Human Computer Interaction (Hindi mein)

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Prototyping for Human-Computer Interaction

Lec29

[Sangeet] Hello guys, aaj hum apne normal course ke lecture se hat kar ek panel discussion karenge jiska sheershak hoga prototyping. Aaj is panel discussion mein hamare saath honge Anushka aur Shubhi. Toh chaliye sabse pehle samajhte hain ki prototyping kya hota hai. Toh prototyping hamari application ko banane ya design karne ka ek tareeka hota hai jisse humein yeh pata chalta hai ki hamari application ya website banne ke baad kaisi dikhegi aur yeh hamari jo upbhokta hai yaani ki jo user hai uski kya-kya pareshaniyon ka samadhan karegi aur kya usko design pasand aayega ya nahi aayega. Toh prototype hamare paas teen tarike ke hote hain. High fidelity, mid fidelity ya low fidelity. Low file mein hum ekdam saadgi se aur aasani se apne ideas ko darshate hain. Ismein hum apni hamari jo application ya website hai, iski mukhya functions ya mukhya functionalities kya hongi? Usko ek saath dikhate hain taaki humein yeh pata chal sake ki hamari jo application hai woh kya karna chah rahi hai aur kya ismein hamare paas aise features hain jo hamari problem statement ka jo humne solution banaya hai usse align ho. Ismein hum zyada tar koi bhi rang ya graphics ka istemal nahi karte aur zyada tar ise hum ek pen aur paper lekar banate hain. Toh Anushka aapko aisa kyun lagta hai ki prototyping hamare design process ka ek mahatvapurna hissa hai aur saath hi mein humein yeh bhi batayein ki lo-fi prototyping ki design process mein kya zaroorat hai? Jo lo-fi prototyping hai woh design process ka ek bahut hi mahatvapurna hissa hai kyunki is yeh ideas ko test karta hai feedback lene mein madad karta hai. Use improve karne mein madad karta hai. Aur jo quick aur effective tareeka hai yeh. Toh jo lo-fi prototyping hai uski kaafi saari zarooratein hain. Jaise jaldi ban jaata hai aur sasta hota hai banane mein. Kyunki yeh zyada tar hum log paper pe banate hain, sketch karte hain ya phir wire frames use karte hain banane ke liye. Doosra hai ki yeh user feedback lene mein bahut hi aasan hota hai. Teesra ki functionality pe focus karte hain na ki visual visuals pe. Toh aasani se badlaav kiya ja kiya kiya bhi ja sakta hai ismein. Yeh design ka early stage mein direction set karta hai. karne mein madad karta hai. Kyunki yeh user centered approach pe focus karta hai. Bahut sahi bataya ki jo hamara low fidelity prototype hai yeh bahut hi jaldi aur bahut hi saadgi se humein yeh batata hai ki kya hum ekdam theek disha mein ja bhi rahe hain aur hamara jo user hai use yeh kaisa lag raha hai. Saath hi saath iski hamare design process mein ek bahut hi mahatvapurna zaroorat hai jo hai ki yeh humein hamara idea pehle hi test karne ke even develop karne se pehle hi test karne mein kaam aa jaata hai. Toh generally yeh bahut baar kaha aur suna jaata hai ki prototyping alag-alag teams mein collaboration badhati hai. Kya aapko lagta

hai ki low fidelity prototype ya phir koi bhi tarike ki prototyping hamari inter team collaborations ko badhava deti hai? Haan bilkul prototyping sach mein collaboration badha badhati hai kyunki yeh sabhi teams mein ek shared idea dikhata hai. Feedback lene mein easy rehta hai aur jo baaki decision making aur communication hai use behtar banati hai har team ke beech mein. Toh abhi aapne ek word ka istemal kara tha wire frame. Toh kya aap mujhe sankshep mein bata sakte hain ki wire frame kya hota hai aur yeh kaise banaye ja sakte hain. Wire frame ek low fidelity ka design hota hai jismein hum log basic structure banate hain kisi bhi application ya phir kisi bhi design ka. Ise hum log simple tool use karke bana sakte hain. Jaise Figma board ho gaya ya phir Canva design ho gaya. Jaise aapne abhi do tools ki bataya ki Figma aur aur bhi kayi hain. Kya aap humein aur iske upar bata sakte hain ki kaun-kaun se aise tools hain jo ek low fidelity prototype banane ke liye ya wire frames banane ke kaam aa sakte hain. Haan bilkul. Lo-fi prototypes banane ke liye jo tools jaise a Figma ho gaya, pen paper pe bhi banate hain hum log. Canva pe banate hain. Phir Miro bhi use karte hain. Whimsical hota hai. Yeh kuch tools hain jo hum log use karte hain. Yeh simple hote hain aur quick designs mein madad karte hain hamari. Achha. Toh mera ek agla sawaal yeh aata hai ki jaise hum baat karte hain aajkal har cheez mein technology bahut advance ho rahi hai. Bahut si cheezein iske kaaran impact ho rahi hain. Toh kya design process ya ek low fidelity prototype banane mein bhi kuch technology ka istemal ho raha hai? Bilkul ho raha hai. Technology ke kaaran jo hamara aajkal ka design process hai woh pehle se bahut zyada fast ho gaya hai. Digital ho gaya hai aur collaborative ho gaya hai. Pehle jo design process hota tha woh manual hota tha. Lekin ab tools aur AI ki madad se hamara jo design process hai woh bahut hi aasan ho gaya hai. Interactive aur efficient ho gaya hai. Jaise abhi humne baat kari ki ek low fidelity prototype banane ke liye hamare paas alag-alag softwares ya tools hain. Jismein Miro, Figma, Canva, Whimsical aur bhi kaafi saare hain. Toh main yeh janna chahta hoon ki in sabhi tools mein hamare paas alag-alag functions hote hain jo ki ek low fidelity prototype banane ke liye time le sakte hain. Aur jaise ki aapne pehle kaha tha ki low fidelity prototype mein hum zyada samay nahi lagate. Toh humein kitna adhik se adhik aur minimum se minimum kitna time ek low fidelity prototype banane mein lagana chahiye? Humein kam se kam ek low fidelity prototype banane ke liye sirf ek se ya do ek se do din lagane chahiye kyunki ismein hum logon ko structure pe zyada focus karna hota hai na ki visuals pe jaise maine pehle bhi bataya tha aapko. Toh mera ek aur question yahan par aata hai ki humein ek low fidelity prototype mein kya-kya cheezein include karni chahiye? Jaise aapne kaha ki hum uski functionalities ke upar focus kar rahe hain. Par hum agar pen aur paper ke upar kaam kar rahe hain toh hum usmein functionalities ki working show nahi kar payenge. Toh main yeh janna chah raha hoon hum kya-kya rakh sakte hain aur kya-kya nahi rakh sakte. Lo-fi prototyping mein hum log zyada tar simple layout rakhte hain. Clear navigation hona chahiye. Basic labels hone chahiye. Zyada complex nahi hone chahiye jo labels hum log banayein apni application mein. Koi colors use nahi karne chahiye humein apne lo-fi prototype mein. Kyunki woh phir hamara kaam aata hai mid-fi mein. Phir humein a jo user flow hai hamara woh achhe se dikhna chahiye hamare saamne waale bande ko jo use kar raha hai aur iska focus jaise maine pehle bhi bola hai structure aur functionality pe hona chahiye. Toh aapke hisaab se low fidelity

prototype ki kya-kya khaamiyan hain? Yaani ki usmein kya-kya dikkatein hain jiske kaaran ki humein ek high fidelity ya mid fidelity prototype banana padta hai. Jaise ki aapne abhi bataya. Lo-fi ki kuch khaamiyan hain. Jaise kam visual detail hoti hai usmein. Phir hum logon ki bahut hi limited interactivity hoti hai aur concept ka confusion ho jaata hai kabhi kabhaar ki a kisi cheez ko hum log kaise banayein kyunki jaise aapne bhi bola tha kuch complex cheezein banana mushkil ho jaata hai lo-fi design mein aur jo complex ideas dikhana mushkil ho jaata hai wahi cheez toh sirf basic testing ke liye lo-fi design theek rehta hai lekin jab aapko thode aur complex i ideas apne show karne pad jaate hain. Tab phir hum log mid-fi design aur hi-fi designs pe jaate hain. Toh Anushka yahan par mera ek sawaal aur bhi hai ki kya hum apna jo low fidelity prototype hai uski bhi user feedback lete hain kyunki ek jo design hai woh ek iterative yaani ki baar-baar hone waala baar-baar change hone waala ek koi bina seemit samay ke hone waala ek process hai jo kaafi lamba bhi chal sakta hai aur kaafi kam duration mein bhi complete ho sakta hai. Hum log bilkul user feedback lete hain har lo-fi design ka. Kyunki jab tak hum log user feedback nahi lenge toh humein pata nahi chalega ki hum log kya galat kar rahe hain aur usmein kya sahi karna chahiye? Isse pehle hum log uske aur aage waale mid-fi aur hi-fi designs pe jaayein. Theek hai? Toh kya aap yeh bata sakte hain ki low fidelity prototype ki kuch jo user feedback hai woh kis tarah se li jaati hai ya usmein kya-kya questions pooche jaate hain jisse hum uske baad mid-fidelity ya high fidelity pe ja sake. A kuch cheezein hoti hai jaise survey hum log lete hain kaafi logon ka toh usmein hum log kuch aise questions rakhte hain jisse humein pata chale ki hamara simple layout hai ki nahi. Hamara clear navigation unhein pata chal raha hai. Unhein kuch complex labels toh nahi lag rahe hain. Aur bilkul clear screen honi chahiye hamari. Toh iske baad hamare paas aata hai mid-fidelity. Mid-fidelity ek aisa prototype ka tareeka hota hai jismein hum yeh batate hain ki hamara user ka flow kaisa hoga. Na sirf ki yahi batayein ki hamari application ke functions kya honge ya uska structure kaisa hoga. Saath hi saath hum mid-fidelity prototype mein kuch basic-basic se rangon ka aur kuch bahut hi basic apne graphics ka istemal kar sakte hain. Hum apne mid-fidelity prototype mein yeh bhi batate hain ki yahan par hamare paas ek button aayega. Button ke upar kya likha hoga? Hum woh bhi bata sakte hain. Toh mera question Shubhi aapse hai ki mid-fidelity prototyping kis tarah se low fidelity prototyping ki chunautiyon ko hal karta hai aur design ko aur nikharta hai. Jaisa ki Anushka ne bataya ki low-fi prototype mein hum user flow ko pe zyada focus nahi karte hain. Toh hum mid-fi mein hum user flow ko achhe se define karte hain, structure karte hain. Hum uske layout ko aur zyada a improve karte hain. Jisse ki user samajh paaye ki usko kaise apne goal tak pahunchna hai. Hum user flow ko test karte hain mid-fi ke zariye. Main aapse ab agla prashn yeh janna chahta hoon. Kya jaise hamare paas ek low fidelity prototype banane ke liye alag-alag tools hain. Waise hi kya hamare paas mid-fidelity prototype banane ke liye koi software based tools hai? Toh mid-fi banane ke liye hum Canva use kar sakte hain. Hum Figma use kar sakte hain. Wire frames banane ke liye. Usmein hum bahut hi basic colors laga sakte hain. Jaisa ki aapne bataya. Hum thode se visual elements daal sakte hain. Lekin hum zyada visual elements ka use nahi karte hain mid-fi mein kyunki woh sirf user flow ko test karne ke liye hota hai. Unko kaise navigate karna hai woh test karne ke liye hota hai. Toh jaise aapne abhi

Figma aur Canva jaise aur Miro jaise kuch tools ka naam liya. Hum sab yeh jaante hain ki yeh teeno hi tools humein even free waale jo versions hain unmein bhi kaafi zyada ek functions provide karte hain jiske hisaab se hum unki sahayata lekar apna ek mid-fidelity prototype bana sakein. Agar hum un sabhi ko istemal karenge toh humein bahut zyada samay lagega jiske kaaran ki hum apne us mid-fidelity ki testing nahi kar payenge aur use aage high fidelity mein tabdeel nahi kar payenge. Toh kya aap humein yeh bata sakti hain ki humein mid-fi mein kya-kya include karna chahiye aur kya-kya nahi aur saath hi mein humein ismein kitna samay lagana chahiye. Toh mid-fi mein humein basic text daal sakte hain. Bahut hi basic colors and visuals aa sakte hain. Humein navigation usko user flow banane ke liye hum usmein user flow define kar sakte hain. Agar hamara app bahut hi simple hai ya phir hamari website hamara design bahut simple hai toh humein bas do ya teen din mein apna mid-fi bana lena chahiye. Lekin agar humein bahut hi complex design banana hai jismein bahut saare details hain, bahut saara navigations hain toh hum usmein chaar se paanch din laga sakte hain. Uske baad hum user se apna prototype test karwate hain jisse ki hum apne prototype par sudhar kar sakein jismein hum ek se do din laga sakte hain. Toh aapke hisaab se mid-fi ke liye kya user feedback hona chahiye? Matlab humein kaise prashn poochne chahiye? Hamare user se jab hum ek apna mid-fidelity prototype test karwa rahe ho taaki humein yeh pata chal sake ki jo humne abhi tak designs banaya hai kya woh hamare user ki saare par saari pareshaniyon ka ko hal kar raha hai ya nahi. Toh sabse pehle hum apna mid-fi prototype apne users ko dikhate hain ki yeh yeh hamare frames hain. Aise navigation hamare hain. Phir hum unhein test karne ke liye de dete hain. Jab woh test kar lete hain. Hum unse prashn poochte hain ki aapko hamara design samajh mein aa raha hai ya nahi aa raha hai? Kya woh apna hamara project use kar pa rahe hain ya nahi kar pa rahe hain? Kya kuch cheez unko confusing lag rahi hai? Kya koi aisi cheez hai jo unhein pasand nahi aa raha hai ya phir koi aisi cheez jo unko missing lag rahi hai jo humne include karna reh gaya hai aur humein include karna chahiye baad mein aur unke hisaab se aur kya-kya badlaav hona chahiye hamare pages aur wire frames mein? Toh ek mid-fidelity prototype banane ke baad hamare paas ek high fidelity prototype banta hai jo ek hamare mid-fidelity prototype ka hi ek behtar version hota hai. Toh main aapse yeh janna chahta hoon ki aapke hisaab se ek mid-fidelity prototype ko humein kab ek high fidelity prototype mein tabdeel karna chahiye aur humein yeh kis tarah se pata chal sakta hai ki ab hum ek high fidelity prototype banane ke liye taiyar ho gaye hain. Toh jab hum user se unka feedback le lete hain. Hum usko achhe se dekhte hain. Hum use apne prototype mein sudhar karte hain. Jab ek point ke baad users ko lagta hai ki use unka flow ekdam sahi hai and woh apne goals tak bahut hi aasani se pahunch pa rahe hain toh hum mid-fidelity se high fidelity pe shift kar sakte hain. Hamare stakeholder se hum baat kar sakte hain ki kya unhein hum user flow sahi lag raha hai ya nahi lag raha hai? Kya hamare prototype se woh satisfy hain? Toh jaise abhi hum baat bhi kar rahe the ki hamare paas kuch tools hain jo humein ek apna mid-fidelity prototype banane ke kaam aate hain. Toh main aapse yeh bhi janna chahta hoon jaise ki humein Anushka ne bataya tha ki low fidelity prototype mein technology ka kaafi had tak istemal kiya jaa raha hai. Toh kya hum jo already existing hamare paas tools hain like a Miro, Figma ya Canva hum unmein kuch nayi technologies use kar rahe hain jaise ki AI?

Toh hum kuch softwares jaise ki Figma usmein hum plugins use kar sakte hain jo ki hum jo hum jo ki humein Figma se milte hain. Hum apne prototype ko prototype mode se wire frame navigation define kar sakte hain ki yeh button yahan tak jayega jisse ki user achhe se hamare prototype ko test kar paaye. Toh ab hum baat karte hain ek apne high fidelity prototype ki. Hamare paas high fidelity prototype kya hota hai? Iski kyun zaroorat hai? Aur yeh banta kaise hai? Toh ek jo high fidelity prototype hai woh computer aadharit interactive prototype hota hai jo yeh darshata hai ki hamari application ya website hum jo bhi banana chah rahe hain woh banne ke baad kaisi dikhegi isse humein na sirf ki hamare user ka flow user ki interaction user ki pareshaniyan aur kya hum unhein solve kar pa rahe hain sirf yahi nahi balki user ka us poori application ke dauran experience kaisa reh raha hai humein woh bhi pata chalta hai. Toh Anushka aap humein kuch challenges bata sakti hain jo aapko kabhi apne poore tenure mein aaj tak high high fidelity prototype banate hue aaye ho. Bilkul. Hi-fi design banate hue kaafi challenges aate hain. Jaise zyada time lagna banane mein. Phir kuch hote hain tools ka skill set hona. Kaafi log hote hain jinke paas a correct skill set nahi hota hai high fidelity design banane ke liye. Phir hota hai ek feedback ka change karna. Woh mushkil ho jaata hai kabhi kabhaar ki jab humein high fidelity ban gaya uske jab feedback aata hai toh usmein jo changes karne hain woh karne mein thodi dikkat aati hai kabhi kabhaar. Phir hota hai hamara performance issues. Jab hamara high fidelity run kar rahe hain hum log, test run kar rahe hain, toh usmein kabhi kabhaar aa jaati hain performance issues ki chal nahi raha hai ya phir kuch aur glitch aa raha hai. Toh yeh issues hote hain aur visuals pe kabhi kabhaar hum log zyada focus kar dete hain. Jabki humein visuals se zyada structure pe focus karna chahiye. Toh aapne jaise abhi bataya ki ismein bhi hum user feedback lete hain. Toh kya aap mujhe bas bata sakte hain ki ek high fidelity prototype ke user feedback mein hum kaise prashn poochte hain aur yeh kab liya jaata hai? High fidelity ka user feedback tab liya jaata hai jab hamara ek basic structure taiyar ho jaata hai uska aur humein us a iska test run karne se pehle hum log lete hain ki a iska sahi chal raha hai ki nahi aur uske visuals kaise hain? Visuals pe jaise maine pehle bhi baat kari thi focus karte hain lekin kabhi kabhaar zyada over focus kar dete hain. Toh is pe humein dhyan rakhna chahiye ki uske performance issues mein koi dikkat nahi aa rahi hai. Iske visuals theek hai. Iska overall layout theek hai. Clear structure hai. Sahi hai. Toh Shubhi jaise humne abhi baat kar hi rahe the low fidelity, mid-fidelity dono ki ki hamare paas inke liye kuch specialized tools hain jo humein yeh banane mein sahayata karte hain. Toh jaise ki hum yeh bhi abhi discuss karke hate hain ki jo hamara ek high fidelity prototype hai jo ki ek computer aadharit hai. Toh kya hamare paas iske liye bhi koi aise tools hain ki humein sirf simple coding karke hi yeh banana padega. Humein coding karne ki zaroorat nahi hoti hai prototype banane ke liye. Hum high fertility prototype Figma pe bana sakte hain. Framer pe bana sakte hain. Hum Adobe XD pe use kar sakte hain. In sab se ekdam realistic design banta hai jo bilkul a real design hamara jo jaise develop hone waala hai waisa hi dikhta hai. Hum is pe user testing bhi bahut achhe se kar sakte hain. User user testing hum user experience bhi kar sakte hain ki woh apna goal achhe se achieve kar pa rahe hain aur unhein koi dikkat nahi ho rahi. Theek hai? Toh jab hum itna kuch use hi kar rahe hain aur humein na sirf ki user ki flow user ki interactions hi pata chal rahi thi balki user ka

experience kaisa reh raha hai? User ko kaisa feel ho raha hai jab woh hamari application use karega ya kya uski saari pareshaniyan hal ho rahi hain ya nahi? Basically ek jab demo ban gaya hamari application ka jo high fidelity prototype hai toh kya aapko lagta hai hum ise apna stakeholder meetings mein ya kuch fundings generate karne ke liye ya kisi ko present karne ke liye presentations mein high fidelity prototype ka istemal kar sakte hain. Toh jaise ki humne abhi discuss kara ki hi-fi design aur hi-fi prototype hamare design se ekdam ek step door hota hai. Ekdam realistic design jaisa dikhta hai. Toh haan, hum unhein stakeholder meetings mein use kar sakte hain. Hum unse approval le sakte hain. Hum unhein dikha sakte hain ki hamara project type kaise work karta hai and future mein hamara design kaise work karega. Toh ant mein hum ab ek poori aaj ki charcha ka saar le lete hain ki aaj humne is poori panel discussion mein kya-kya charchayein kari, kya-kya points discuss kare aur unhein hum asal mein kis tarah se istemal kar sakte hain. Toh sabse pehle humne samjha ki low fidelity prototype kya hota hai? Low fidelity prototype hamare paas ek bahut hi aasani se bahut hi jaldi banne waala ek prototype hota hai. Jismein hum apni application ya website ke dhaanche ki baat karte hain ki hamari application ya website hum jo bhi banane lage hain usmein kya-kya functionalities hongi jo ki hum bahut generally pen paper ya kuch online softwares ka use karke ya phir Power Point presentations ke zariye ya sticky notes ke zariye hum darshate hain. Ismein hum koi bhi text ya image waghera nahi istemal karte aur kaafi simple rakhte hain. Iske a baad hamare paas aata hai ek mid-fidelity prototype jismein hum buttons aur user ka flow aur thode bahut basic-basic yeh batate hain ki hamare paas kaun se page par kahan par kaun si photo matlab kaun si ka matlab yeh nahi hai ki asal photo lagakar balki uska matlab yeh hai ki jagah nirdharit kari jaati hai ki yahan par hamare paas ek photo aayegi. Yahan par hamare paas ek text aayega aur yahan par hamare paas ek button aayega. Yeh discuss karte hain. Iske baad hamare paas aata hai ek high fidelity prototype jismein hum apni poori application ya poori jo website bana rahe hain hum uska poora demo rakhte hain. Zyada tar jo hamari high fidelity prototypes hain, yeh hum apni presentations ya kisi ko apni application ya website ko prastut karne ke liye istemal karte hain. Aur is sabhi ke beech mein humne ek bahut hi mahatvapurna topic bhi discuss kara tha jo tha user feedback. Toh humein jaise ki pehle se pata hi hai ek poora prototype poora design kabhi bhi ek ek hi baar mein nahi banta balki yeh ek iterative process hai. Matlab ki baar-baar kiye jaane waala process hai. Toh iske liye humein user feedback ki zaroorat padti hai. Toh isi poori charcha mein humne yeh bhi samjha ki humein ek kis time par ek user feedback lena chahiye jisse humein saaransh mein yeh pata chala ki teeno hi high, mid aur low fidelity prototypes ke liye humein proto apne user feedback lena chahiye. Beech mein humne yeh bhi discuss kara tha ki hamare paas kaun-kaun se tools use kar sakte hain. Toh bahut generally agar broadly bataya jaaye toh hamare paas Miro, Figma aur Canva hai jo humein teeno hi prototypes ko banane mein kaam kar sakte hain aur sahayata karte hain. Iske iske utpann humne yeh bhi samjha ki hamare design process mein prototyping ka kya mahatvapurna hissa hai aur iski kya aavashyakta hai. Ant mein hum yeh aasha karte hain ki aap sab log yeh saari discussions se prabhavit hokar apna ek project banayenge jismein aapko yeh high, mid aur low fidelity prototype mein ki liye jitne bhi sujhav mile hain aap unka istemal karenge. Dhanyavaad. [Sangeet]