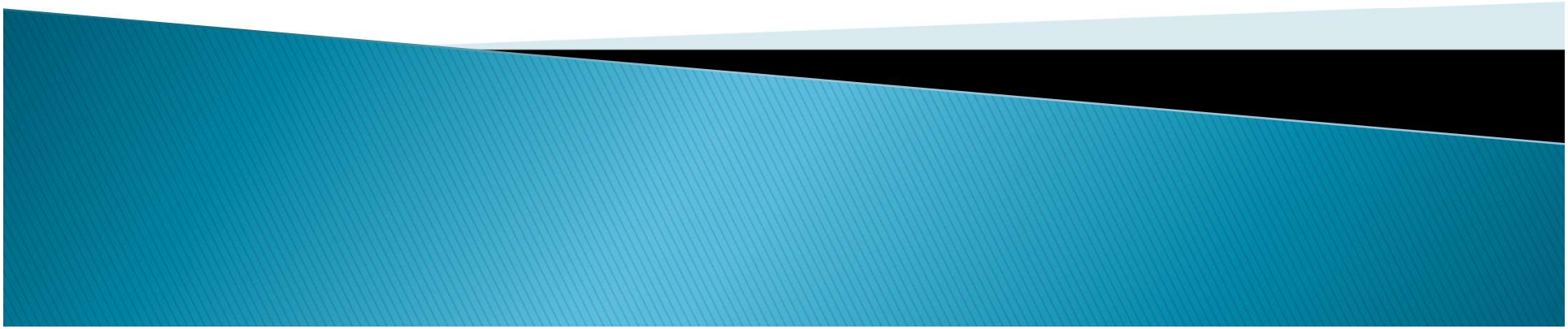
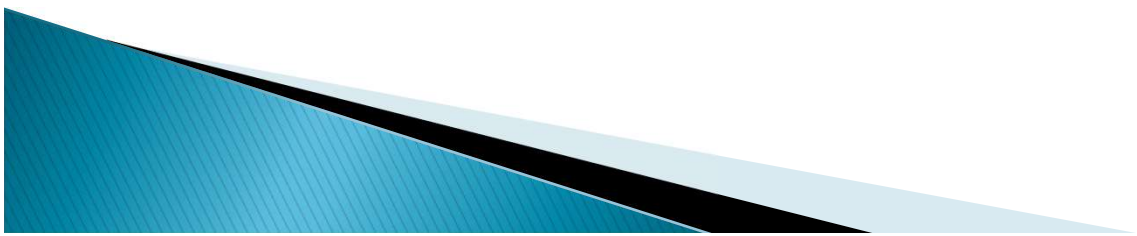
Applied Human Computer Interface (HCI)

Dr. Wafa Basit

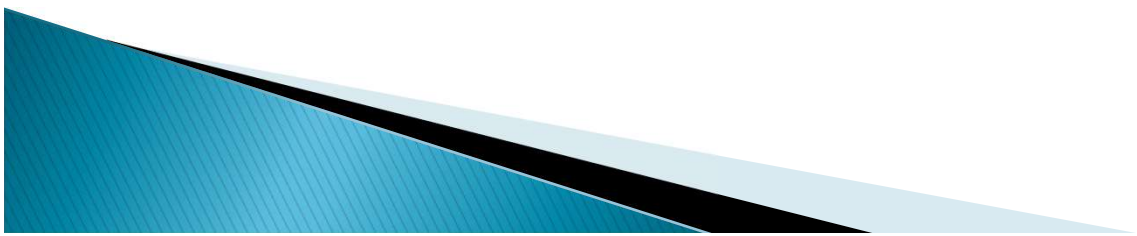


Introduce Yourselves



About the course

1. Mental and physical presence
2. Participation
3. Research oriented
4. Term project
5. Surprise Quizzes
6. Tools and technologies

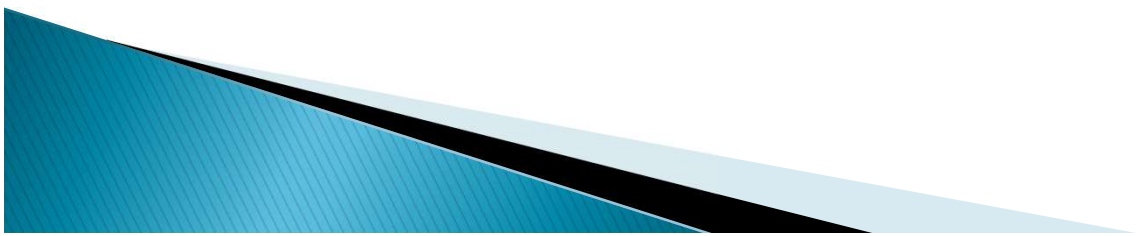


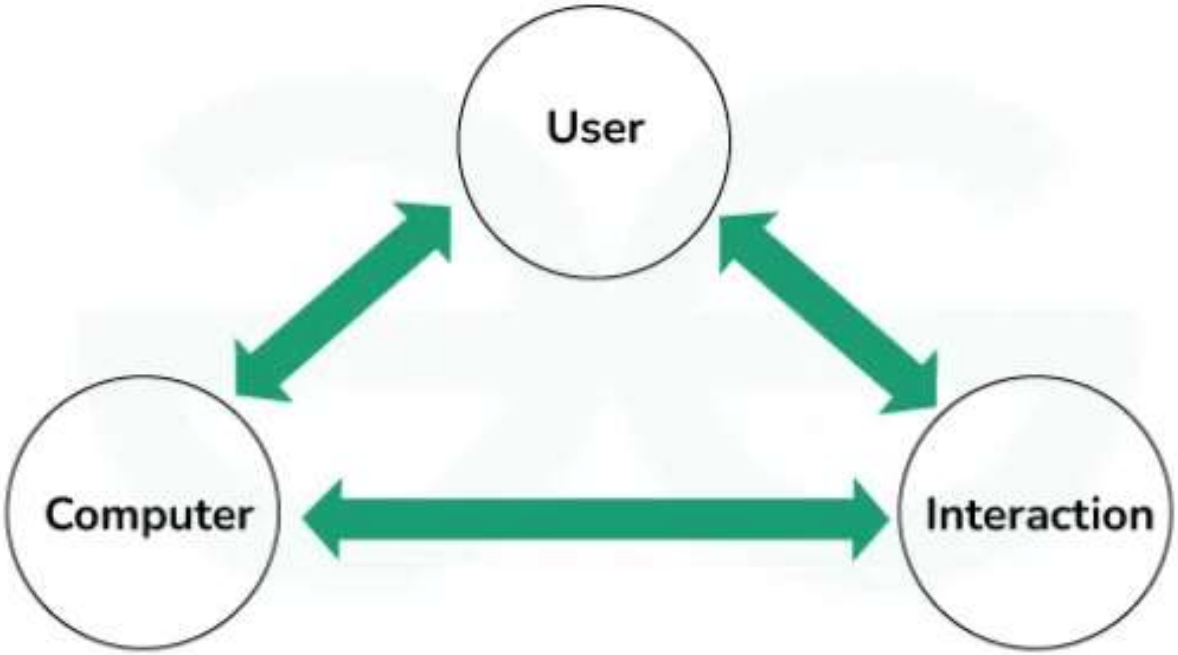
Traditional Computing System: HCI

*"**Human-computer interaction** is a discipline concerned with the design, evaluation and implementation of interactive computing systems for human use and with the study of major phenomena surrounding them."* -- Association for Computing Machinery

HCI

- HCI (Human Computer Interaction) is a field of study that refers to communication between the human user and a computer system.
- Here interface refers to a medium or interaction between the computer and the end user. It is also known as CHI (Computer Human Interface) or MMI (Man Machine Interaction).
- It is concerned with design, evaluation, and implementation. It is used to provide a user-friendly environment.

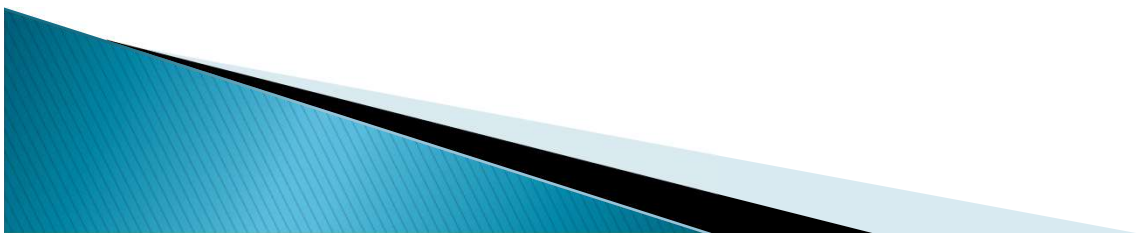


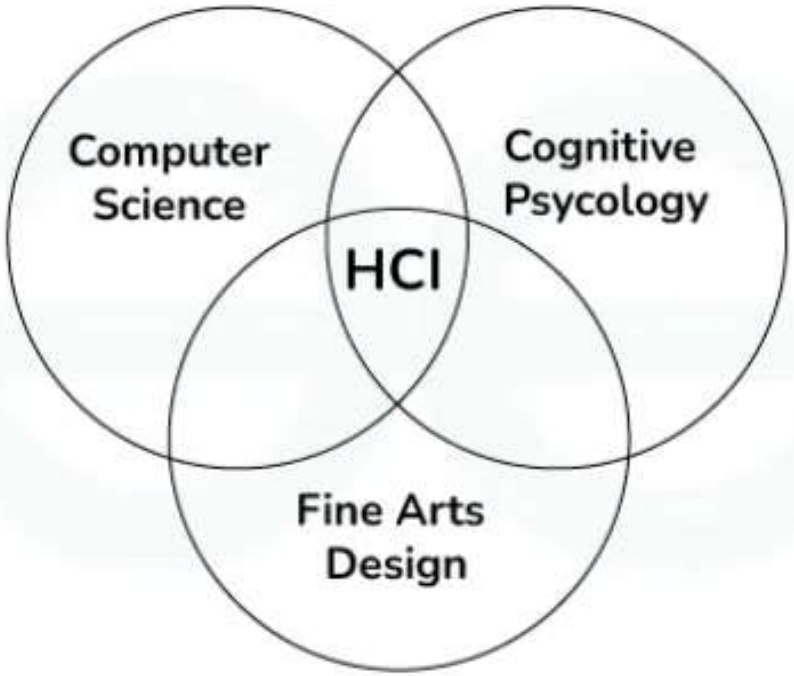


Interaction between humans and machine

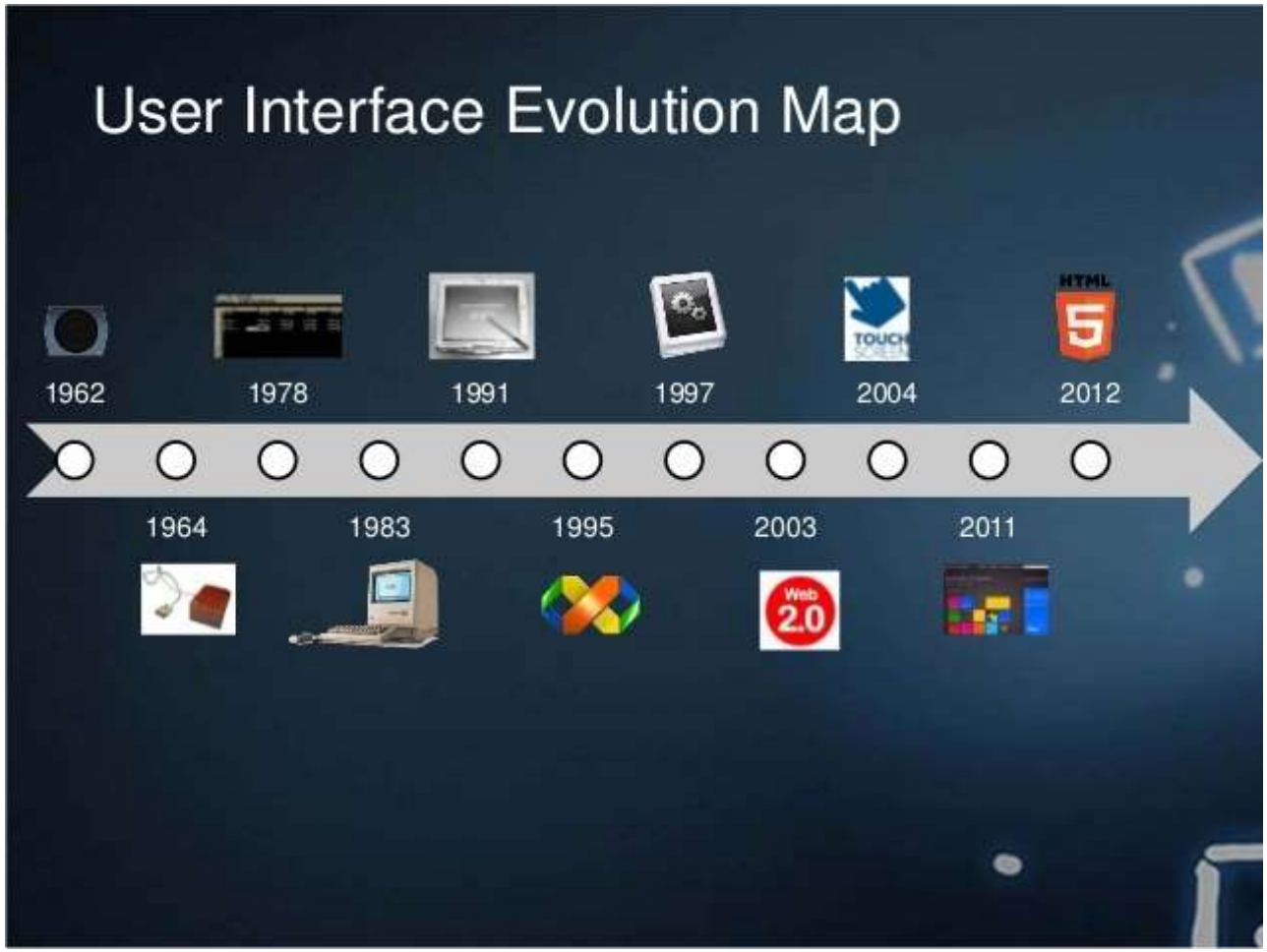
Objective

- Human uses digital devices to perform various activities.
- HCI is to design a systems in such a way that make them efficient, stable, usable and attainable.
- Lack of communication can result in poor designed user interfaces.
- It provides a ways to reduce design time through various task models. There are some disciplines contributing to HCI.



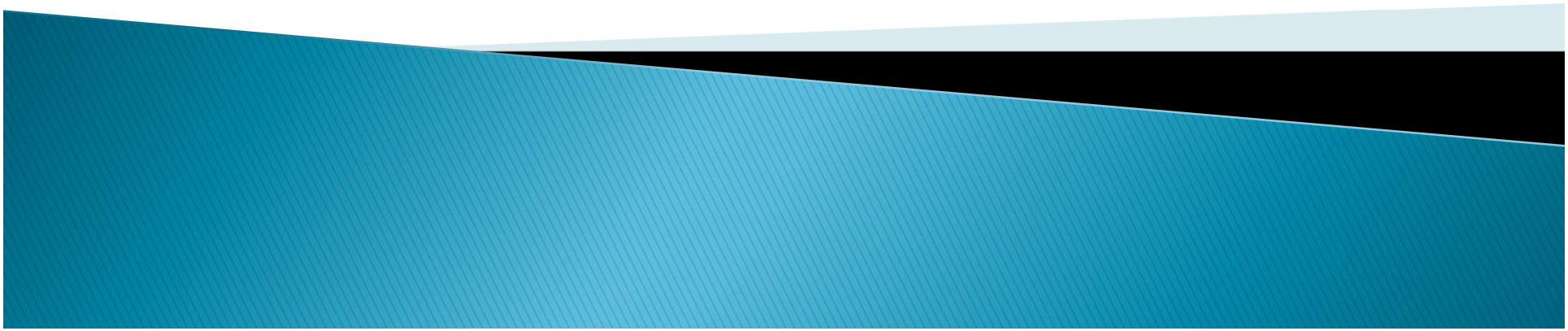


Disciplines Contributing to HCI


User Interface Evolution Map
1962
1964
1978
1983
1991
1995
1997
2003
2004
2011
2012
HTML
5
Web
2.0

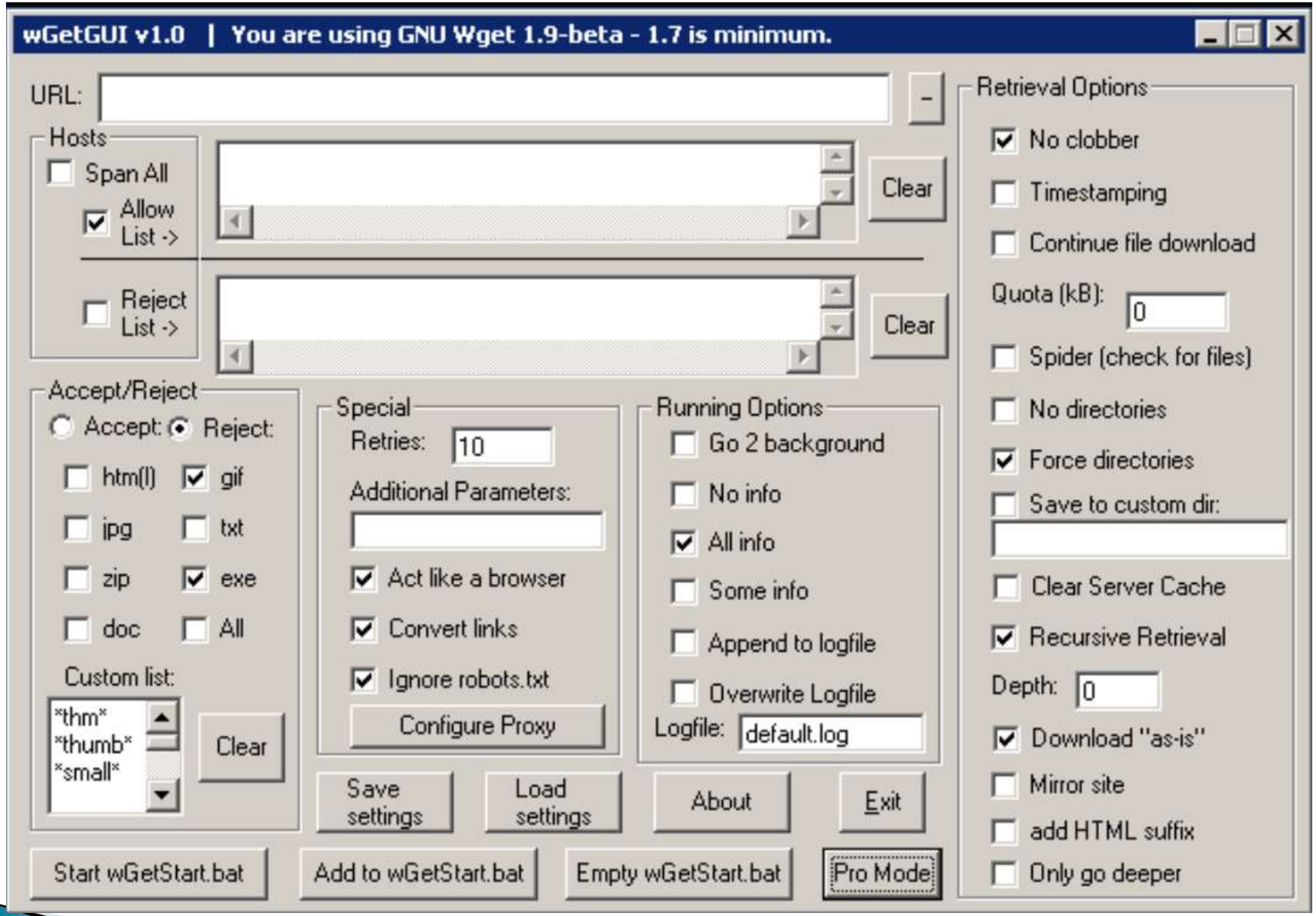
2.0
1988
98
1998
XP
2001
Vista
2006
7
2009
8
2012

Bad Design



What to do?

"Why not just let the air out of the tires?"


wGetGUI v1.0 | You are using GNU Wget 1.9-beta - 1.7 is minimum.
URL:
Hosts
Span All
Allow List ->
Reject List ->
Clear
Clear
Accept/Reject
Accept:
Reject:
htm(l)
gif
jpg
txt
zip
exe
doc
All
Custom list:
thm
thumb
small
Clear
Special
Retries:
10
Additional Parameters:
Act like a browser
Convert links
Ignore robots.txt
Configure Proxy
Running Options
Go 2 background
No info
All info
Some info
Append to logfile
Overwrite Logfile
Logfile:
default.log
Retrieval Options
No clobber
Timestamping
Continue file download
Quota (kB):
0
Spider (check for files)
No directories
Force directories
Save to custom dir:
Clear Server Cache
Recursive Retrieval
Depth:
0
Download "as-is"
Mirror site
add HTML suffix
Only go deeper
Save settings
Load settings
About
Exit
Start wGetStart.bat
Add to wGetStart.bat
Empty wGetStart.bat
Pro Mode

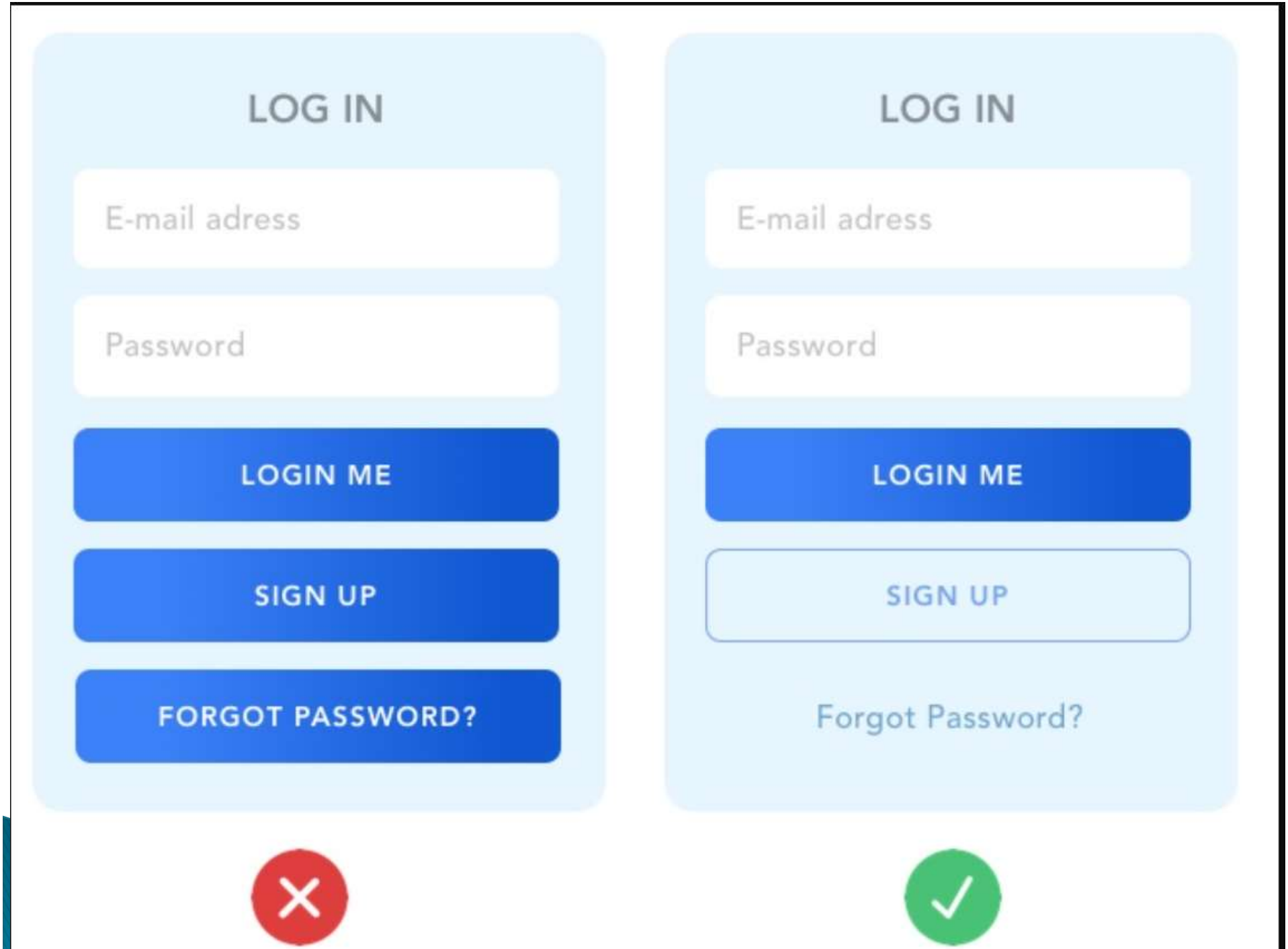
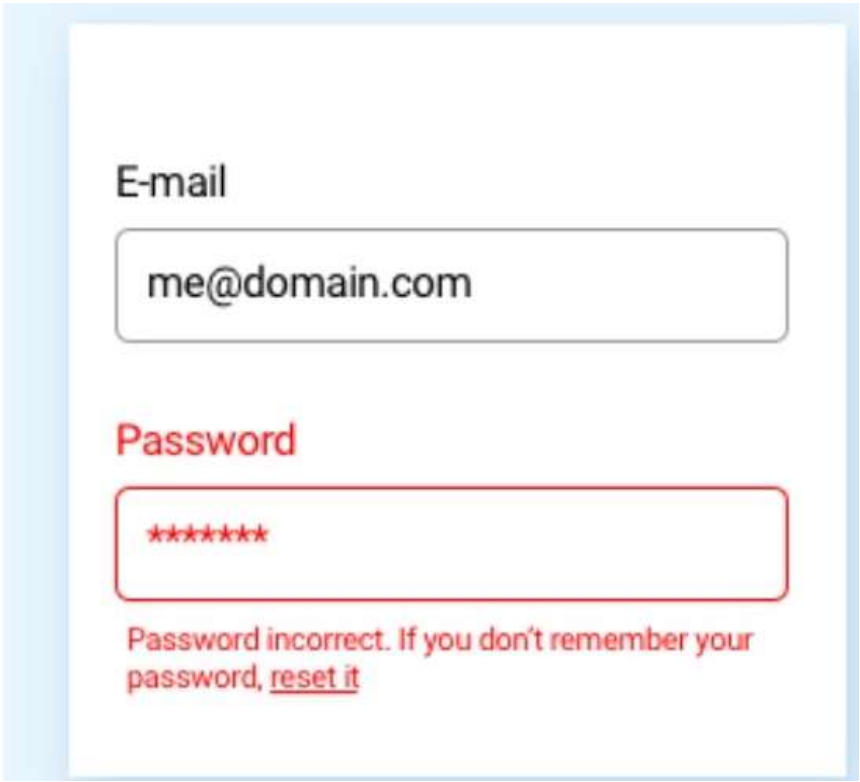

LOG IN
E-mail adress
Password
LOGIN ME
SIGN UP
FORGOT PASSWORD?
LOG IN
E-mail adress
Password
LOGIN ME
SIGN UP
Forgot Password?

Figure 1-2 Thanks for sharing. Why didn't the program notify the library? What did it want to notify the library about? Why is it telling us? And what are we OKing, anyway? It is not OK that the program failed!

(Bad) Examples of User Interfaces

(Bad) Examples of User Interfaces

Bad Design Example



(Bad) Examples of User Interfaces

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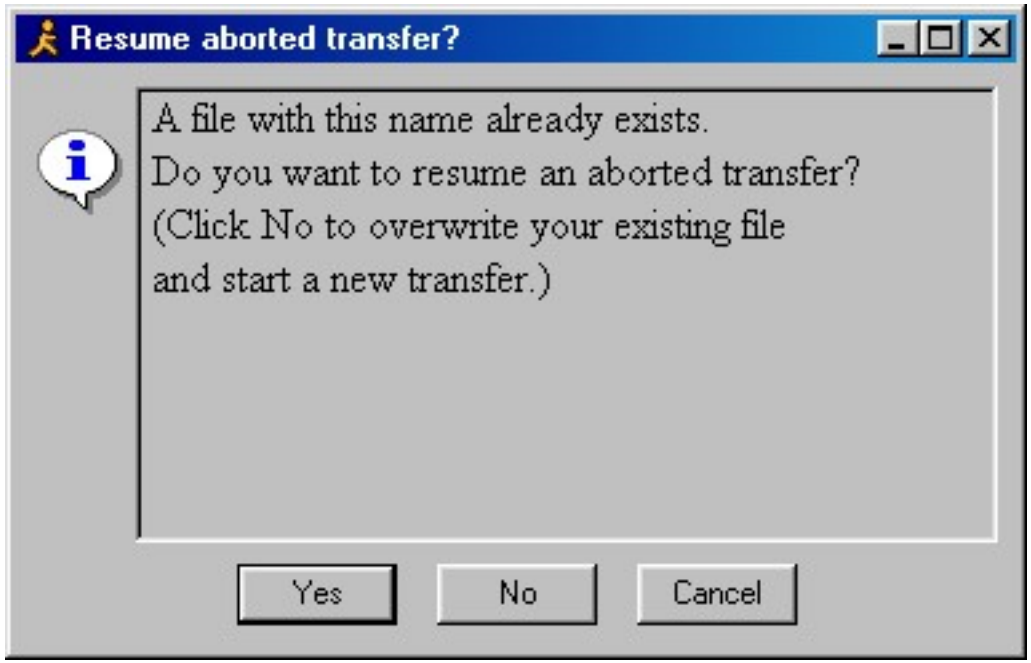

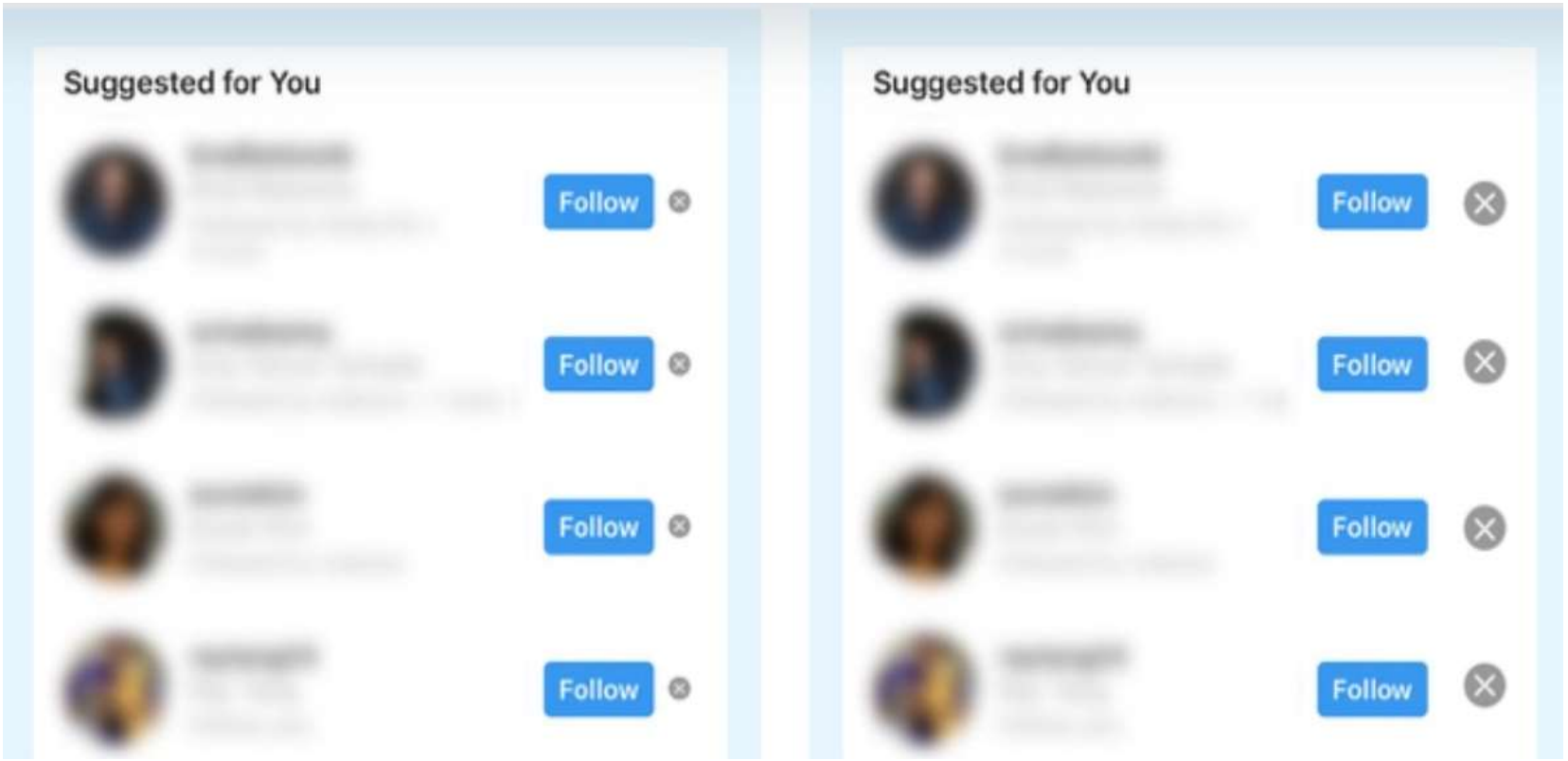
Suggested for You
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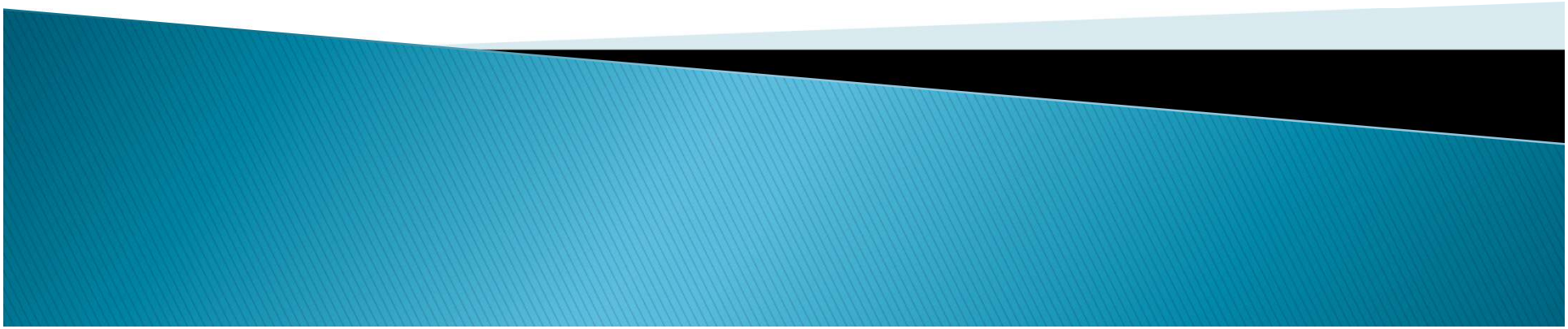
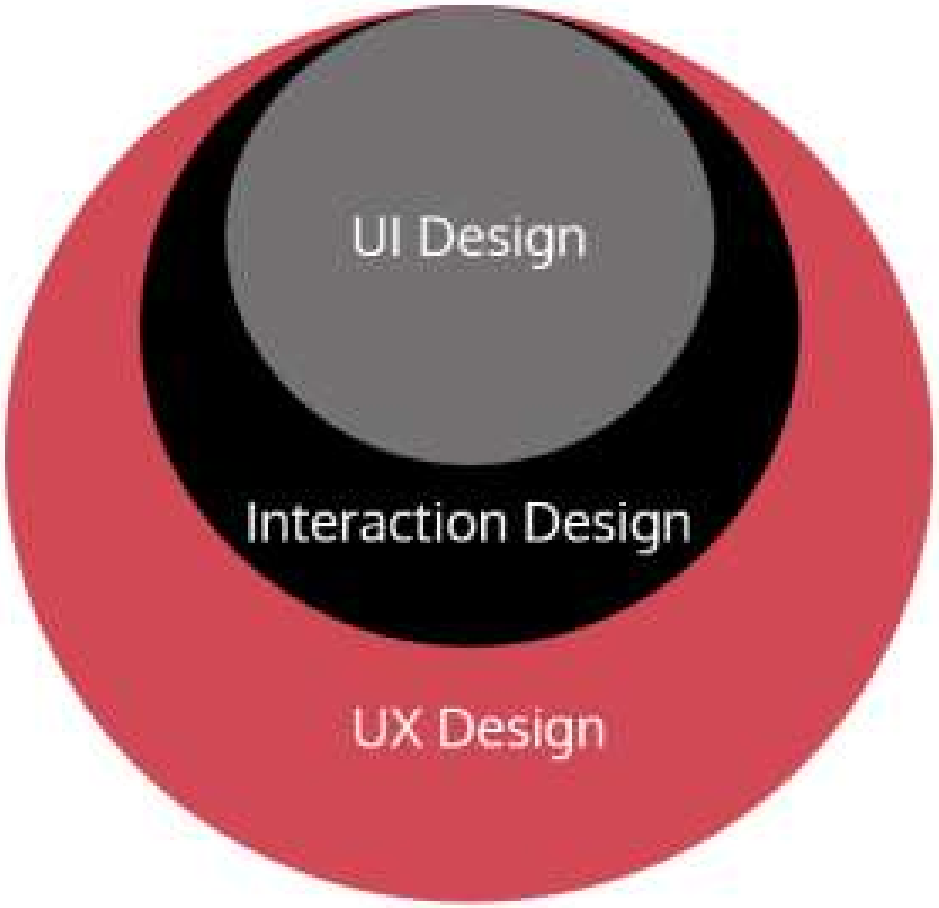
Definitions / Comparisons



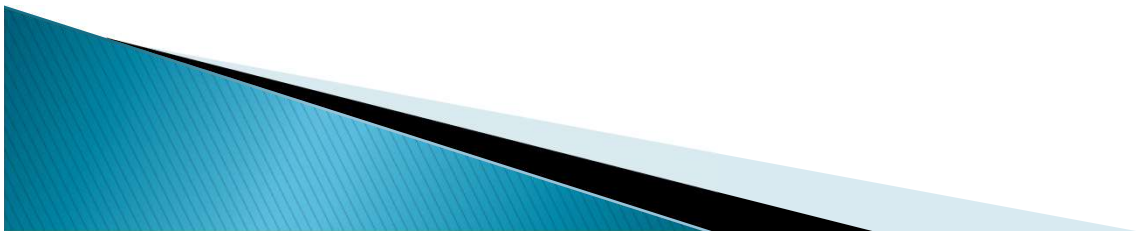
UI Design vs UX Design vs Interaction Design: Similar but different



user experience (UX).

- *user experience (UX) can be defined* as an umbrella under which many different design and usability disciplines collaborate to create products, systems, and services.

- User experience design, as its name suggests, is about designing the ideal experience of using a service or product.

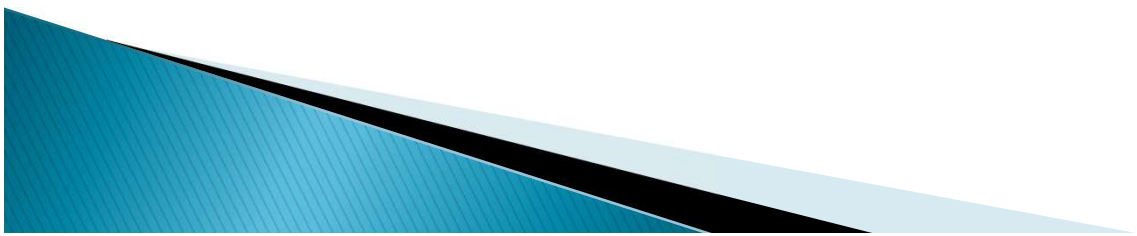


UI and UX design – the differences

… although the two concepts are very closely related

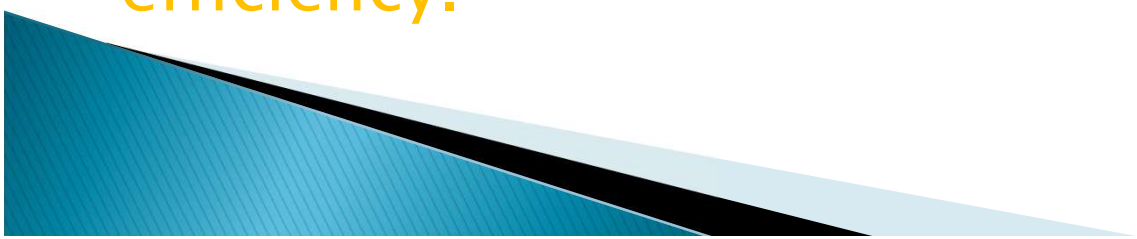
A UI is often a part of UX

- Both could be applied to (almost) any product (category type).
- Both refer to solving the problem statement related to the “design” aspect of the product.
- Both are targeted at the user’s comfort.



The user experience!

- User experience relates to a person's behavior, attitude, and emotions about using a particular product, system or service.
- UX includes the practical, experiential, effective, meaningful and valuable aspects of human-computer interaction and product ownership.
- Additionally, it includes a person's perceptions of system aspects such as utility, ease of use and efficiency.



User experience

User experience may be considered subjective in nature to the degree that it is about *individual* perception and thought with respect to the use of the system.

User experience is dynamic as it is constantly modified over time due to changing usage circumstances and changes to individual systems as well as the wider usage context in which they can be found.

UX: User experience design

- User experience design starts with a solid understanding of your user-base, generating 'personas' for the dominant character types within your user-base, then setting specific requirements for the project at hand.
- Sort out your information architecture through generating a data inventory and organize a solid information hierarchy which would help a ton once the prototyping process begins.
- Choose the best prototyping method that would be both cost-efficient and would allow you to gather feedback and reiterate in a fast and easy fashion.

Definitions

Form refers to the work's style, technique and media used and how the elements are implemented

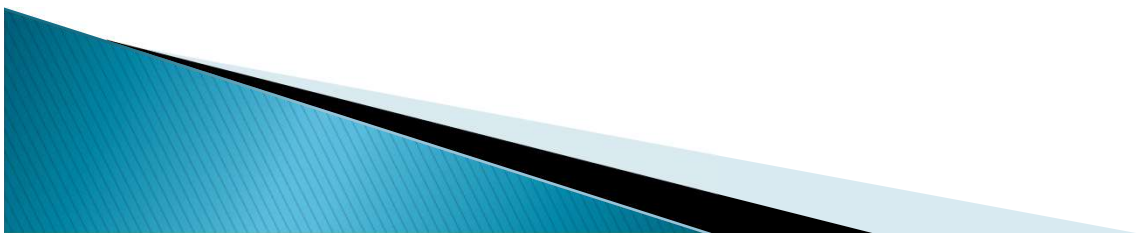
UX is focused on the user's journey to solve a problem… the complete experience

Content refers to a work's essence *or* what is being depicted

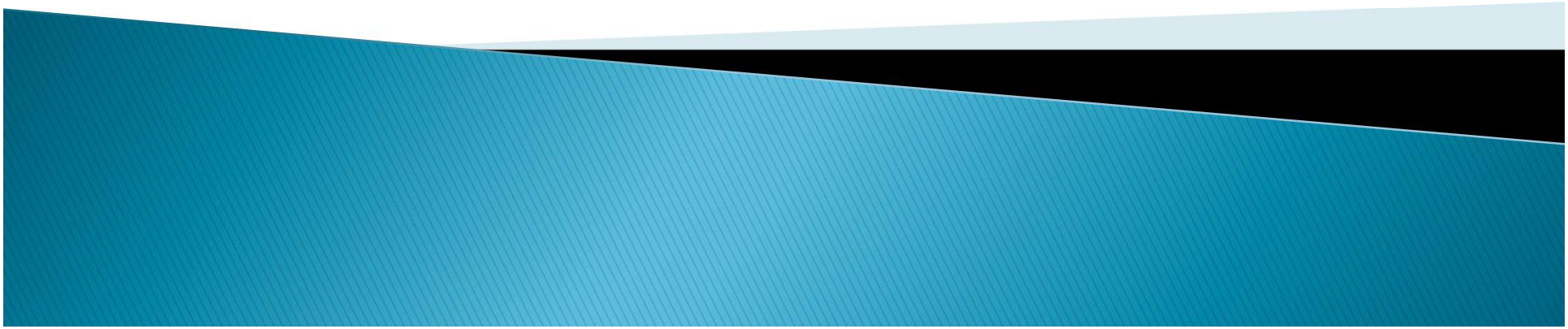
UI is focused on how the product's surface looks and functions

Analogy

- UX is the feeling you get being able to ride the horse
- UI is the saddle, stirrups and the reigns…

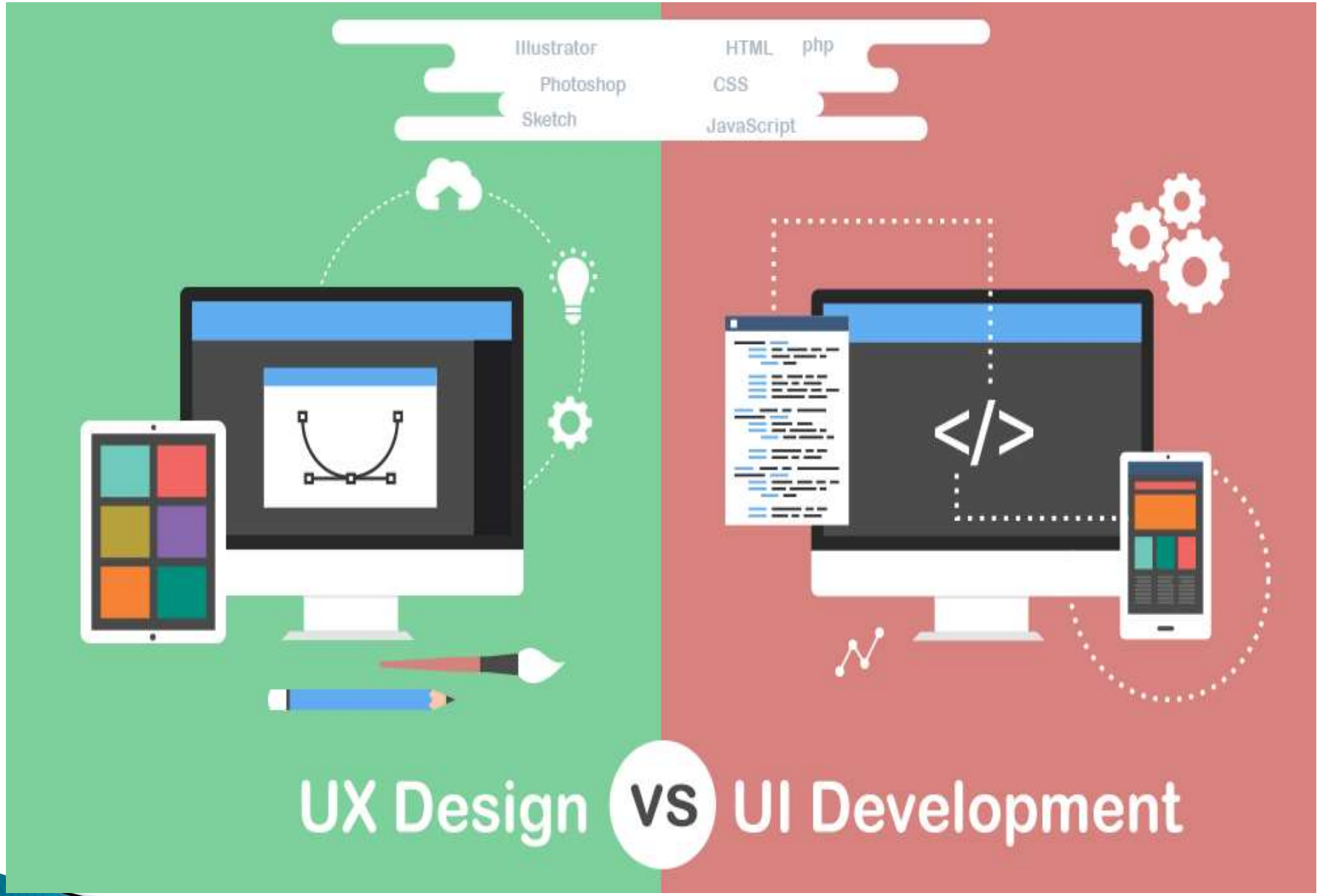


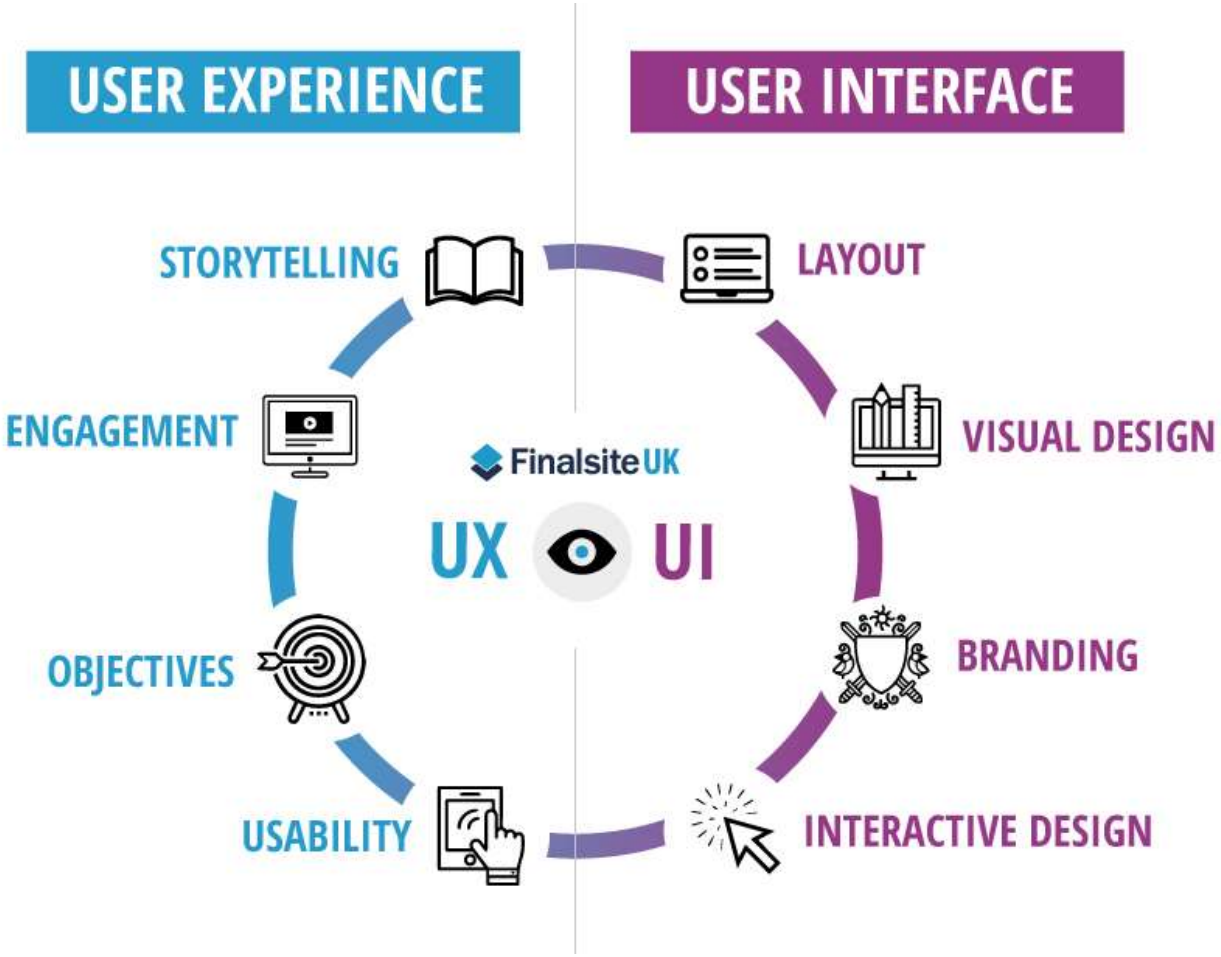
Lecture # 2



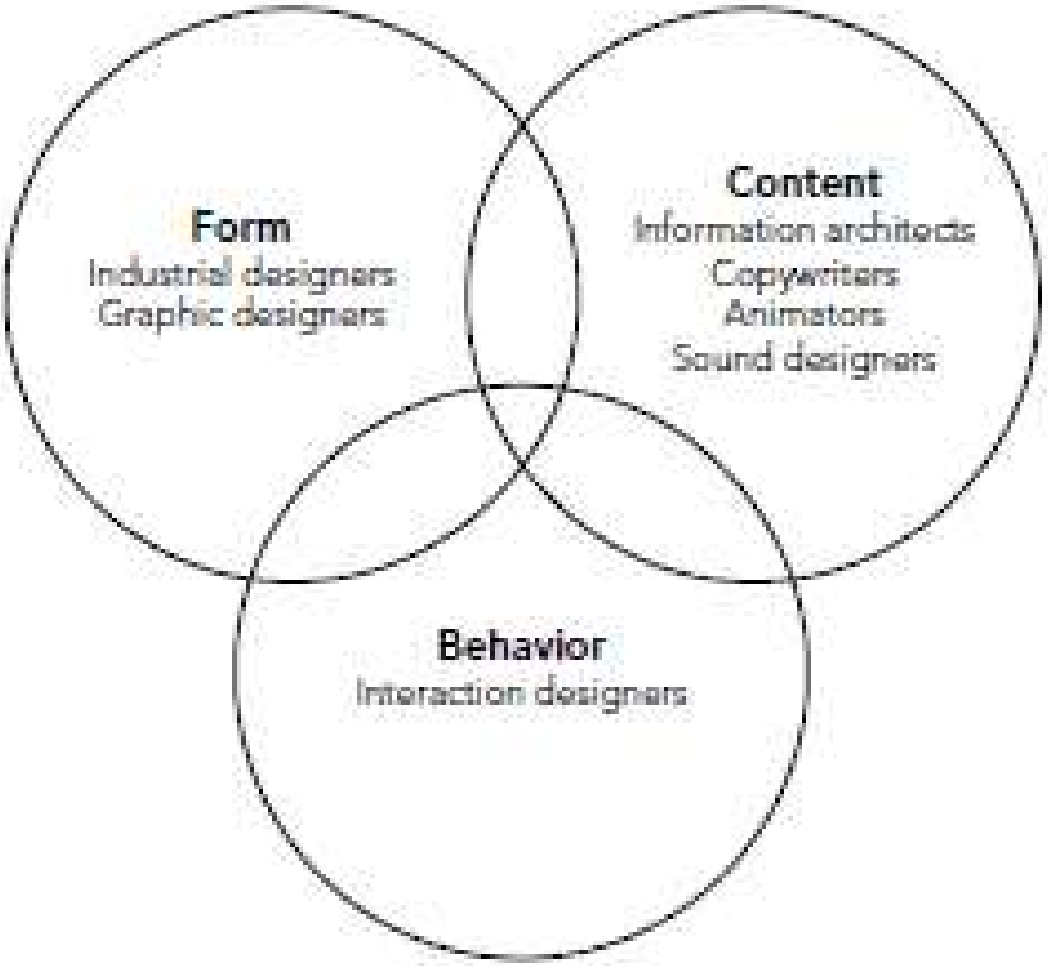
Interaction Design vs user interface design

- User interface design is used occasionally to connote the arrangement of widgets on the screen.
- However, Interaction Design is a discipline broader than the design of user interfaces.
- In the world of digital technology, **form, function, content, and behavior** are so inextricably linked that many of the challenges of designing an interactive product go right to the heart of what a digital product *is and what it does.*


Illustrator
Photoshop
Sketch
HTML
php
CSS
JavaScript
UX Design
VS
UI Development

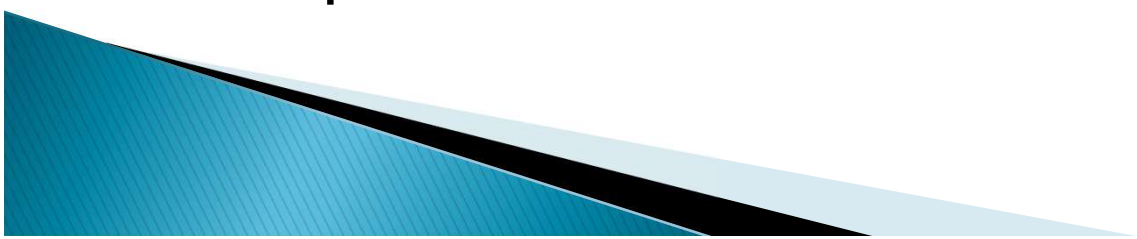

USER EXPERIENCE
USER INTERFACE
STORYTELLING
LAYOUT
ENGAGEMENT
VISUAL DESIGN
FinalsiteUK
UX
UI
OBJECTIVES
BRANDING
USABILITY
INTERACTIVE DESIGN

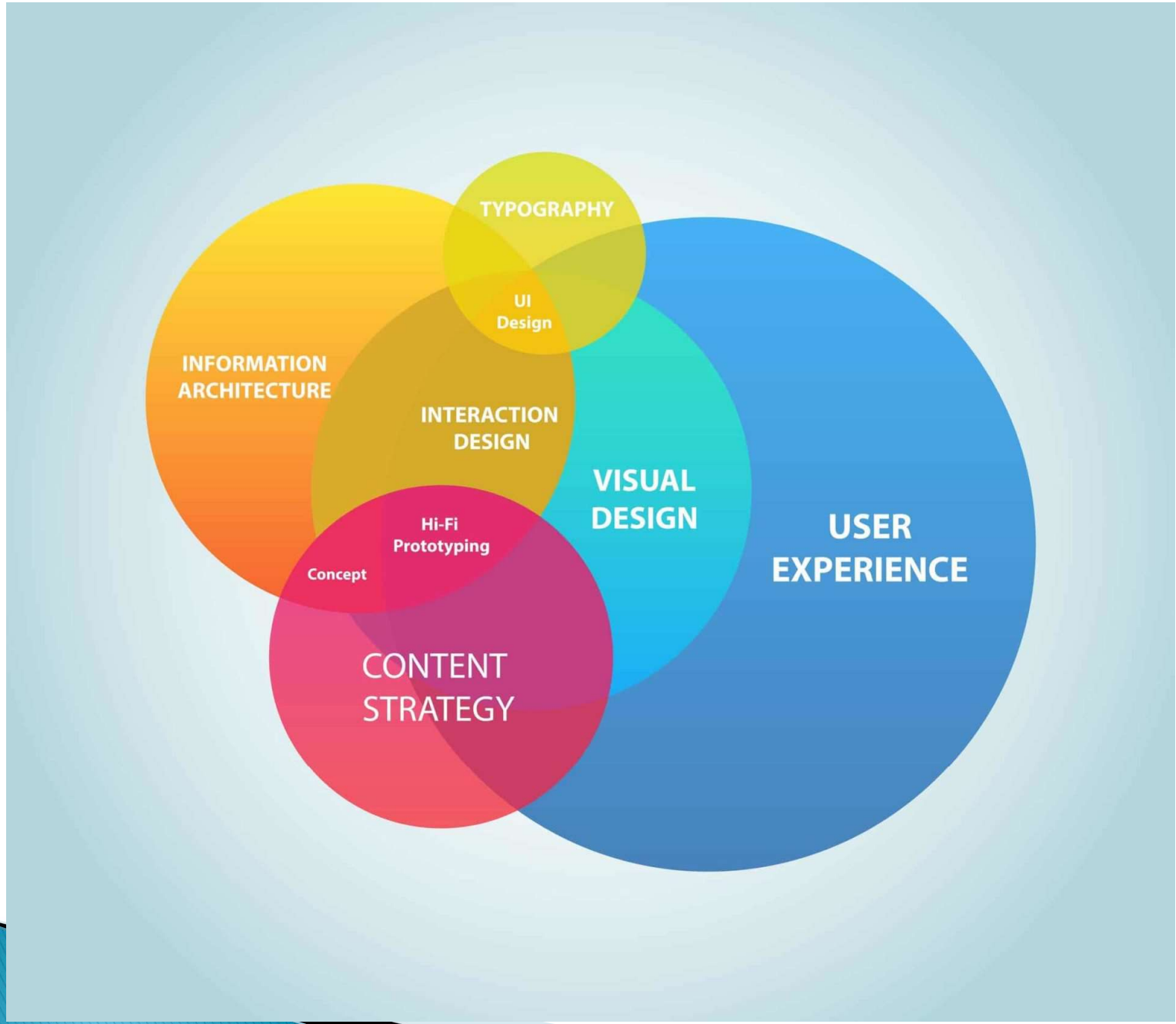
User Experience Design (UX)



Power of interaction design

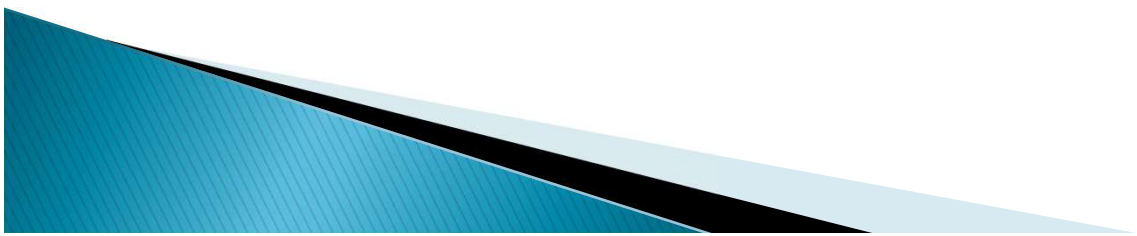
- Interaction design has emerged as an incredibly powerful software construction management tool.
- It is a description of the software as it will be when it is finally written, it acts as a blueprint, not only helping programmers
- know what to build but also helping managers measure the progress of the programmers.
- Interaction design has also shown its power as a marketing tool, communicating with great clarity and specificity about exactly whom will be using the product.




TYPOGRAPHY
UI
Design
INFORMATION
ARCHITECTURE
INTERACTION
DESIGN
VISUAL
DESIGN
USER
EXPERIENCE
Hi-Fi
Prototyping
Concept
CONTENT
STRATEGY

Digital Products Need Better Design Methods

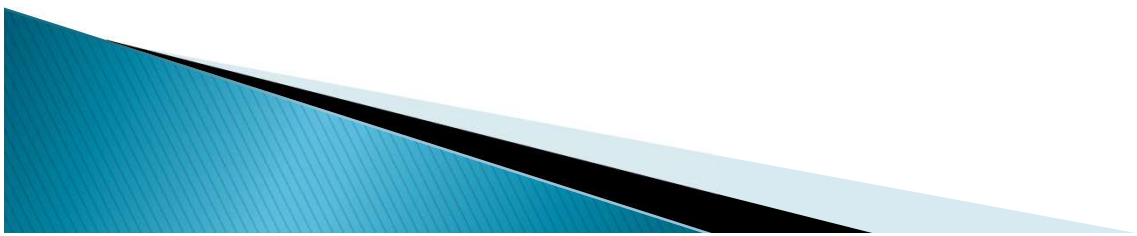
- Most digital products today emerge from the development process like a creature emerging from a bubbling tank.
- Developers, instead of planning and executing with a mind towards satisfying the needs of the people who purchase and use their products, end up creating technologically focused solutions that are difficult to use and control.

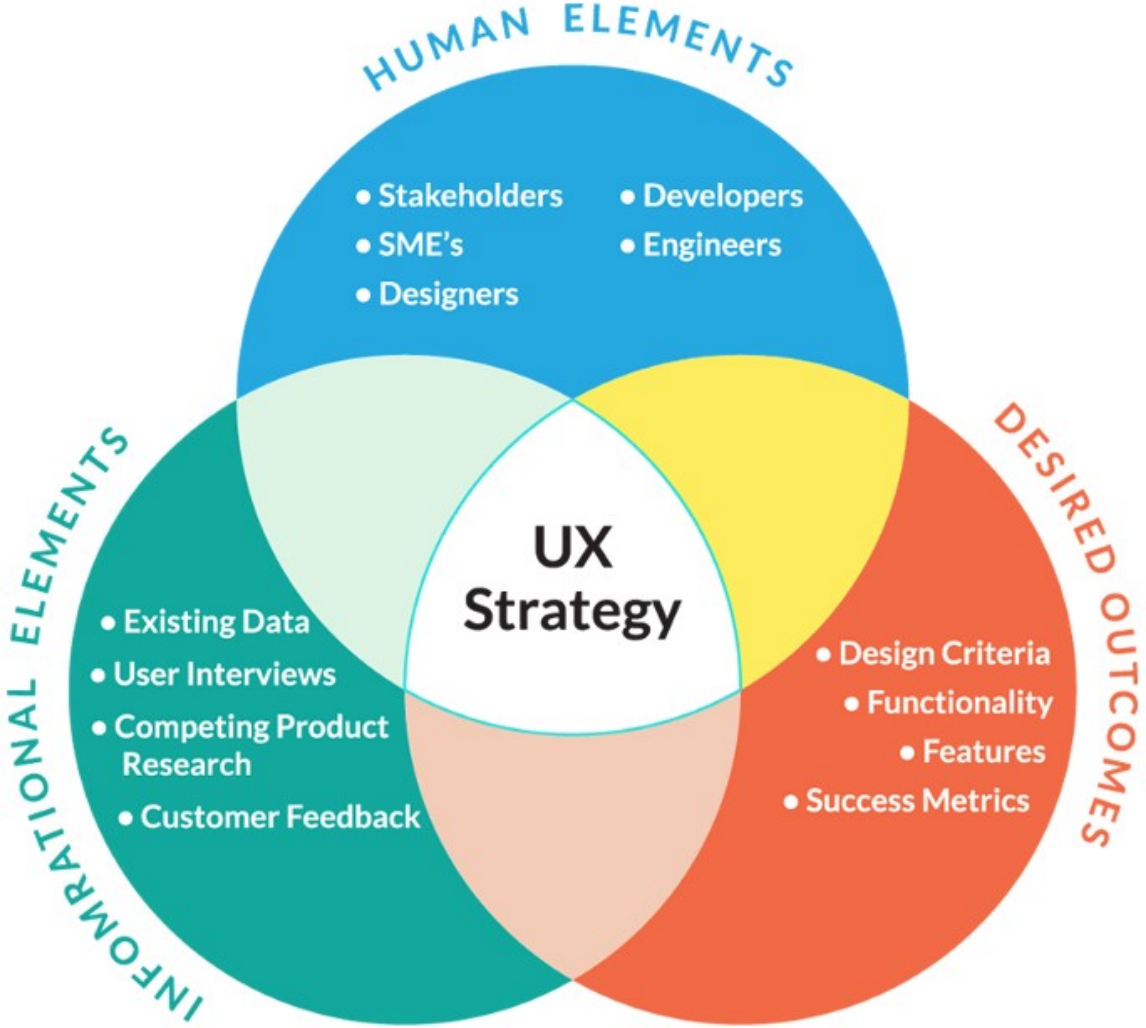


Design

Design is the conscious and intuitive effort to impose meaningful order. :

- Understanding users' desires, needs, motivations, and contexts
- Understanding business, technical, and domain opportunities, requirements, and constraints
- Using this knowledge as a foundation for plans to create products whose form, content, and behavior is useful, usable, and desirable, as well as economically viable and technically feasible




HUMAN ELEMENTS
• Stakeholders
• SME's
• Designers
• Developers
• Engineers
INFORMATIONAL ELEMENTS
• Existing Data
• User Interviews
• Competing Product Research
• Customer Feedback
DESIRED OUTCOMES
• Design Criteria
• Functionality
• Features
• Success Metrics
UX Strategy