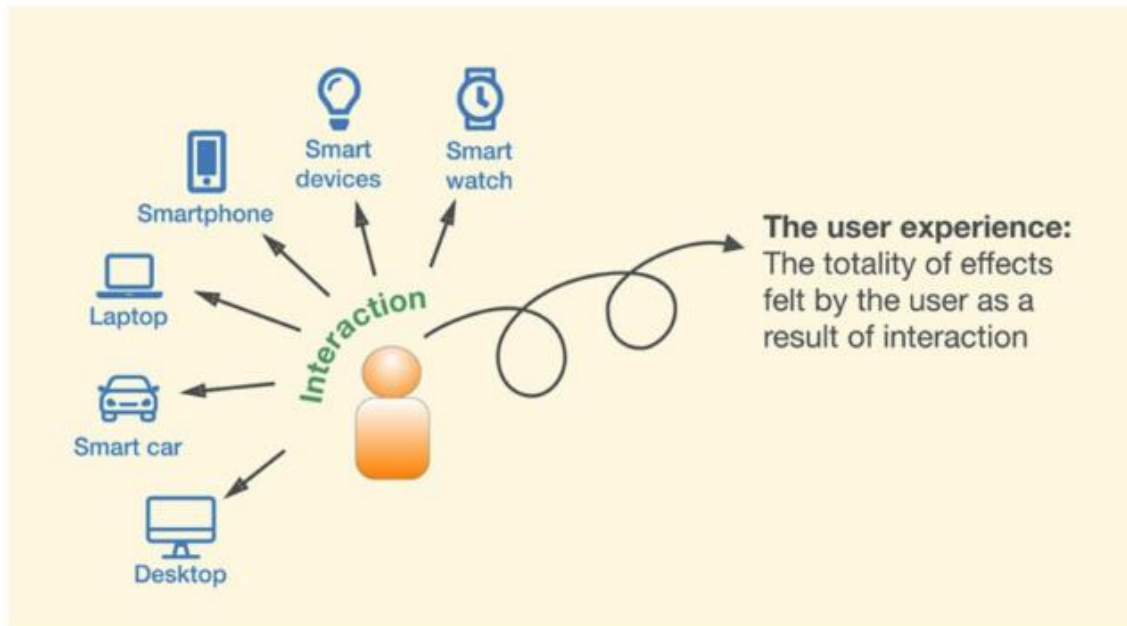
UX Design


Smart devices
Smart watch
Smartphone
Laptop
Interaction
Smart car
Desktop
The user experience:
The totality of effects felt by the user as a result of interaction

Definition of UX

- User experience is the totality of the effects felt by the user before, during, and after interaction with a product or system in an ecology
- Job of UX designers is to design that interaction to create a user experience that is productive, fulfilling, satisfying, and even joyful.
- Key characteristics of a user experience reflected in the definition above are:

1. It is a result of interaction, whether direct or indirect.
2. It is about the totality of the effects.
3. It is felt internally by a user.
4. It includes usage context and ecology

Interaction, direct or indirect

- Interaction between a human and a designed artifact can be direct (e.g., operating on a device and getting feedback) or indirect (e.g., feeling the effect of seeing and thinking about an artifact).

Totality of effects

- That totality of effects of interaction includes:

1. The influence of usability, usefulness, and emotional impact during physical interaction.

2. The full unfolding of effects over time

- As an example of effects felt over time, consider a potential user researching a product or system, seeing advertising and reviews, and anticipating ownership.
- Once the product is bought, the effects include product packaging and the “out of the box” experience; seeing, touching, and thinking about the product; admiring the product, using it, and retaining and savouring (or not) the pleasure of usage.
- the user experience can include the individual’s feeling about the company that produced the product or system and its reputation and branding, as well as the pride of ownership and how the product has acquired meaning in the user’s lifestyle

User experience is felt internally by the user

• Clearly, it is the user who has the experience. Therefore, user experiences from interaction under the same conditions can vary across individual users.

Eg:- Windows/Linux

Context and ecology are crucial to user experience

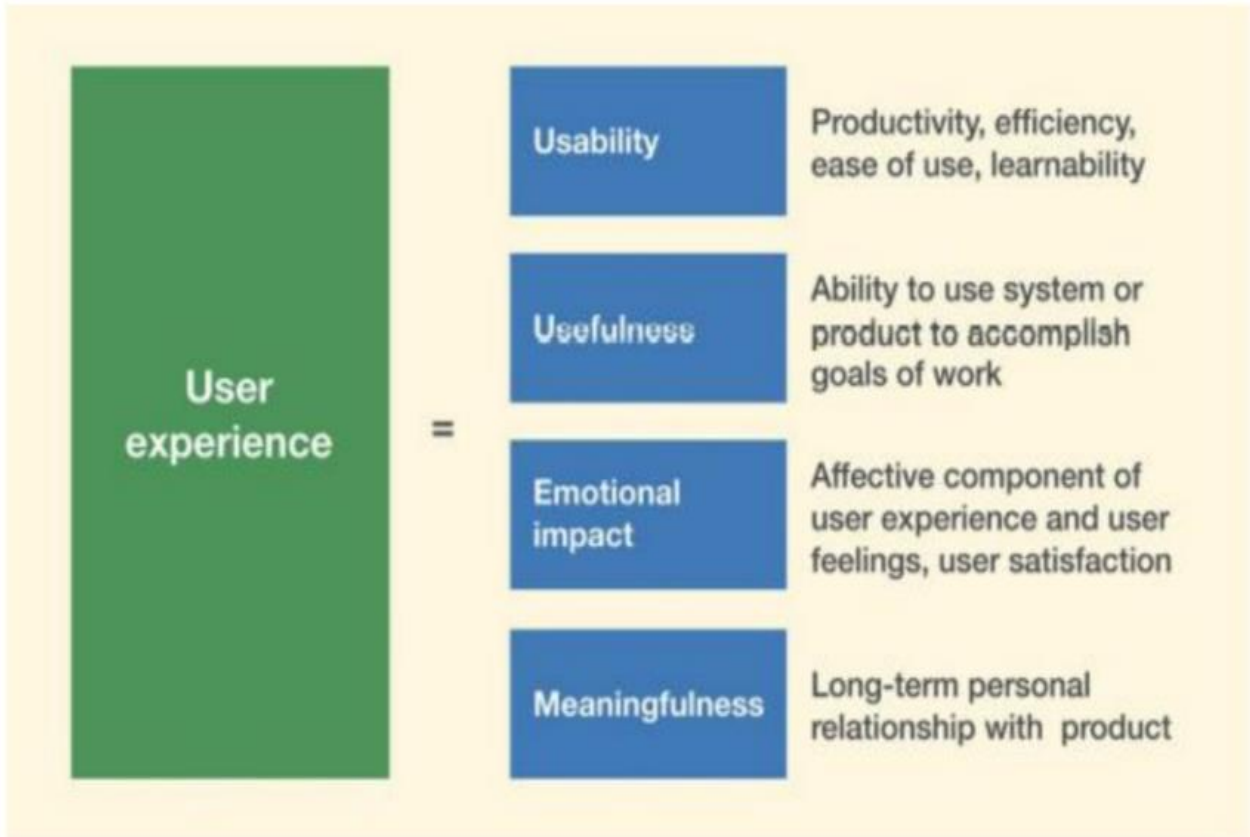
- An ecology is the complete usage context including all parts of the world the user comes in contact with related to the interaction.
- The user can be part of multiple ecologies (e.g., work versus home).

Within an ecology, there could be multiple specific usage contexts (e.g., stressful work conditions or pleasurable play conditions). And each such context affects the user experience

Eg :- Working speed of a device

THE COMPONENTS OF UX

1. Usability.
2. Usefulness
3. Emotional impact
4. Meaningfulness.


User experience
=
Usability
Productivity, efficiency, ease of use, learnability
Usefulness
Ability to use system or product to accomplish goals of work
Emotional impact
Affective component of user experience and user feelings, user satisfaction
Meaningfulness
Long-term personal relationship with product

Usability

- Ease of use
- User performance and productivity
- Efficiency
- Error avoidance
- Learnability
- Retainability (ease of remembering)

flat design style popular on these days, looks and feels are visually attractive but lacks an important affordance that reveals which elements on the screen are clickable and which are not.

Usefulness

- Usefulness is utility
- Usefulness is about the power and functionality of the backend software that gives you the ability to get work (or play) done. It’s the real underlying reason for a product or system

- users are no longer satisfied with just the efficiency and effectiveness of
- usability; they are also looking for emotional satisfaction.

Emotional Satisfaction

- Emotional impact can be experienced in many ways, including
- how users feel emotionally about an interaction including user satisfaction.

➢Joy of usage
➢Pleasure
➢ Excitement
➢ Fun
➢ Curiosity.
➢ Aesthetics
➢ Novelty.
➢ Surprise
➢ Delight
➢ Play

Emotional Satisfaction

- Exploration
- Coolness
- Appeal
- A sense of identity
- Happiness
- Enthusiasm
- Engagement
- Pride of ownership
- Affinity, attractiveness, identifying with a product
- “Wow” in UX design.

- This bike is standing there ready for you to hop on and ride away on great
- adventure. But this image doesn’t show the adventure, and that adventure is the
- user experience.

Fig. 1-3
A beautiful mountain bike just waiting for you to ride it.

- This bike is standing there ready for you to hop on and ride away on great adventure.
- But this image doesn’t show the adventure, and that adventure is the user experience.

Fig. 1-4

The true mountain bike experience.

- It doesn’t even show the whole user (rider) or even the whole bike
- But, it capture the excitement of the user experience.
- The dynamic spray of water conveys the fun and excitement

Meaningfulness

- While usability, and often even emotional impact, is usually about a single usage occurrence, meaningfulness is about how a product or artifact becomes meaningful in the life of a user
- A personal relationship that develops and endures over time between human users and a product that has become a part of the user's lifestyle

It is epitomized by the feelings of companionship many have for their smartphones , to the point that some users become physically uncomfortable if they become separated from their phones.

WHAT UX IS NOT

- **Not Dummy Proofing or User Friendliness**

➢ Usability and UX are not dummy proofing or idiot proofing

➢ Users are not looking for amiability; they need an efficient, effective, safe, and maybe aesthetic and fun tool that helps them reach their goals.

- **Not Just About Dressing Things Up in a Pretty Skin**

Design is the fundamental soul of a man-made creation that ends up expressing itself in successive outer layers of the product or service – Steve Kolko : "Design doesn't just make things beautiful, it makes them work"

UX design as a "spread-on" layer -after the product is developed, you can spread this nice thin layer of UX all over the top of it

- **Not Just a Diagnostic View**

usually at the end of the project, at which time they were expected to perform "usability testing." This led many to think of "doing usability" as equivalent to usability testing

- They observed large numbers of flashlight users to see what they used flashlights for and how they used them.
- They quickly discovered that people who use the flashlight to see better while they were doing tasks usually needed their hands free to do the task.

KINDS OF INTERACTION AND UX

- Not all interaction is for a particular task between a user and a GUI for something like adding an item to a calendar
- Some interactions continue through lots of different states in time and space and through different environments.
- different kinds of interaction that we can correlate with different kinds of user experiences.

1. Localized interaction.
2. Activity-based interaction.
3. System-spanning interaction

Localized interaction

- Localized interaction is localized with respect to both time and system.
- It is simple interaction with a single “product,” one device in the user’s ecology surrounding the user.
- It’s task-oriented, bounded, and limited, and it occurs in a very short time within one interaction environment and with one single goal
- using your laptop to check your email or using an ATM to make a withdrawal of cash.
- Therefore, design is focused on interaction.

Activity-Based Interaction

- Norman introduced activity-based design as a way to describe interactions that go beyond simple tasks.
- An activity is one or more task thread(s), a set of (or possibly sequences of) multiple, overlapping, and related tasks.
- It can involve:

1. Interaction with one device to do a set of related tasks.
2. Interaction across devices in the user's ecology.

Interaction with one device to do a set of related tasks.

• searching for a compact digital camera online. You might follow links to reviews, decide on one, and put it in the “cart” and then follow links to other, similar products. You can also follow other links to accessories you might want (e.g., SD memory card, camera case, wrist strap, USB cable for downloading), and so on.

• Even though this involves multiple different tasks, users think of it as doing one activity.

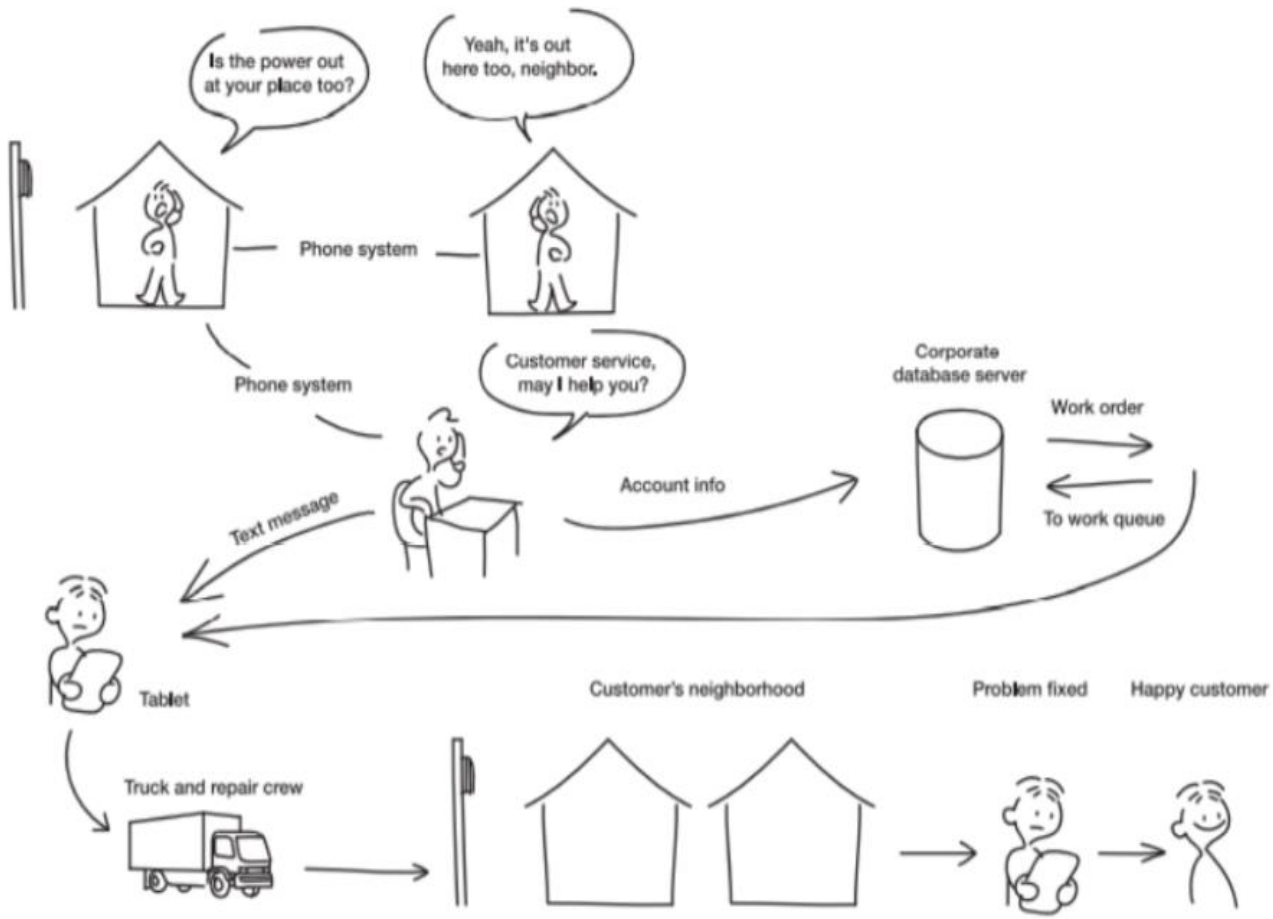
• Norman describes “mobile phones that combine appointment books, diaries, and calendars, note-taking facilities, text messaging, and cameras” as devices to support communication activities.

• This one single device integrates several tasks:

System-Spanning Interaction

- Interaction across devices in the user's ecology.
- System-spanning interaction is a kind of activity-based interaction, often involving multiple parties in multiple work/play roles, multiple devices, and multiple locations

Example: Power Lines Are Down Here is an example of a transaction with a relatively simple goal of getting electric power service restored to a user who finds the power is out in his house


Is the power out at your place too?
Yeah, it's out here too, neighbor.
Phone system
Phone system
Customer service, may I help you?
Corporate database server
Work order
To work queue
Account info
Text message
Tablet
Customer's neighborhood
Problem fixed
Happy customer
Truck and repair crew

you can see an ecology involved in one user activity that includes the user as customer, the power company, its customer service, customer accounts, the power company's central database, a work order queue, a work order, power company field technicians, and the power lines. The ecology of this activity also includes the telephone system, the neighbour on his phone, a text message, the technician's portable tablet, the technician's crew, and a fleet of power company trucks

THE BASIC PROCESS COMPONENTS FOR UX

- UX Design Lifecycle
- UX Lifecycle Activities
- UX Design Lifecycle Process
- The Wheel: A Model of the UX Lifecycle
- Lifecycle Sub activities
- UX Methods
- UX Techniques

UX Design Lifecycle

- It’s a cycle of the life of a UX design, from inception to deployment and beyond.

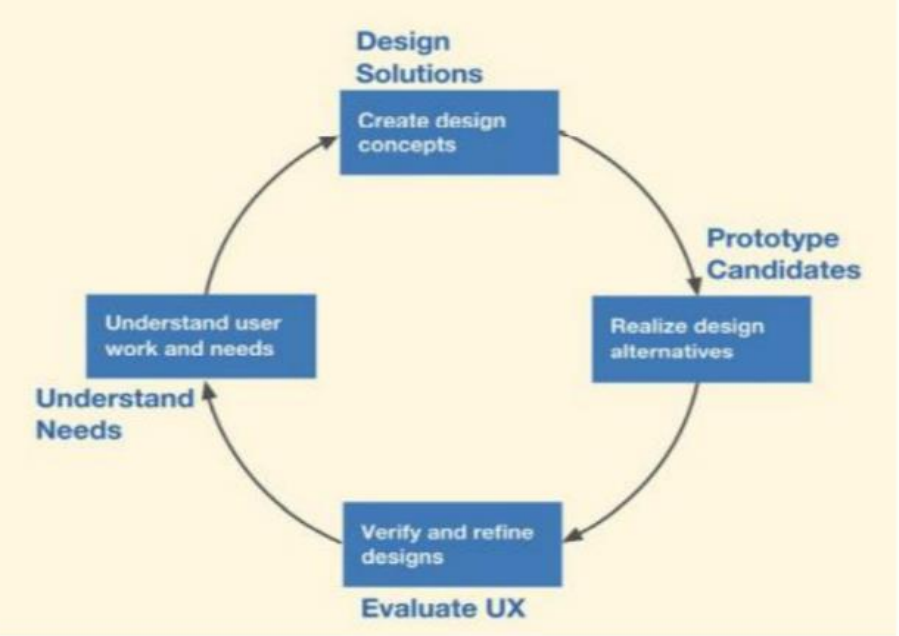
UX Lifecycle Activities

- Lifecycle activities are the high-level things you do during a lifecycle

1. Understand Needs (of users)
2. Design Solutions
3. Prototype Candidates (for promising designs)
4. Evaluate UX

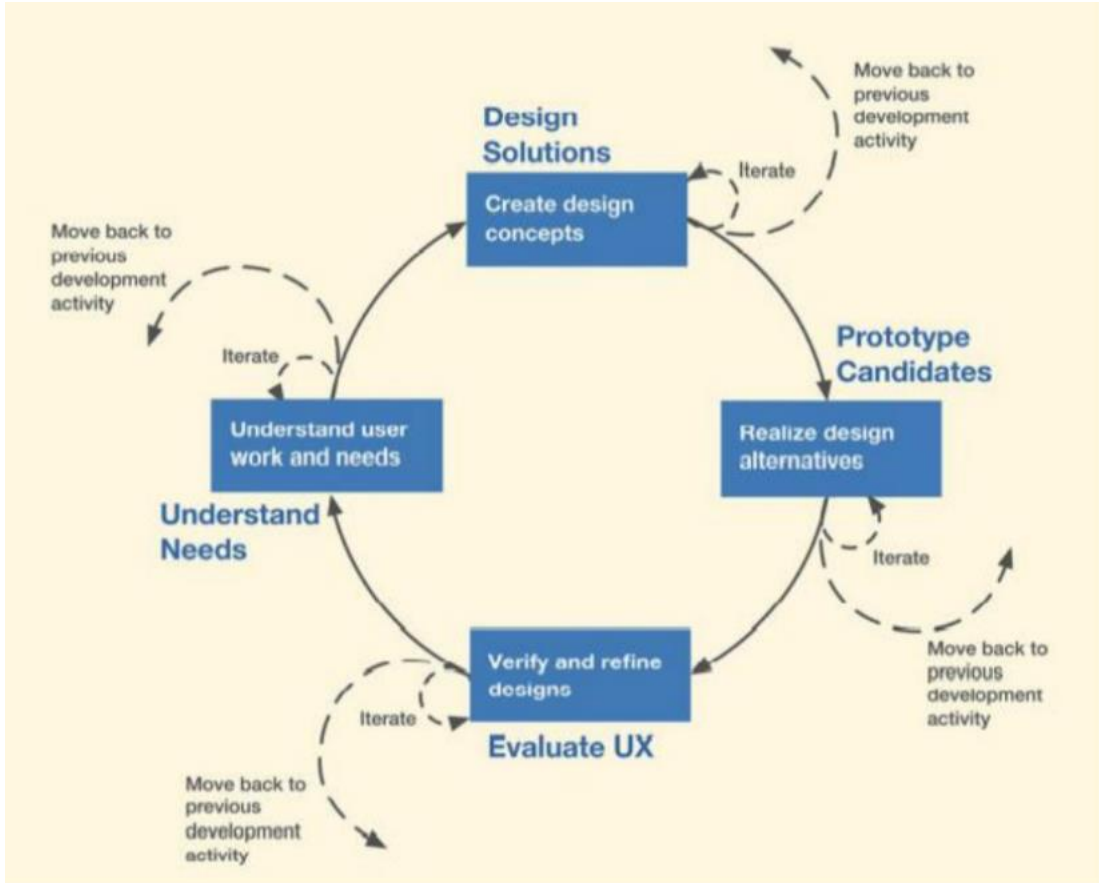
UX Design Lifecycle Process

- A UX lifecycle process is a representation of how you put the lifecycle activities together in a sequence over time and how the lifecycle activities connected in the flow of the process, usually represented in the form of a flow chart diagram



The Wheel: A Model of the UX Lifecycle

- If we expand this abstract cycle a bit to include feedback and iteration, we get a kind of UX lifecycle template, which we call “the Wheel.”
- it goes around in circles, and with each rotation it brings you closer to your destination.


Design Solutions
Create design concepts
Move back to previous development activity
Iterate
Move back to previous development activity
Iterate
Prototype Candidates
Realize design alternatives
Understand user work and needs
Understand Needs
Iterate
Move back to previous development activity
Verify and refine designs
Iterate
Evaluate UX
Move back to previous development activity

Lifecycle Subactivities

- Lifecycle subactivities are the things you do during a single lifecycle activity
- Example: subactivities for the Understand Needs lifecycle activity include

1. Data elicitation
2. Data analysis
3. Data modelling
4. Requirements extraction.

UX Methods

- a method is a way one can carry out the whole or part of a given lifecycle activity or subactivity.
- An example of a method for the Understand Needs lifecycle activity is Usage Research

UX Techniques

- a UX technique is a specific detailed practice you can use to perform a step within an activity, subactivity, or method
- Examples of UX techniques for the data elicitation activity within the usage research UX method are

1. User interviews
2. Observation of users at work

UX DESIGN TECHNIQUES AS LIFE SKILLS

- Observation
- Abstraction
- Note taking
- Data organization
- Modeling
- Storytelling
- Immersion
- Brainstorming
- Sketching
- Framing and Reframing
- Reasoning and Deduction
- Prototyping and Envisioning
- Critical Thinking
- Iteration

Observation

- Observation is the practice of witnessing an ongoing activity with the objective of understanding underlying phenomenon.
- Things to look for include exceptions, surprises, generalities, patterns, workflows, sequencing, what works and what doesn’t, problems and barriers, and how people react to problems (or if they do).
- Observation provides the inputs for reasoning and deduction, but the ability to observe effectively can be elusive.

Abstraction

- Abstraction is the practice of removing detail irrelevant to a given objective.
- The result is a clearer picture of what is important without the distraction of extraneous matter.
- Abstraction also entails the ability to generalize from an example.
- You have to be able to comprehend and extract the essence of a particular observed incident or phenomenon as an instance of a more general case or principle

- User A: I would like to have a fan in the kitchen to clear any cooking smells.
- User B: I like to open my windows to the study and let in fresh air.
- User C: I do a lot of gluing in my workshop and need to have large windows and doors so the chemical smells don’t overwhelm me.

- All these specific instances can be abstracted under a generic idea of ventilation for the house that will lead to a design that solves all the individual problems in the list

Note taking

- Note taking is the practice of efficiently capturing descriptions of observations.
- It includes a set of techniques for qualitative data collection.
- Techniques for note taking include making hand written notes, typing notes on a laptop, recording the essence on audio, or recording on video.
- To be efficient, you must apply abstraction during note taking to capture the essential points while keeping the verbiage to a minimum.
- Notes can include sketches and/or models, analogies, or any other descriptive mechanism, bringing additional techniques into the mix.

Data organization

• Data organization is the practice of sorting data by category to make raw data understandable.

• Techniques for data organization include:

1. Card sorting.
2. Affinity diagrams.
3. Mind-mapping: "A mind map is a diagram used to visually organize information. A mind map is often created around a single concept, drawn as an image in the center of a blank landscape page, to which associated representations of ideas such as images, words and parts of words are added. Major ideas are connected directly to the central concept, and other ideas branch out from those."
4. Concept mapping: "A concept map or conceptual diagram is a diagram that depicts suggested relationships between concepts. It is a graphical tool that instructional designers, engineers, technical writers, and others use to organize and structure knowledge."

Modelling

- practice of representing complex and abstract phenomenon along particular dimensions to simplify and aid understanding.
- way to explain or categorize aspects of the problem space.
- specific kind of abstraction, usually to identify and represent objects, relationships, actions, operations, variables, and dependencies.
- Modeling is a way to organize and present information for deeper understanding.
- It’s a way to draw generalizations and relationships from raw data.

Storytelling

- Storytelling is the practice of using narrative to explain aspects of a phenomenon or design with the objective of immersing the audience in the phenomenon.
- Storytelling is a technique often used in the field of advertising.
- It can be more compelling to tell stories of people who use a product and who get pleasure and/or utility from it in their lives, than just to list advantages of the product.

Immersion

- Immersion is a form of deep thought and analysis of the problem at hand—to “live” within the context of a problem and to make connections among the different aspects of it.
- Immersion is about surrounding yourself in your UX work area with the artifacts of creative design (posters, notes, sketches, photos, diagrams, quotations, goal statements) as in a war room.
- You close yourself off from outside distractions and everything you see acts as a kind of cognitive scaffolding and a catalyst that helps spawn design ideas

Brainstorming

- Brainstorming is the practice of interactive group discussion for exploring different ideas, problems, and solutions:
  - Must be done as a group activity. Each person's inputs and discussion stimulates, triggers thoughts, and inspires the others.
  - Is a major skill in the Design Solutions lifecycle activity to highlight different perspectives and generate different framings of a phenomenon or a problem.
  - Can be used in the Evaluate UX lifecycle activity to create solutions to identified UX problems.
  - Can be used in any situation where the problem is open ended. For example, who are potential users of this system? Where can we find participants for evaluation?

Sketching

- Sketching in UX is the practice of drawing simple pictures and diagrams depicting the essence of problems and solutions.
- It is a way to externalize analysis and exploration of objects, their relationships, and an emerging understanding of the problems and solutions.
- it is not about art or aesthetics. It’s about communication of ideas
- A sketch is a kind of prototype. It uses an abstract representation, highlighting the salient features to aid visualization.

Framing and reframing

- Framing and reframing comprise the practice of posing a problem within a particular perspective.
- Framing builds a perspective that structures the problem and highlights the aspects you will explore.
- A framing is a pattern or a particular theme from which we view everything as we are in the process of finding solutions.

Reasoning and Deduction

- Reasoning and deduction is a long-standing practice of applying logic to process observed facts, fit them together, and arrive at a logical conclusion.
- The observations are the predicates of the logic and the conclusions are deductions.

Prototyping and Envisioning

- Prototyping is the practice of producing or building a model or mockup of a design that can be manipulated and used at some level to manifest or simulate a user experience, which can be evaluated

Critical thinking

- Critical thinking is the essential core of UX evaluation for testing, reviewing, diagnosing, verifying, or validating a candidate design solution.
- This kind of evaluation requires skills for observation, abstraction, data collection, note taking, and reasoning and deduction, plus the ability to make judgements, rankings, and ratings.

Iteration

- Iteration is the practice of repeating a cycle of analysis, design, prototyping, and evaluation to refine an understanding of a concept or to improve a design as a problem solution.

CHOOSING UX PROCESSES, METHODS, AND TECHNIQUES

MODULE 3

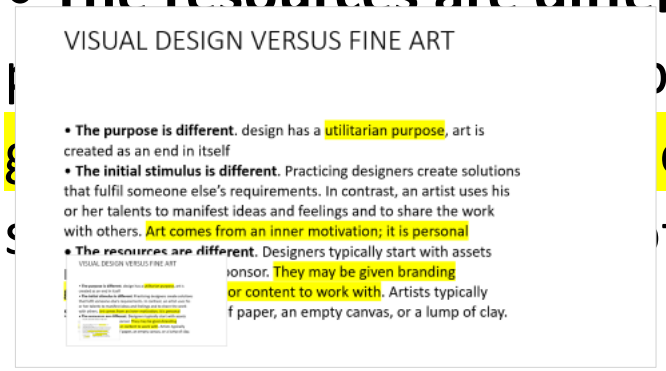
VISUAL DESIGN VERSUS FINE ART

- **The purpose is different**. design has a utilitarian purpose, art is created as an end in itself
- **The initial stimulus is different**. Practicing designers create solutions that fulfil someone else's requirements. In contrast, an artist uses his or her talents to manifest ideas and feelings and to share the work with others. Art comes from an inner motivation; it is personal
- **The resources are different**. Designers typically start with assets

onsor. They may be given branding

or content to work with. Artists typically

f paper, an empty canvas, or a lump of clay.



VISUAL DESIGN VERSUS FINE ART

• **The skills are different**. Designers study visual principles and learn to use graphic applications to create solutions. Artists study composition and develop talents in the fine arts, such as painting and sculpture.

• **Success looks different**. Design is effective if it achieves the objective. Success means that the design works—it was understood as intended and fulfilled its purpose. On the other hand, audiences are encouraged to interpret art however they wish

. The artist may not
explain his or her work in words, hoping to leave the experience open-ended.

A VISUAL DESIGN PROCESS

- 5 step design methodology

1. Define the Visual Problem
2. Research and Discovery
3. Ideate
4. Conceptualize and Visualize
5. Implement and Refine

Step 1: Define the Visual Problem

- The visual problem encompasses the entire set of requirements that affect the appearance of the materials you are designing and the underlying message that they convey.
- By clearly defining the problem, you are more likely to come up with an effective
- Example
- Create the visual design for a course that teaches international business travellers the most important customs in highly visited countries.
- Create the visual design for a web-based self-directed learning portal that teaches project management skills.

- Create the visual design for a poster-sized chart for healthcare workers that lists the most effective pharmaceuticals for pain management.solution.

Step 2: Research and Discovery

- Collect enough background information to gain a big-picture view of the visual problem that needs to be solved.
- Gather what you can about the audience, organization, and content.
- Some specific ways to do this :
- Interview the client or sponsor to understand the mission and goals of the organization or department
- Interview members of the audience, identifying their characteristics and needs.
- Discover the visual preferences of both the audience and the client.
- Gather visual assets from the organization, such as their logo, branding colors, photos, and other graphics.
- Review visual communications from the sponsor, such as the website, brochures, and instructional materials.
- Review how others have solved a similar visual challenge for inspiration

Step 3: Ideate

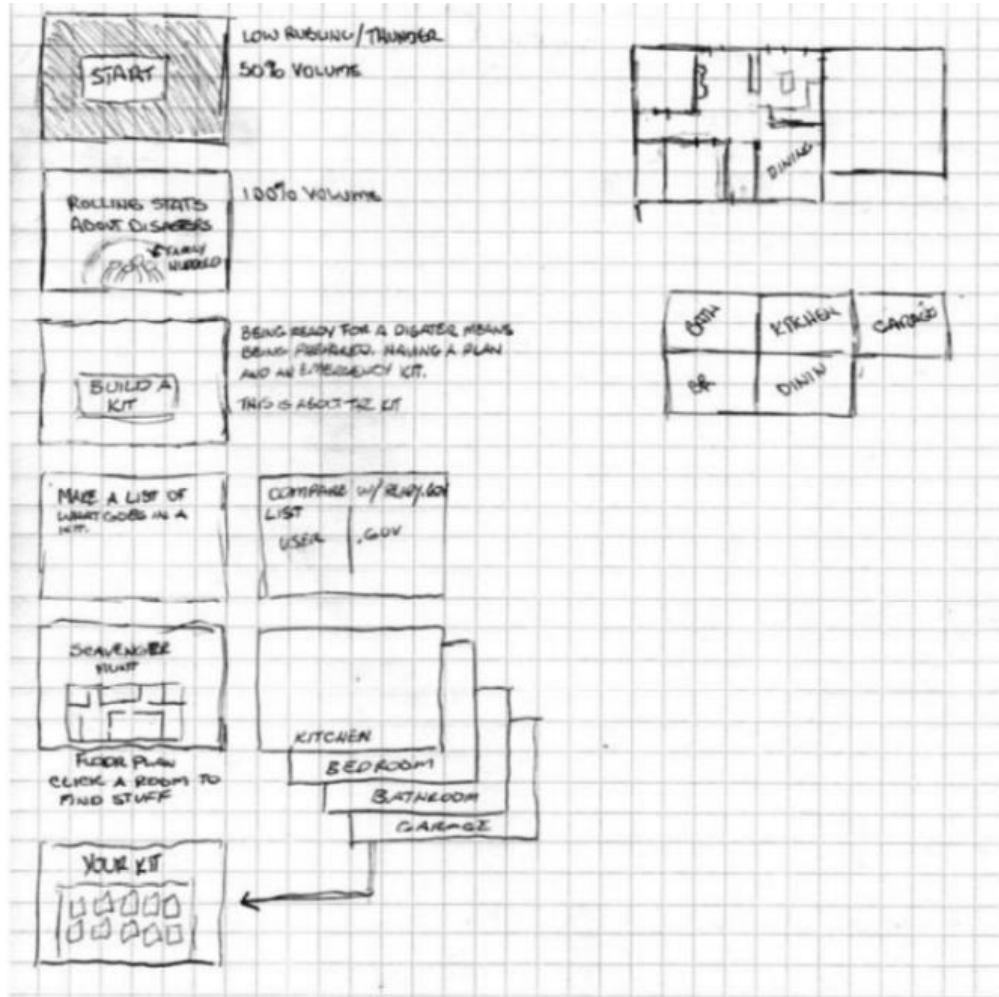
- The third step is to take what you've learned during Research and Discovery and use it to formulate ideas for solutions.
- Ideation is about generating and recording numerous ideas without judging them.
- During this phase, every idea is considered valuable—so be bold.

Here are some activities for ideation

- Brainstorming.
- Mind-mapping
- Sticky notes on a whiteboard.
- Adapting proven designs

Step 4: Conceptualize and Visualize

- To visualize the ideas, get away from the computer and make rough sketches with paper and pencil or pen
- Your visualizations can be thumbnail sketches to start.
- Thumbnails are small drawings for conveying ideas
- Use thumbnails to find ways to organize images and text.


START
LOW RUMBLING/THUNDER
50% VOLUME
ROLLING STATS ABOUT DISASTERS
STORM WARNED
100% VOLUME
BUILD A KIT
BEING READY FOR A DISATER MEANS BEING PREPARED. HAVING A PLAN AND AN EMERGENCY KIT.
THIS IS ABOUT THE KIT
MAKE A LIST OF WHAT GOES IN A KIT.
COMPARE W/ READY.GOV
LIST
USER
.GOV
SCAVENGER HUNT
FLOOR PLAN
CLICK A ROOM TO FIND STUFF
KITCHEN
BEDROOM
BATHROOM
GARAGE
YOUR KIT
DINING
BATH
KITCHEN
GARAGE
BR
DINING

Step 5: Implement and Refine

- During the Implementation phase, you will transform your sketches into designed compositions.
- Use the best solutions from the previous step and execute them in a graphics program.
- Take advantage of the computer's power to experiment with color, typography, and layout.