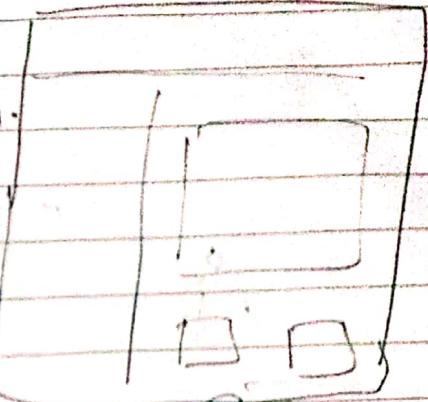
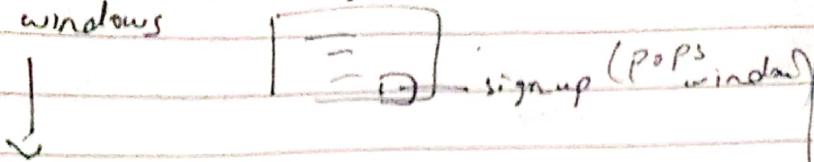


Prototyping Techniques

- Made windows' images of project (not coding) in proposal.
- Showing static images hence called storyboarding
- Clicking on signup and then opening another windows page is interconnecting of the windows.

Just doing enough coding that it interconnects the windows

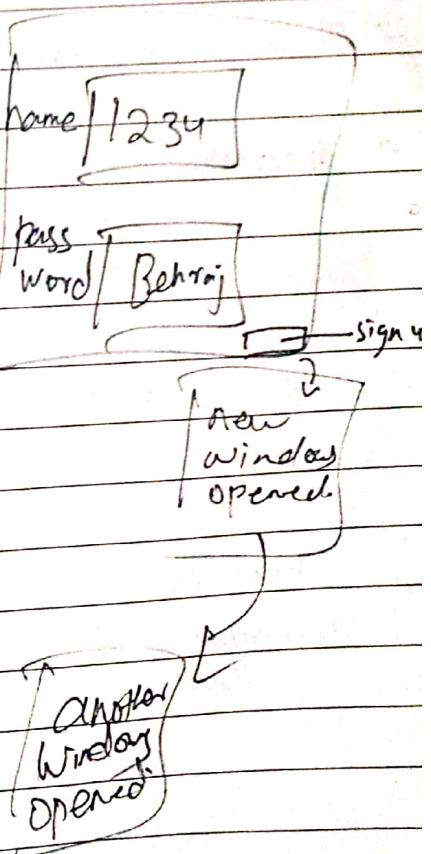


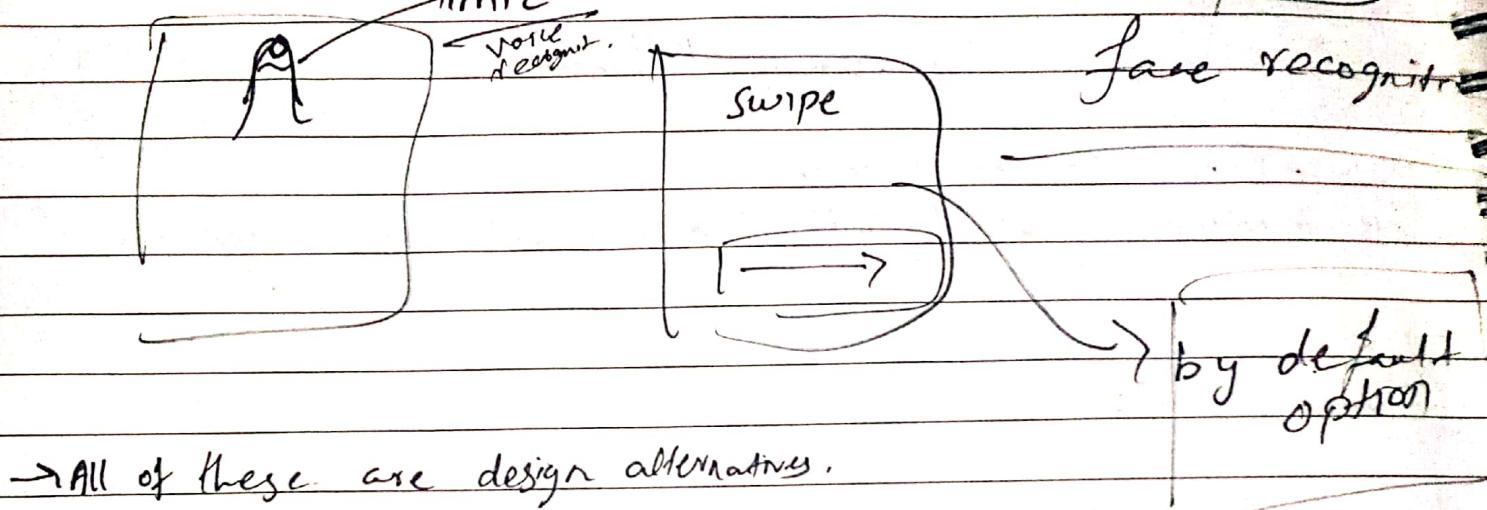
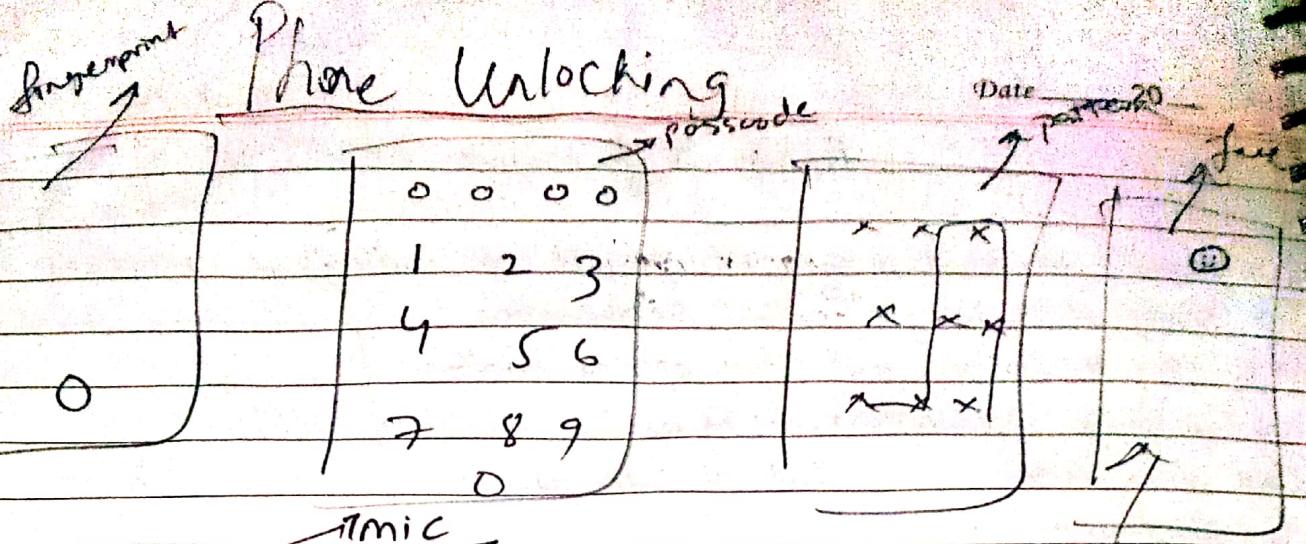
is refining the requirements.

This technique is called limited functionalities. (HyperCard)

Wizard Of Oz:

Keeping in mind user, we check/track the user's choices/mistakes in the prototype provided to the user and keeping track of these in the backend. Hence, doing this refines the requirement further.





→ Fingerprint : → effortless
 → secure
 → sensor not working

→ passcode : → Secure, not effortless as fingerprint

Whenever we come up with design alternatives and differentiate them by their pros and cons, this is then called design rationale.

Why the system is the way
 ↴
 Structured design rationale if is -

Why design rationale?

→ Reason of ~~document~~ is correct in design rationale. (like fingerprint sensor might not work)

Procedural design rationale:

↳ records

↳ Historical about the design precedence.

How it raise alarm?

→ Sound / hear sense

→ Vibration / touch sense

→ Flash / visual



→ Search haptic channel

(Involving
sound
touch
sense)

Search
Any one
made and
other mode
of sense

Why we discuss human in HCI?

→ Because it is the human interacts with the system and exchanges info with it.

(Listening)

- * ~~Powerless~~ Earlike channel can be used only as input source.
- Another
- * Voice Source can be both input and output.
But our voice/tongue can only output source.

1/ Visual

- * Eye/Seeing Channel can be used as both, input and output channel.
- ↓
Seeing
- ↓
Lip
- (Haptic channel)
- * Touch Channel can be used as both channels too.

→ Feeling, emotion & smell can not be used in a system.

Channel

Machine learning
Data science
Reinforcement learning

- * We can use artificial intelligence and train the machine on some specific use cases like a camera can recognize facial expressions of human and judge whether person is happy or sad, The movie robot is also an eg of feelings in machine.

→ Satisfaction level can be affected by emotion.



- A person who cannot differentiate between red and green; If a windows have logo, writing, etc then he will have difficulty in reading, fonts, icon, and will struggle using windows and possibly make errors. Hence, whenever we are told that our audience can be color-blind, colors should be chosen carefully accordingly.
- Color blind people can see black & white, so this should be considered.
- In some cases black and white is not preferred, e.g., children app design.

Fitts law:

$$\text{at } 5 \log_2 \left(\frac{D}{S} + 1 \right)$$

↑ Distance
↓ Size

a: perception time
b: reaction time.

Arrangement of icons on the menu.

- How information becomes part of long-term memory
- If attention missing, information does not go to sensory memory in short term memory.
 - Stays for 40 seconds.
 - practice / rehearsal needed.
 - focus of attention needed.

decay's
e.g., sees
first or
makes contact
gets it
quiet and focused

- Perception time is when we understand how to behave in a certain time. An example is Seeing & foot off movement in field and deciding your movement.
- Reaction time is when our brain gets signal to perform movement. An example of football was given by sir.

Revise perception & reaction time - Vimpr

| 20K-105 | Lecture 18 |

See this from book

- ① → Distinguish b/w process oriented, structure oriented and psychological design rationale?
- ② → How it will be helpful in semester project?

↓ Elaborate

- A1) → How to distinguish b/w process & structure
 method in what ^{the} design rationale attempts to capture.

Activity concurrent to rest of design process.

- Process oriented design rationale:-
 Interested in recording a historically accurate description of a design team making some decision on particular issue of design



- Structure-oriented design rationale is less interested in preserving the historical evolution of the design. More interested in design activity, can be used in reflective manner.
 - mainly process oriented.
- Physiological design rationale:
tasks that users perform are changed by the system. Designers record what they believe are the tasks that the system should support and then building the system to support the tasks.

How will this be in Semester Project?

- Dialog box is physiological design rationale system supports user tasks
- Structure Oriented can be introduced by making something from scratch or something new and innovative which does not preserve historical evolution
- Process oriented can be introduced by following old practices or history like for example, introducing shortcuts used across all systems/interface in same way or consistency.

→ Retroactive interference refers to reduction in memory performance with retrieval of older memories.
→ Proactive interference refers to reduction in memory performance for recently learned information resulting from prior learning of related material.

→ Point crashing example by Sir Behraj. The event occurred on this date 20 Nov lesson. This example does not require rehearsal. This memory is based on events and doesn't require rehearsal.

↑
~~semantic~~ episodic memory

Practice/Rehearsal: Non-~~conscious~~^{epi}
of knowledge and skills.

→ If revision not done of Quran/HCI work, etc, then forgetting starts to occur.

→ Interference is the reason/factor forgetting occurs.
Disturbance mainly. Example, group of people talking at someone's desk, distracts them.

→ Sir Behraj Class Not coming example. Memory of class from 2 to 3 in Spring term ~~was~~ interfered in memory. In this case, old memory interfered with new memory/info. Date example.
→ Write old year for sometime even when new year starts.

→ We can also replace new info. with old info in memory.

→ Retrieve information from memory in brain.

→ How to interact forgetting factor in interactive system.

dialog initiative → provide
manuals for using system

Perfect design is poor design.

→ Example, UCBP in fact could come from tradeoffs. Tradeoffs involved, hence poor.

→ Abductive Reasoning }
 → Inductive Reasoning } Very Important!!

→ Linking previous knowledge to solve problems at hand or
 Recognising by previous knowledge is called Inductive
reasoning.

→ Linking seen knowledge with unseen
 How is inductive reasoning used in project? knowledge.

→ Based on all projects you have seen, past knowledge will be linked to your
 project when designing windows. For example, log in windows.

→ Abductive reasoning is when we use the conclusion
 and based on the conclusion we draw evidence.
 → Sherlock Holmes is also an example.

→ Deductive reasoning is when we deduce from
available information.

→ See, abductive, deductive and inductive reasoning very closely
 N. imp!

→ Practice required for analogical mapping Eg, students
 only study from notes and slides in HCI and
 don't study from book. Hence they aren't able to
 analogically map concepts on HCI paper.

→ When we apply specific knowledge and generalize
 → it is called inductive reasoning.
 → using information to draw conclusion → deductive reasoning

→ Deduce → draw conclusion → by evidence } both ways
 from info.
 evidence → deduce → draw conclusion } both ways
 from info.

- > Abductive & deductive reasoning are both used in software testing and investigations.
 - > Inductive reasoning used in literature.
- (2)
- e -> To correct belief by abductive reasoning, deductive reasoning helped.
 - = -> No evidence in abductive reasoning, but evidence found in deductive reasoning.

Continued:

Opssy Activity

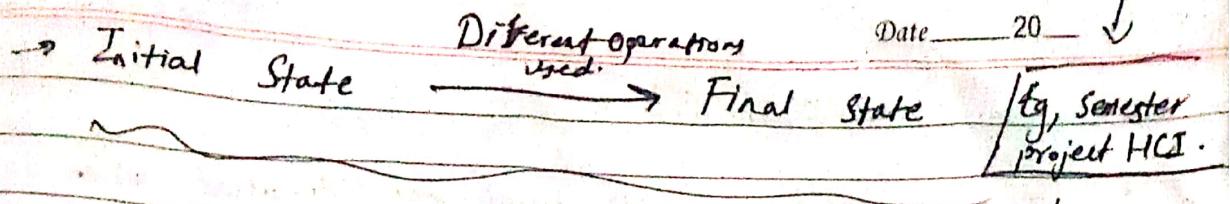
11th Nov - 2021

Q1) a) / Multimodality for deaf people → Design what project

- > Humans interact with each other (exchange information) by a common medium (language, Urdu, English, etc).
- > Need computers and human to exchange information by common medium.
- > Computer's language is binary language.
- > Humans don't understand binary.
- > Seeing the above two points, we can change our argument as human's don't understand binary and computer's don't understand natural language.
- > Commandline interface removed by GUI. CLI wrapped, changed and changed as such that it could be used by end-users / normal people as a GUI.
- > Code of language used changed to binary language by computer and then processed by system and then output again natural language understandable to humans.
- > Precise tasks to achieve goals. Eg, Sir setting goal to make children/students learn HCI.
- > If we are to draw a red triangle:
 - * Graphic Design is domain
 - * Paint, Adobe Photoshop, etc is tool

Keeping human health in mind is
ergonomics.

Domain
HCI



Problem Theory
Space

Goal of
everyone is same.
To get 25 weightage
of project

→ Labelling the switches as to which fans/lights will switch on/off makes it easy for the user to take action easily rather than without labelling where heuristics/brute force is used.

→ Gap between system is more when google chrome site loads without providing any informative feedback as to where it will load the requested site as compared to one telling time of loading.

→ Ergonomics based on physical features of human when designing system

→ Setting frequency of sound such that annoying to human violates ergonomics.

→ Menus in word example of ergonomics.

→ Direct Manipulation: Editing on laptop/software.

→ Indirect Manipulation: Controlling robot arm through controller.

dragging &
dropping.

Those things
are referred
to as pellet.



Example / Activity

→ Interaction of human with paint app discussed when drawing a red triangle.

→ Human talking with each other are exchanging information.

→ If there is a goal, interaction will occur. Else, no interaction will occur.

→ Goal: Understanding HCI

We attend lecture & Sir delivers lecture. Room being used is our environment. All of this makes a system and hence, we achieve our goal through the system.

→ We perform some operations on system and the results are then evaluated to achieve goal through system.

→ Executed some action on the system and the action in result also gets evaluated.

→ Teacher evaluation form is an example. Form is asked to be submitted after Mid II or finals, not on the 1st day of semester. This is because we have not judged the teacher enough to evaluate him. Same is the case with the system.

→ We are not asked to submit evaluation form on the 1st day of semester as we are not in execution phase yet.

→ Need light to read from notebook. But first, we need to switch on lights from switchboard.

→ Not being part of HCI class is example that children not being part of class are not part of actions and so not part of interaction model involved as they have no intention to attend HCI lecture.

→ After switching on light, we evaluate action of switching on light to check whether if light is enough to read from notebook.





Taking class or
not is involved in formulating
interaction.

Date 20

- Need to formulate intention to start interaction and in return to achieve goal.
- Checking of lights ^{state} is an example of observing the system. This is called perception. as we are perceiving /observing the system state.
- After perceiving information, we interpret the information and then take action further to achieve the goal.
- Interaction model used to achieve goal , actions initiated, taken on the system, actions executed, results perceived and evaluated are all part of :

Norman's Interaction Model,

- Presenting slides ^{using} on multimedia on board is also example
- ~~of~~ Actually when we interpret we are interacting with interaction model ~~of~~ (system state)