hum bahut aasani se ya normal bhasha mein lo-fi, mid-fi ya fir hi-fi ke naam se bulate hain. Toh chaliye samajhne ki koshish karte hain ki lo-fi, mid-fi aur hi-fi mein kya antar hota hai aur yeh kab-kab hum istemaal karte hain. Sabse pehla hamare paas aata hai low fidelity. Toh low fidelity jo hai hamare paas woh ek hum paper ke upar ek tarike se sketching karte hain ki hamara jo bhi hamare dimaag mein idea aaya hai hum use darshane ke liye doosron

ko aasani se batane ke liye hum use ek pen aur paper lekar sketch out kar dete hain. Yaad rakhiyega ismein hum kabhi bhi asal images nahi use karte. Koi text nahi use karte balki text ki jagah jaise supposingly hum ek yeh main apna lo-fi prototype banana chah raha hoon jismein ki yahan par ek mujhe photo chahiye toh main rectangle lekar ya agar mujhe circular photo chahiye toh circle leke uske andar ek cross maar doonga jo yeh darshayega ki yahan par koi toh photo aayegi ya koi toh graphic yahan par aayega. Uske baad agar mujhe jaise upar ek search bar chahiye toh main ek khaali rectangular box bana doonga jismein kuch nahi hoga. Theek hai ji. Yeh humein ek search bar ka dikha raha hai. Uske baad main chahta hoon yahan par koi toh content likha ho ya fir kuch textual information hum deliver kar rahe ho. Toh uske liye hum likhenge nahi. Again sirf aise simple lines hi hum draw karke dikha denge. Aur neechे agar main koi supposingly ek page mein last mein hum apna contact information de rahe hain toh again uske upar hum wahi rectangular boxes beech mein uske cross maar ke de sakte hain. Toh yeh hamare paas ek low fidelity aa jaata hai. Yaad rahe ismein hum saara kuch ekdam seedha-seedha rakhte hain. Bahut basic rakhte hain aur saath hi mein ismein hum koi colors vagera nahi use karte. Colors ko nahi use karenge. Images ko nahi use karenge ya graphics ko bhi hum nahi use karenge. Toh yeh tha hamare paas ek lo-fi prototype jise hum generally rough drafts bhi keh dete hain jo humein humein yaani ki designers ko jaldi se jaldi apna idea ko iterate karne ke ya apne concept ko aur brush up yaani ki achha banane ke kaam aa jaata hai. Toh zaroorat kya hai humein ek lo-fi prototype banane ke liye ya iska hum istemaal kaise kar sakte hain? Toh sabse pehla jo reason hai koi bhi prototype khaas karke low fidelity banane ka uska reason hota hai ki jo do teams hain ek company mein ya agar aap apne college level par bhi koi project bana rahe hain toh jab do bachhe aapas mein baat karenge supposingly front end ek dekh raha hai. Dusra team jo hai woh back end dekh rahi hai. Toh inke beech mein communication better ho jayegi. Uske kaaran collaboration jo hai woh zyada achhe se ho payega. Kyunki jo hamari dev team hogi ya back end ki team hai woh dekhkar pehchan sakti hai. Woh is jo hamara low fidelity hai woh ise dekhkar yeh jaan sakti hai ya pehchan sakti hai ki moti-moti kya-kya cheezon ki requirement hongii humein. Agla hamare paas aata hai visualize karne mein ya humein darshane mein doosron ko samjhane mein madad karta hai kabhi bhi jo hamara lo-fi prototype hoga. First visualization of what app will actually look like. Iske baad saath hi mein jo hamara sabse important ya mahatvapurna iska use hai woh hai test and validate assumptions. Yeh humein yeh bhi validate karne mein ya pehchanne mein ya cross validate karne mein help kar deti hai ki jo humne shuru mein apne user ke pain points likhe the aur jo uske humne solution soche the kya woh kaam bhi kar rahe hain ya nahi kar rahe. Agla hamare paas aata hai ki koi bhi ek low fidelity prototype ko banane ke hamare paas kya steps hote hain? Toh hamare paas basically chaar steps hote hain prototype ko banane ke liye. Pehla hai define objectives jo hum sabse shuru mein hi karke aa rahe hain jise humne problem statement ka naam diya tha. Toh ideally hum yeh kaam karke hi aa rahe hain. Problem statement. Dusra aata hai aapka prototype ka model aapne choose karna hai ya select karna hai ki hum kaun se wala prototype ka model use karke apna lo-fi bana rahe hain. Iske baare mein hum aane wali slides mein baat karenge ki kaun-kaun se hamare paas models hain aur kaun sa humein kis particular time pe use karna chahiye. Uske baad hum apna

ek prototype banayenge. Uske baad jo hamara final step hota hai woh hota hai test ya fir evaluate karna hamare poore prototype ko. Iski bhi baat hum aane wali kuch slides mein karenge. Toh chaliye dekhte hain ki hamari different types of jo lo-fi prototyping hai jiski hum abhi peeche bhi baat kar rahe the woh kaun-kaun si hoti hain. Toh sabse pehli jo hai woh hai hamare paas storyboarding. Toh storyboarding mein kya hota hai? Hum ek poori customer ki journey batate hain. Jaise ki aapko yaad hoga humne ek user flow mein banaya tha. Usi hisaab se aap dekh sakte hain ek aapka user phone use kar raha hai. Usmein se yeh wali jo ek app hai yeh user yeh hamari wali app hai jo user khol raha hai. Jaise hi user ne iske upar click kara toh aapke paas yeh wala sign in wala page aa gaya. Ismein se jaise hi usne sign in kara toh hamare paas ek yeh basic sa lo prototype aaya. Uske baad user ne jab yeh ek graphic ke upar click kara toh usko alag-alag details ya information show honi shuru ho gayi jo ki humne apne ek ticket booking wale ke madhyam se bhi example ke madhyam se bhi dekha tha. Toh yeh tha hamara ek storyboarding. Agla hamare paas model hai paper prototype ka. Toh paper prototype jo hai usmein aap jaise ismein peeche dekh sakte hain yeh kuch hamare paas alag-alag pages ke prototypes lo-fi prototypes bane hue hain. Saath hi mein humne ek phone ka layout paper par banaya hai ya phone ka dhancha ek paper par banaya hai. Aur jaise-jaise hum jis-jis page ko dekhna chahte hain, jaise ki yeh sabse pehle hamara ek branding page tha. Humne apne phone ko is jo yeh phone ka layout hai, humne ise utha ke apne pehle page ke upar rakhenge taaki humein yeh pata chal sake ki hamara jo page hai woh phone ke upar kis hisaab se kaisa lagega. Uski positionings kaisi rahengi design ke perspective se. Toh yeh hota hai hamare paas paper prototype. Jo jo jaise-jaise aap page change karenge usi hisaab se aapko apna phone ka jo aapne template banaya tha ya dhancha banaya tha use aap aage karke agle page ke upar rakh sakte hain. Agla hamare paas hai wireframe ya clickable presentation. Yeh jo hai yeh softwares ko use karke banaye jaate hain aur bahut saare hamare paas online software uplabdh hai. Jaise ki fir se Figma jo ki ek wireframe banane ke kaam aa jaata hai humein. Isse kya hota hai? Ismein farak itna hai ki hum jitne bhi buttons bana rahe hain koi bhi jo button hai woh jab aap uske upar click karenge ya use dabayenge toh woh aapko agla page apne aap khol ke dikha dega ki aapka user ka experience pata chal jaata hai iske kaaran. Toh main ismein difference yahi hai. Jaise ki aap yeh iske madhyam se bhi dekh sakte hain ki agar user ne supposingly isko click kara toh hamare paas next yeh wala page khul jayega. Farak ismein yahi hai ki user ismein interact kar sakta hai. Jo ki paper wale cases mein ya jitne bhi do humne pehle discuss kare the unmein nahi kar pa raha tha. Agla hamare paas aata hai high fidelity prototype ya fir jise hum hi-fi bhi kehte hain. Toh high fidelity prototype kya hota hai? Yeh ek computer based interactive fidelity prototype hai hamare paas jismein jo hamari application ka sabse closest ya sabse sateek prototype hoga aur final prototype hoga use hum hi-fi keh dete hain. Ismein hum alag-alag rangon ka aur saath hi mein alag-alag image ya graphics ka istemaal kar sakte hain. Jo hum abhi tak lo-fi prototypes mein nahi kar rahe the. Iska ek fayda yeh bhi hota hai ki jo hamara lo-fi prototype tha woh humein majority cases mein ya zyadaatar cases mein sirf UI ke upar focus kar raha tha. Yaani ki user interaction ke upar focus kar raha tha na ki user experience ke upar. Toh jo hamara hi-fi prototype hoga yeh humein user experience bhi batayega user interface ke saath-saath. Toh agla

baat hamare paas yeh aati hai ki hi-fi jo hai hamare paas use banana hi kyun hai? Uski zaroorat hi kya hai? Agar humne ek lo-fi toh bana hi liya tha. Toh sabse pehla toh jaise ki maine aapko abhi bataya ki yeh humein user experience bhi janne ke kaam aata hai. Toh usi ke saath hamari usability testing mein kaam aa jaata hai yeh. Kyunki hum apne user se direct feedback le pa rahe hain ki kya-kya cheezein woh kaise interact kar raha hai? Use kya-kya cheezein chahiye thi? Kya uski woh problem solve bhi ho pa rahi hai ya nahi ho rahi? Koi nayi problem toh nahi generate ho rahi. Toh yeh sab hum usability testing mein dekh lete hain. Uske baad kyunki ismein hum graphics, designs, colors alag-alag cheezein use karte hain ya istemaal karte hain toh us kaaran yeh humein presentation banane ke liye bhi kaam aa jaata hai. Ya agar maine jaise koi application banani hai jo main pitch karna chahta hoon kisi ko ya main aapko dikhana chahta hoon, samjhana chahta hoon toh us case mein bhi hum hi-fi prototype use kar sakte hain jiske saath ki aapko bahut clearly ya bahut aasani se aap samajh sakte hain. Koi bhi layman samajh sakta hai ki woh kya cheez hai. Isi ke saath-saath bahut saara team collaboration iske kaaran badh jaata hai jo ki paper ya lo-fi prototypes ke kaaran nahi badh pa raha tha. Toh yeh hai ab hamare paas teen tarike ke different-different visual representations jo ki hamare teeno alag-alag prototypes ke kaaran hai. Jaise ki low fidelity tha, yeh medium fidelity aur yeh hi-fi. Toh ab inmein farak dekh lete hain. Side by side kya-kya farak hain. Sabse pehle hamare paas hai low fidelity. Toh jaise ki maine kaha tha ismein hum koi rangon ka istemaal nahi kar rahe. No colors, no graphics, no graphics. Ismein aap dekhiye kahin pe humne nahi likha ki kaun sa kya button hai, kya kar raha hai, kuch nahi bataya. Agle wale mein humne thoda placeholder text, placeholder image vagera use karke aur halka sa grey black jo hamare simple natural colors hote hain unka istemaal karke humne ek medium fidelity bana diya. Aage jaakar humne jab usmein asal images vagera daalkar bataya ki yeh cheez kya hai? Tab yeh hamare paas high fidelity ban gaya. Toh aap logon ne ek aur cheez note kari hogi ki jo hamare paas lo-fi tha ismein humein yeh nahi pata chal raha tha agar main khaali isi ki baat karoon ki yeh particular kya cheez ka hum lo-fi bana rahe hain. Whereas jab hum medium-fi par aaye toh yeh pata chala ki yeh kuch toh home palace karke cheez hogi. Jisse humein fir bhi poora nahi pata chala ki yeh kya kar rahi hai ya kya hoga ismein. But kaafi had tak pata chala ki yeh gharon se related kuch toh hai. Jab humne high fidelity banaya tab humein clearly pata chala ki ismein hum alag-alag floor plans ya alag-alag kamron ki photo dikhakar bata rahe hain ki kaise designing ho sakti hai. Toh yeh bhi ek farak aa jaata hai lo-fi, medium-fi aur hi-fi mein ki jo hi-fi hai woh aapko zyada easily samajh aa jaata hai. Isiliye use karte hain aur presentations ke time par high fidelity prototype. Agla hamare paas hai testing and evaluation. Jo hamare kisi bhi prototyping ke last stage yaani ki stage four ka kaam tha. Toh evaluation hoti kya hai aur iski zaroorat kya hai? Chaliye woh dekhte hain. Evaluation ke liye hum basically yeh dekhte hain ki kya jo hamara user ki jo bhi demands thi kya woh fulfill ho rahi hain? Kya use koi nayi dikkatein toh nahi aa rahi? Kya jo humne solution khud apne dimaag mein socha tha aur jo uski problems sochi thi kya woh yahan par hum unhe solve kar pa rahe hain ya nahi kar pa rahe? Kya hamare jo solution the woh kaam bhi kar rahe hain ya nahi kar rahe? Kya nayi problems toh nahi generate ho rahi. Yeh sab janne ke liye humein ek evaluation ki zaroorat hoti hai. Taaki humein yeh pata chal sake jo hamara hypothesis

tha kya woh theek bhi hai ya nahi hai. Toh iske liye hum karte kya hain? Sabse pehle hum data collect karte hain. Uske baad use analyze karte hain. Aur fir saath hi saath yeh pata karte hain ki jo hamara user hai woh kis hisaab se interact kar raha hai hamare prototype ke saath. Toh chaliye dekhte hain ki yeh zaroori kyun hai. Isse humein ek toh yeh pata chal jaata hai ki jo hamara system hai kya woh theek hai? Dusra bahut important ki jo hamara system bana hai bhala woh application hai matlab mobile app hai ya website hai. Kya woh apna user ko engage bhi rakh pa rahi hai ya nahi rakh pa rahi? Kya user use use bhi karna chahta hai ya nahi karna chahta? Agar nahi karna chahta toh hum again usmein kuch naya iterations karke use theek kar sakte hain. Iske saath humein kuch aise products banane ke liye madad milti hai jo ki user ko achhe lage aur user use baar-baar use karna chahe. Teesra aur bahut mahatvapurna iska iski zaroorat yeh bhi hai ki jo hamara user hai woh bahut alag-alag jagahon se aata hai. Uska mindset bahut diverse rehta hai. Diverse perspectives and diverse backgrounds. Iske kaaran har user ki ichhayein alag-alag hongii. Toh kya hum woh different tarike ke users ko cater kar pa rahe hain ya nahi? Ya agar unke hisaab se kuch improvements karni hai toh hum woh bhi kar sakte hain. Aur final jo hai woh toh maine aapko bata hi diya tha ki validate karta hai hamare solution ko aur original problem statement ko. Toh hamare paas teen tarike ki generally evaluation aati hai. Ek hoti hai controlled settings mein, dusri hoti hai natural settings mein aur teesri hoti hai aisi jo labs mein generally kari jaati hai jismein hum direct user ko involve nahi karte. Toh jo hamare paas controlled settings mein hota hai usmein hum directly apna user involve karte hain. But yaad rakhein ki yeh jo hai ismein hum bahut controlled environment mein jaise ki usability labs mein yeh wali testing woh karte hain. Generally hum yeh usability labs mein yeh conduct karte hain. Jiske saath jo user hai woh us hisaab se kaam karta hai jaise ki ek designer ya developer chahta hai taaki woh apna koi ek specific hypothesis check kar sake. Generally hum iske liye usability testing aur kuch chote-mote experiments karte hain. Dusra hamare paas aata hai natural settings jahan par hum apne jo user hai use apni app ya prototype directly roll out kar dete hain. Is case mein hamare paas designer ya developer ke paas apne user ke upar bahut kam se kam control hota hai ki user kya kar raha hai. Humein bilkul pata nahi hoga ya hum unhe bilkul nahi keh sakte ki aap yahi cheez karein ya yeh cheez mat karein. Toh yeh iska ek woh hai example hai in the wild studies karke jismein hum apna jo product hai woh user ko de dete hain aur uska user interaction aur experience check karte hain. Final hamare paas aata hai settings which do not directly involve the users. Toh yeh kaun conduct karta hai? Generally consultants ya researchers yeh wali study ko conduct karte hain taaki humein shuru se hi yeh pata chal sake ki hamari UI kaisi hai. Iske liye jo hamare paas techniques aati hain woh hoti hain inspections, heuristics, walkthroughs, models aur analysis. Toh chaliye ab samajhte hain jitne bhi humne abhi tak concepts aur topics ko discuss kara unhe ek project ke madhyam se jo ki hai Binge Eat karke toh sabse pehle hamare paas hai hamara agenda jo jo yeh bata raha hai ki hamari problem statement kya hogi scope kya hai hamare project ka motivation kya hai use banane ki stakeholders kaun-kaun honge hamara goal kya hai? Hamara matlab project ka goal kya hai? Surveys ya graphs jo ki testing and evaluation mein aa gaye. Interviews fir se hamari testing and evaluation ke liye aata hai. Dusra hamare paas aa gaya empathy mapping, mind mapping aur bhi alag-alag cheezein. Uske baad prototyping aaya lo-fi

aur uski evaluation. Alternate design hi-fi and final evaluation. Toh chaliye dekhte hain ki hamare paas inki problem inhone ek bahut achhe se quote ke saath shuru kara. Yeh aa gayi hamare paas ek hamari problem statement. Bahut hi choti bahut hi badhiya aur saara kuch fulfill karne wali crisp si problem statement hai jismein humein hamari target audience jo ki ismein cinephiles likhi hai woh bata di unhe kya problem aa rahi hai ki woh apna food sasta usmein cinema mein kaise order kar rahe hain woh dikkat hai unhe uske liye inhone ek platform bana diya toh bahut hi aasani se hamara woh formula use karte hue inhone apni problem statement banayi. Agle hamare paas aa gaye stakeholders kaun-kaun hai? Inhone bahut achhe se bataya ki chefs hain, cinema mein movie dekhne wale ho gaye. Delivery man hai, restaurant owners hain, movie theater ke jo owners hain woh sab hain. Aage chalke inhone yeh bataya ki scope aur motivation kya hai? Scope hota hai ki hum hamara project kya karna chah raha hai aur motivation hoti hai ki humein banane ki motivation ya protsahan kahan se mila. Aage inhone brainstorming kari. Brainstorming aap kahin par bhi kar sakte hain. Bahut easily hota hai. Humne cover bhi kara hai but inhone Miro ke upar kara hai. Aage inhone yeh bataya hai ki inki jo application hai usmein kya-kya features hain? Kya-kya yeh provide kar rahe hain? Jaise ki QR code, special movie theme snacks, binge box membership, membership bhi bech rahe hain aur quizzes vagera hain ismein. Agla hai kuch fir se additional features jo inhone bataye hain. Pichli wale ko hi continue karte hue. Aage aaye user surveys aur responses. Yeh bahut hi mahatvapurna cheez hai. Isse inhe yeh pata chala ki inke jo users hain ya jo stakeholders hain unhe kya-kya dikkat aa rahi hai aur woh kaise solve kar sakenge. Yeh banane ke liye user surveys ki kaafi zaroorat hoti hai. Inhone surveys ke liye interviews bhi kare alag-alag users ke liye. Jaise ki ek 17 saal ka user, ek 29 saal ka user aur ek 74 saal ka user. Teeno ki alag-alag demands rahengi kyunki teeno ki umar alag hai. Toh yahi thi woh diversity wali baat jo hum apne prototyping ke liye bhi baat kar rahe the. Toh yeh ek tarike ki hamare paas user diversification ho gayi. Dusra hamare paas chef aa gaye, delivery man aa gaye toh inki requirements alag hongi. Yeh bhi hamari diverse users ki category ke liye hi hain. Aage jaake hamare paas inhone kuch personas banaye. Aap dekh sakte hain bahut achhe personas banaye hain inhone. Aage inhone unhi se empathy mapping kari. Fir ek mind map banaya jismein inhone bahut badhiya tarike se bataya ki inhe kya challenges aa rahe hain, kya requirements hain aur inke stakeholders kaun-kaun honge. Agla inhone storyboard room banaya apne ek persona ko lekar jaise ki Joseph. Joseph ek pehli baar yahan par apni movie dekh rahe hain aur unhe khane ki zaroorat padi. Toh woh ek poori storyboard bana diya inhone. Ek kahani ke madhyam se bataya. Thoda aur use achhe se bataya storyboard ko hi. Fir inka yeh bana pehla lo-fi design jise humne lo-fi ya low fidelity prototype mein padha tha. Aap dekh sakte hain ismein inhone bilkul bhi kuch graphics vagera nahi use kare ya colors vagera nahi use kare. Agle mein aaya lo-fi design ke liye inhone interviews liye taaki use evaluate kar sakein. Again alag-alag user se lekar inhe yeh pata chala SUS bhi ek hamara evaluation ka method hai. Yeh sab karke inhe yeh pata chala ki kya-kya problems users ko abhi bhi face ho rahi hain. Yeh inhone conclusion nikala pehli evaluation ka jo ki tha low fidelity ke liye. Agla inhone bana diya dusra design jismein inhone jo pichle ka feedback aa raha tha use saath mein embed kara ya incorporate kara aur naya ek design banaya. Yeh aa gaya inka

mid fidelity prototype jismein inhone kaafi achhe se dikhaya hai ki kaun-kaun si stage pe kya-kya ho raha hai. Mid-fidelity ka bhi inhone apna ek survey kara taaki fir pata chal sake kya problems users abhi bhi face kar rahe hain taaki yeh apne final ya fir hi-fi prototype mein use theek kar sakein. Toh yeh usi ke surveys aaye kuch toh yeh bana inka mid fidelity app design jo pichli wali problems ko face karne ke baad ya address karne ke baad bana. Agla hamare paas aaya mental model. Toh inhone apna ek mental model bana ke pata kara ki kya-kya inhe zaroorat hogi. Iske baad inhone hi-fi ki wireframing banayi. Yeh hamare paas aaya hi-fi prototype jismein aap dekh sakte hain ki kab click hoga toh kya-kya hoga. Again yeh left se right maane baayein se daahine ki taraf mein hi sab kuch aap dekhenge chal raha hai. Yeh tha inka last mein hi-fi app ka design. Aap dekh sakte hain yahan pe is video ke through. Dekhiye kitne achhe se aap jaise click kar rahe hain toh kya-kya next page par hoga woh sab humein ismein nazar aa raha hai jiske kaaran ki hamara jo user hai woh bahut aasani se samajh sakta hai ki hum chahte kya hain karna ya jo bhi koi stakeholders hain unhe pata chal sakta hai ki hum karna kya chahte hain hamari application karna kya chah rahi hai toh yeh inhone hi-fi ka survey kara hi-fi ke survey ke baad inhone yahan par results lagaye apne. Yeh kuch aur results aaye. Interviews conduct kare the uske baad bhi. Toh yeh tha hamare paas HCI ka project Binge Eat jo IIIT Delhi ke kuch chhaatr va chhaatraon ne banaya tha. Aur mujhe aasha hai ki aapko is presentation aur is project ke madhyam se HCI project banane ke liye jo alag-alag stages design stages use hoti hain woh aapko samajh aa gayi hongi aur aapko apna khud ka ek HCI ka project banane ke liye protsahan mila hoga. Dhanyavaad. [Music]