University of South-Eastern Norway
School of Business

WEB 1100: Lecture 2
Web Development & HCI

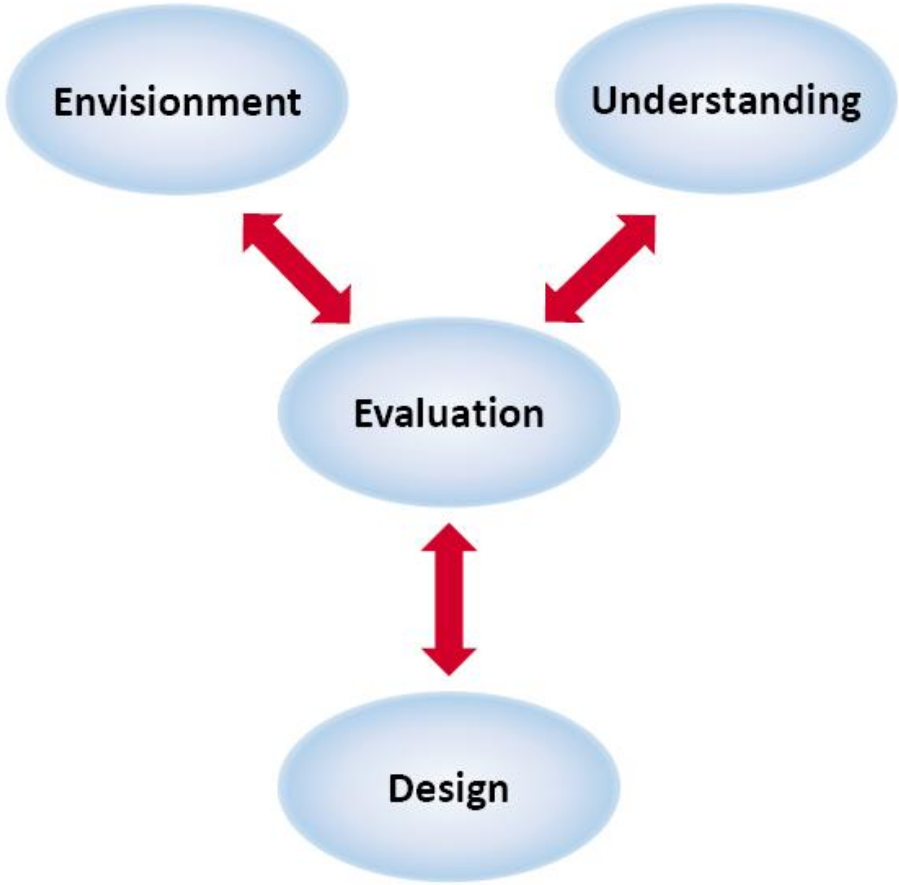
Mohammad Tafiqur Rahman, Ph.D.
Assistant Professor

Agenda for today

- UX design process
- Understanding
- Design

UX Design Process

- Four key activities
- Can start ay any point
- Can follow any order
- Evaluation is central



Personas & Scenarios

- Personas represent people
- Scenarios captures stories
- Personas and scenarios are interrelated

Personas

- are fictitious
- need to have goals
- should have specific characteristics

Scenarios

- are stories
- are core constructs for interactive systems
- are useful in UX design process

UX-Accessibility-Usability-Acceptability

- Accessibility concerns removing usage barriers
- Usability refers to the quality of interaction
- Acceptability indicates to the purposeful fitness

Benyon's Principles

Learnability

1. Visibility
2. Consistency
3. Familiarity
4. Affordance

Effectiveness

5. Navigation
6. Control
7. Feedback
8. Recovery
9. Constraints

Accommodation

10. Flexibility
11. Style
12. Conviviality

A set of 12 principles grouped in 3 broader categories.

Benyon's Principles

Principles related to learnability:

1 **Visibility** – Try to ensure that things are visible so that people can see what functions are available and what the system is doing.

2 **Consistency** – Be consistent in the use of design features and be consistent with similar systems and standard ways of working.

3 **Familiarity** – Use language and symbols that the intended audience will be familiar with.

4 **Affordance** – Design things so it is clear what they are for; for example, make buttons look like buttons so people will press them.

Benyon's Principles

Principles related to effectiveness:

Three effectiveness principles are about ease of use.

5 **Navigation** – Provide support to enable people to move around the parts of the system.

6 **Control** – Make clear what can be controlled and allow people to take control.

7 **Feedback** – Rapidly feed back information from the system to people so that they know what effect their actions had.

Benyon's Principles

Principles related to effectiveness:

Two effectiveness principles are about safety.

8 **Recovery** – Enable recovery from actions, particularly mistakes and errors, quickly and effectively.

9 **Constraints** – Provide constraints so that people do not try to do things that are inappropriate. In particular, people should be prevented from making serious errors through properly constraining allowable actions and seeking confirmation of dangerous operations.

Oh no!

Benyon's Principles

Principles related to accomodation:

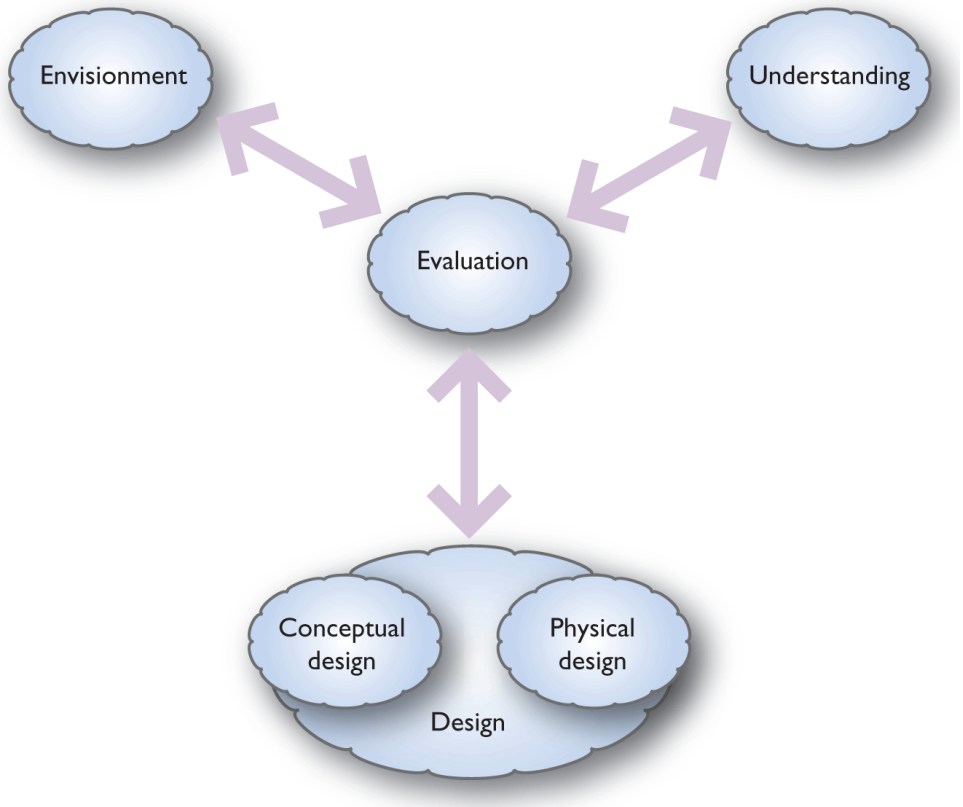
10 **Flexibility** – Allow multiple ways of doing things so as to accommodate people with different levels of experience and interest in the system. Provide people with the opportunity to change the way things look or behave so that they can personalize the system.

11 **Style** – Designs should be stylish and attractive.

12 **Conviviality** – Interactive systems should be polite, friendly, and generally pleasant. Design for politeness.

Understanding

- one of the four tightly interwoven activities of UX design
- considered as the first step of IS projects
- usually termed as “requirement analysis” in system development
- an iterative proecss



Understanding Requirements

- **Requirements gathering:** picking up requirements as they are existing
- **Requirements generation:** creating requirements
- **Requirements elicitation:** interactions between stakeholders adn designers
- **Requirements engineering:** formal approach for defining, documenting and mantaining requirements

Types of Requirements

- Two types of requirements:
  - **Functional requirements:** the system must do requirements
  - **Non-functional requirements:** the system must have requirements

Remember

- Requirements describe the system needs
- It is best to supplement the list of requiremtns with some supporting evidence
- The delivered system will be evaluated aganist the finalized requirements
- Be cautious on adding features since it increases complexity

Data Collection

- Interviews
  - Structured
  - Unstructured
  - Semi-structured
- Questionnaires
- Observations
- Scientific Reviews

Data Collection

- Structured Interviews
  - –predefined questions
  - –same set of questions for interviewees
  - –easy to carry out
  - – very restricted replies
  - –difficult to follow up unexpected responses

Data Collection

- Unstructured Interviews
  - –no predefined questions
  - –the general subject of the projection in question
  - –very little background information is available
  - –the interviwer prepares a checklist
  - –minimizes designers' preconceptions

Data Collection

- Semi-structured Interviews
  - –free-form approach
  - –frequently used type of interview
  - –includes some predefined questions
  - –accepts new topics as they arise
  - –interviwers simply prepare a checklist
  - –requires additional measures for data analysis

Data Collection

- Hints & Tips for interviewes
  - Preparation: who to interview and why
  - Keeping track: recording interviews
  - Structuring the interview: beware of using jargon & acronyms
  - Reflection & exploration: confirming understanding
  - General-purpose exploratory questions: new ideas
  - When to stop: when no insights are being obtained

Data Collection

- Questionnaires
  - Structured format of data collection
  - Target a large number of people
  - Capture specific questions
  - Collect a large amount of quantitative data
  - Should explain the purpose, assure confidentiality, and encourage reply
  - Comparetively easy to run analytics
  - The likert scale is the most common method

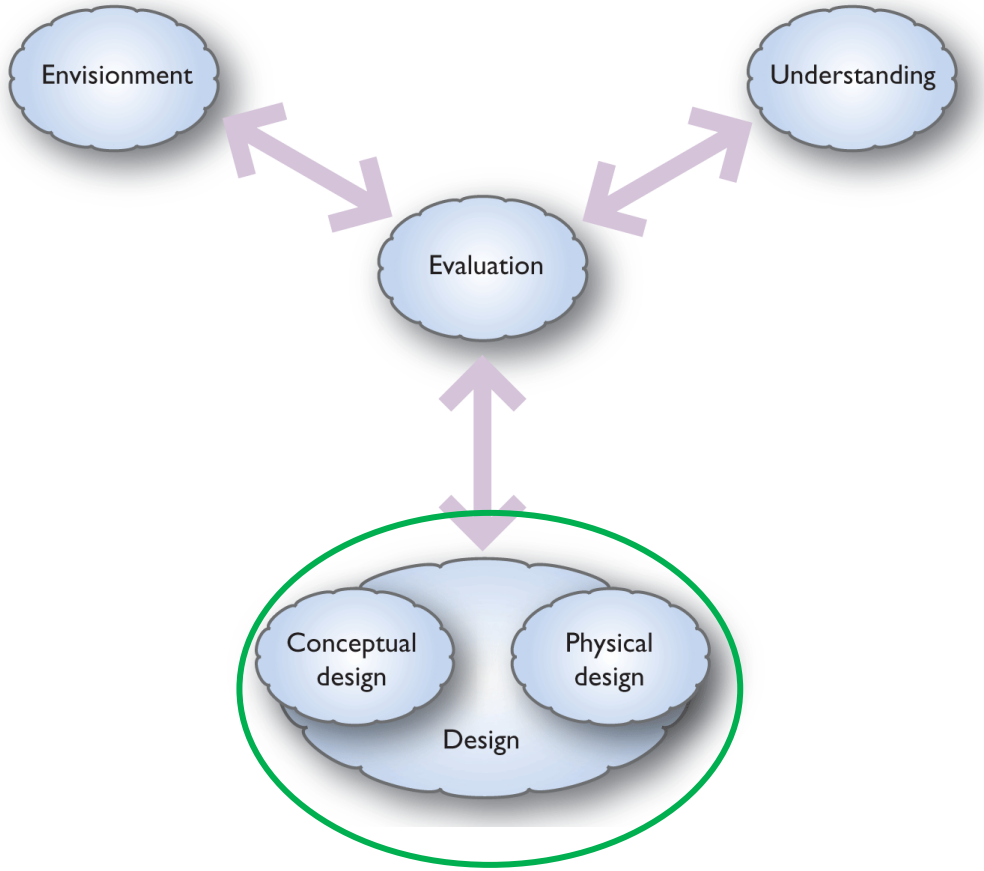
Design

- Software Systems Devlopment

1. **UX design**
   - Research
   - Analysis
   - Concept development
2. **Frontend design**
   - UI design
   - Programmability
   - Functionality
3. **Backend design**
   - Database design
   - Data management
   - Data storage

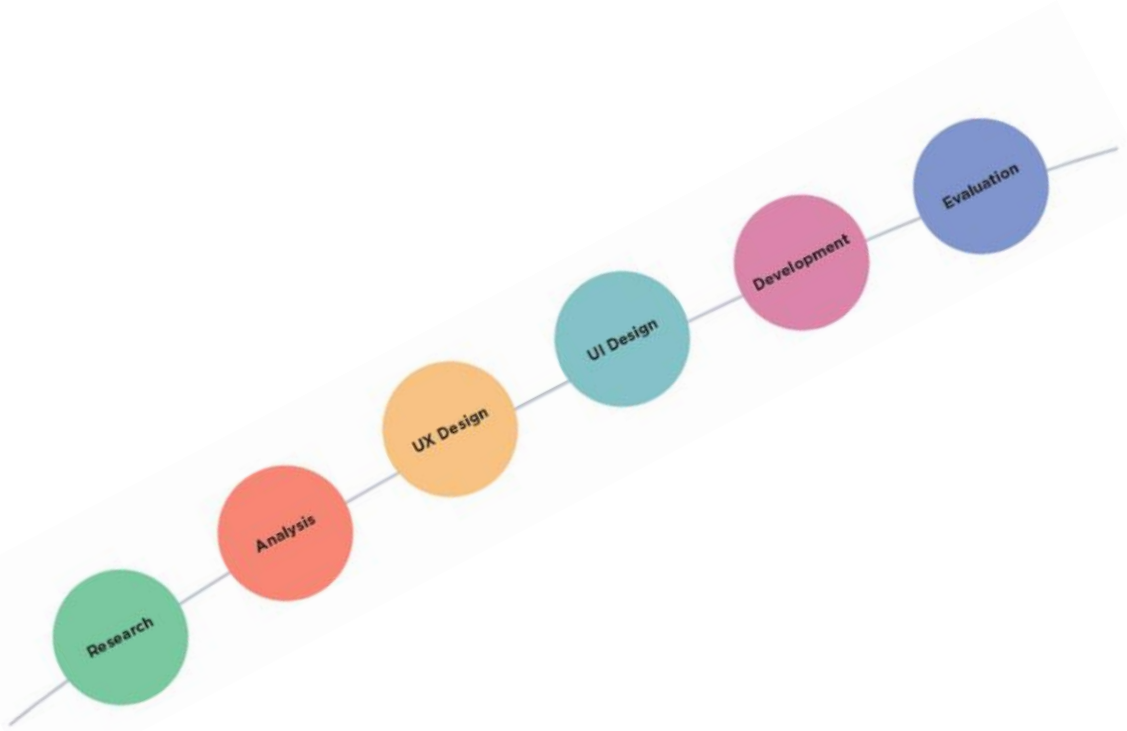
Design

- **Designing User Experiences**
  - UX design
  - Metaphors
  - Conceptual design
  - Physical design
  - Designing interactions



Design

- UX Design
  - explores design space
  - explores design concept
  - is the place for experiences

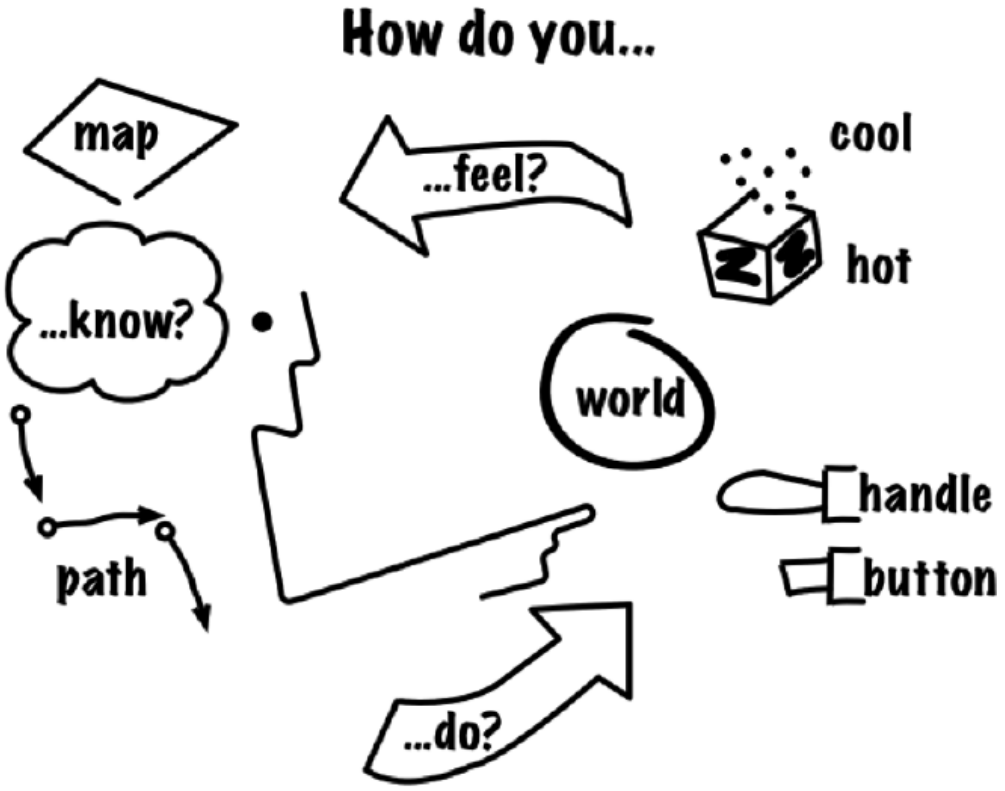


Design

- **Exploring design space**
  - design dimensions
  - exploring alternatives
  - design fixation
  - open to radical solutions: service blueprints, customer journey mappings, wireframes and navigation maps
  - brainstorming, envisionment, sketching, information architecture

Design

- Exploring design space
  - How do you do?
  - How do you feel
  - How do you know



Design

- Places for experiences
  - Physical space
  - Digital space
  - Information space
  - Social space

→ **Blended space**

Design

- **Design Metaphors**
  - represent the system as a real-life thing
  - take concepts on one domain to another
  - describe new domain in terms of familiar ones
  - is not just a simple mapping

Design

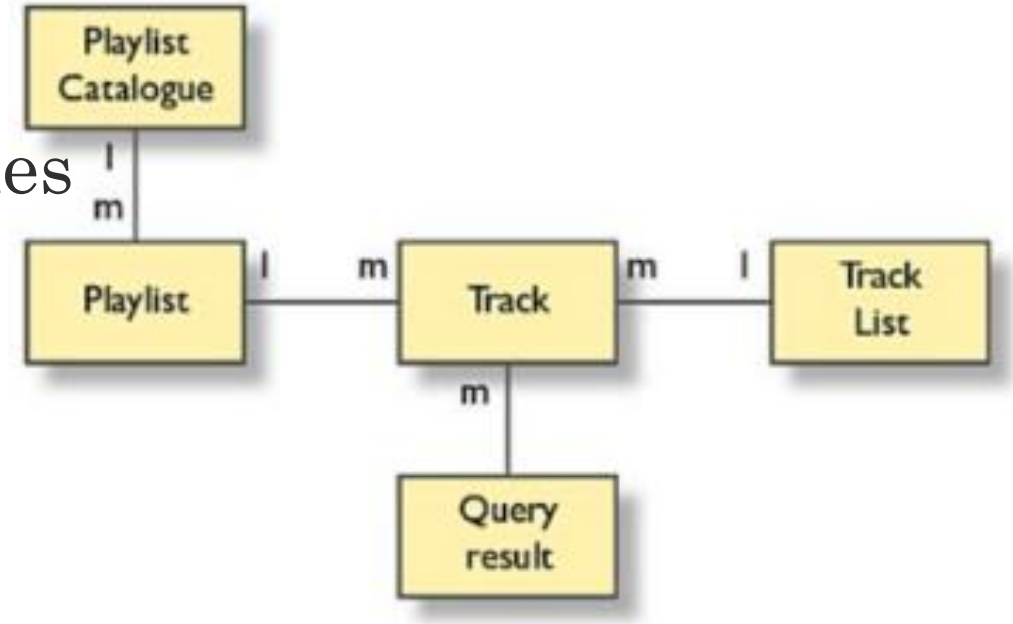
- Design Metaphors
  - Help users to
    - understand abstract content
    - create a sense of familiarity
    - trigger emotions & draw attention
    - motivate actions
  - Dos: make the unfamiliar familiar, awake positive associations and persuade people
  - Don’ts: simplistically literal metaphor and blindly mimic a real-world precedent

Design

- Conceptual Design
  - Conceptually model the investigating domain
  - Explore, generate and document ideas
  - Concentrates user needs, the objectives of the service or system, requirements for content and functions, information architecture and interaction design
  - Help or hinder users in developing their own mental model of the system or service

Design

- **Scenarios and conceptual design**
  - Individual version of scenario
  - Covers major uses and functionalities
- **Object-action analysis**
  - Object: noun/noun phrases
  - Actions/activities: verbs
- **Diagrammatic technique:** representation of the system

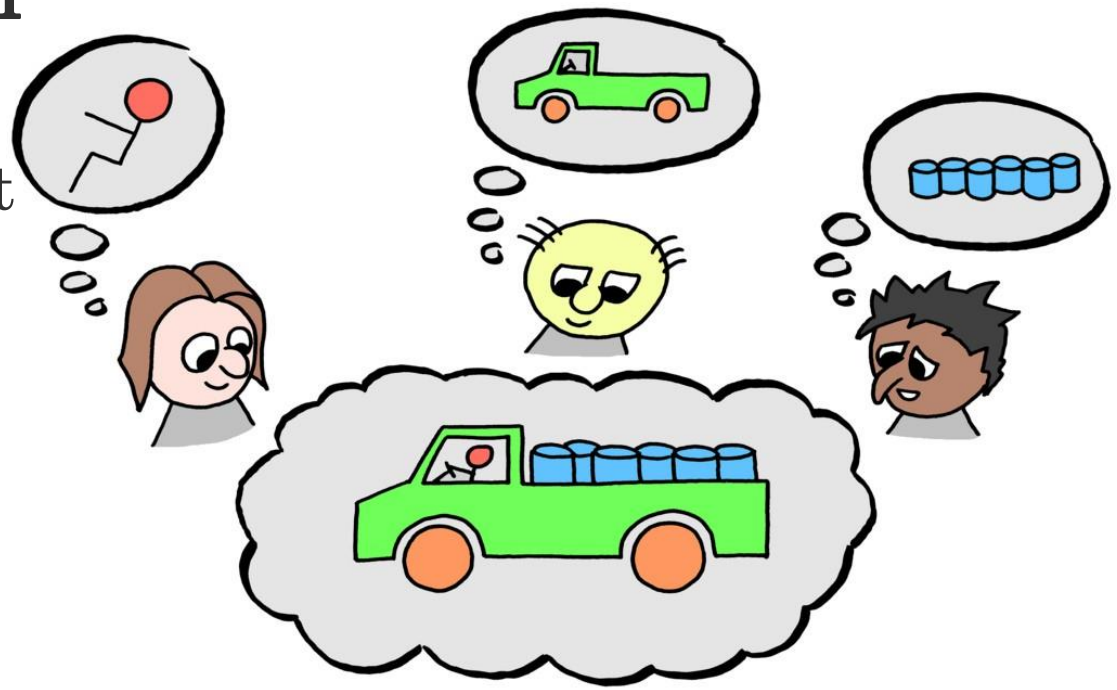


Design

- **Physical Design**
  - how things are going to work
  - how the product should look and feel
  - structuring interactions into logical sequence
  - clarifying and presenting the functional allocations and knowledge

Design

- Components of physical design
  - Operational design
    - how everything works and content is structured and stored
  - Representational design
    - fixing on colors, shapes, sizes and information layout
  - Interaction design
    - allocation of functions and structuring and sequencing of the interactions



Design

- **Design Languages**
  - building meanings into objects
  - what things to do
  - distinctions between types of objects
  - Consists of:
    - design elements
    - principles of composition
    - qualifying situations

Design

- Designing Interactions
  - Allocate functions and knowledge to persons or devices
  - Consider capabilities of people and the constraints on what they can do
  - The interaction should be engaging, enjoyable and fulfilling
  - Interaction patterns are built up with complex interactions of menus and mice/multi-touch display.
  - Diagrammatic techniques: representing the process (dataflow diagram or sequence diagram or state transition network)

Design

- **Tips for good UX design**
  - Usability: purposeful and functional
  - User profiling: who are users & what do they want to achieve
  - Asking for permission: only when it is needed
  - Form vs function: always go for function over form
  - Consistency: inconsistency in design creates confusion and unhappy users
  - Simplicity: application is grandma-proof
  - Don't make me think: beautiful, clear and easily understandable interface and functions

Dr. Mohammad Tafiqur Rahman

Ph.D. in Information Systems

Assistant Professor

University of South-Eastern Norway

mohammad.t.rahman@usn.no

Thank You!

Think Green, Grow Green, Live Green