University of South-Eastern Norway
School of Business

WEB 1100: Lecture 4
Web Development & HCI

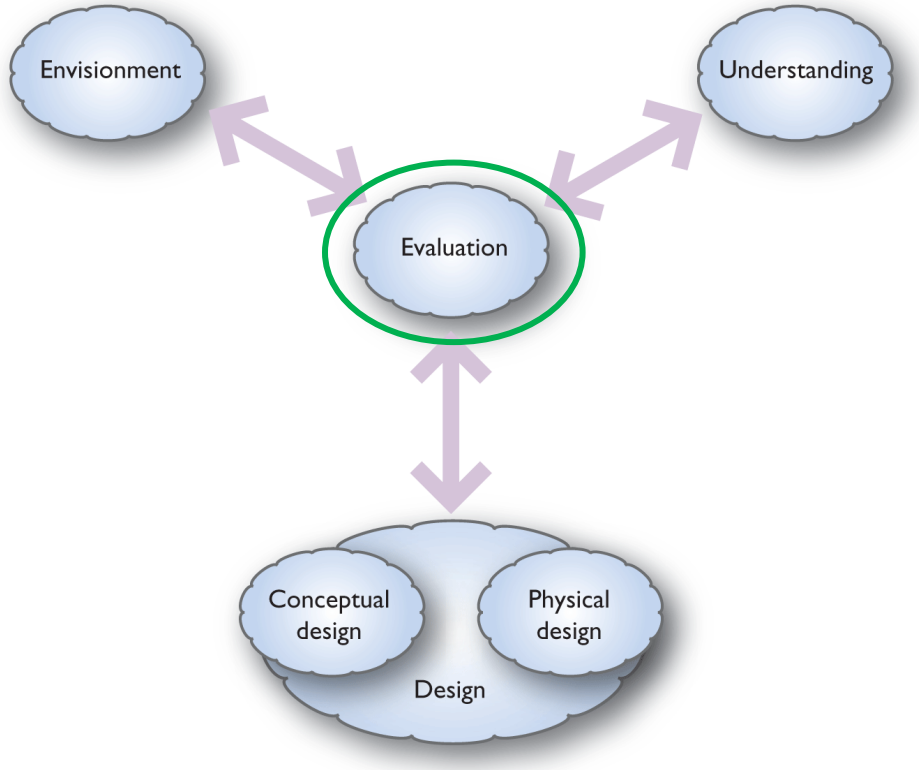
Mohammad Tafiqur Rahman, Ph.D.
Assistant Professor

Agenda for today

- Evaluation
- Task Analysis

Evaluation

- the core of UX designing activity
- central to the entire design
- is not just for finished systems
- concentrates on both surface features and the system



Evaluation

Good/bad idea?

- Evaluating our own thinking is a habit that few of us practice.
- In user-centered approach, designs are evaluated right from the earliest idea.
- Evaluation is an integral part of an evolutionary design process.
- We use evaluations to rework parts of the design or to decide between options.
- Evaluation is dependent on the form of envisionment - used to represent the system.

Evaluation

Evaluability

- Evaluation entails assessing a design against specific criteria
- The criteria can be derived from:
  - formal design principles
  - standards
  - customer defined requirements and recommendations
  - in-house defined guidelines
- The criteria used can differ depending on the **aims** of the system and the **maturity** of the design.

Three main types of Evaluation:

- Expert-based evaluation
  - conducted by usability experts, or interaction designers
- Participant-based evaluation
  - conducted by the people from the anticipated user groups
- Data analytics
  - conducted during deployment on system performance

Evaluation

Expert-based evaluation

- Relatively quick, effective and cheap.
- No substitute for asking real users to participate in evaluation but can be useful particularly early in the design process.
- Experts can pick up problems before a lot of effort is made towards a specific direction.
- They utilize their experiences to identify affecting factors
- Two main approaches:
  - Heuristic evaluation: is performed against a list of principles or heuristics
  - Cognitive walkthrough: checks detailed design and logic of steps in an interaction

Participant-based evaluation

- No substitute for involving real people in the evaluation.
- There are many ways to involve people in evaluations:
  - sitting with participants as they work through a system
  - leaving people alone with technology and observing what they do through a two-way mirror
- It ensures:
  - the people involved are representative of the prospective system **users**
  - the tasks that they are asked to achieve are related to specific **scenarios**
  - the evaluation is performed in **settings** that are as close as possible to the ones where use is expected to happen.
- Two main approaches:
  - Cooperative Evaluation
  - Controlled Experiments

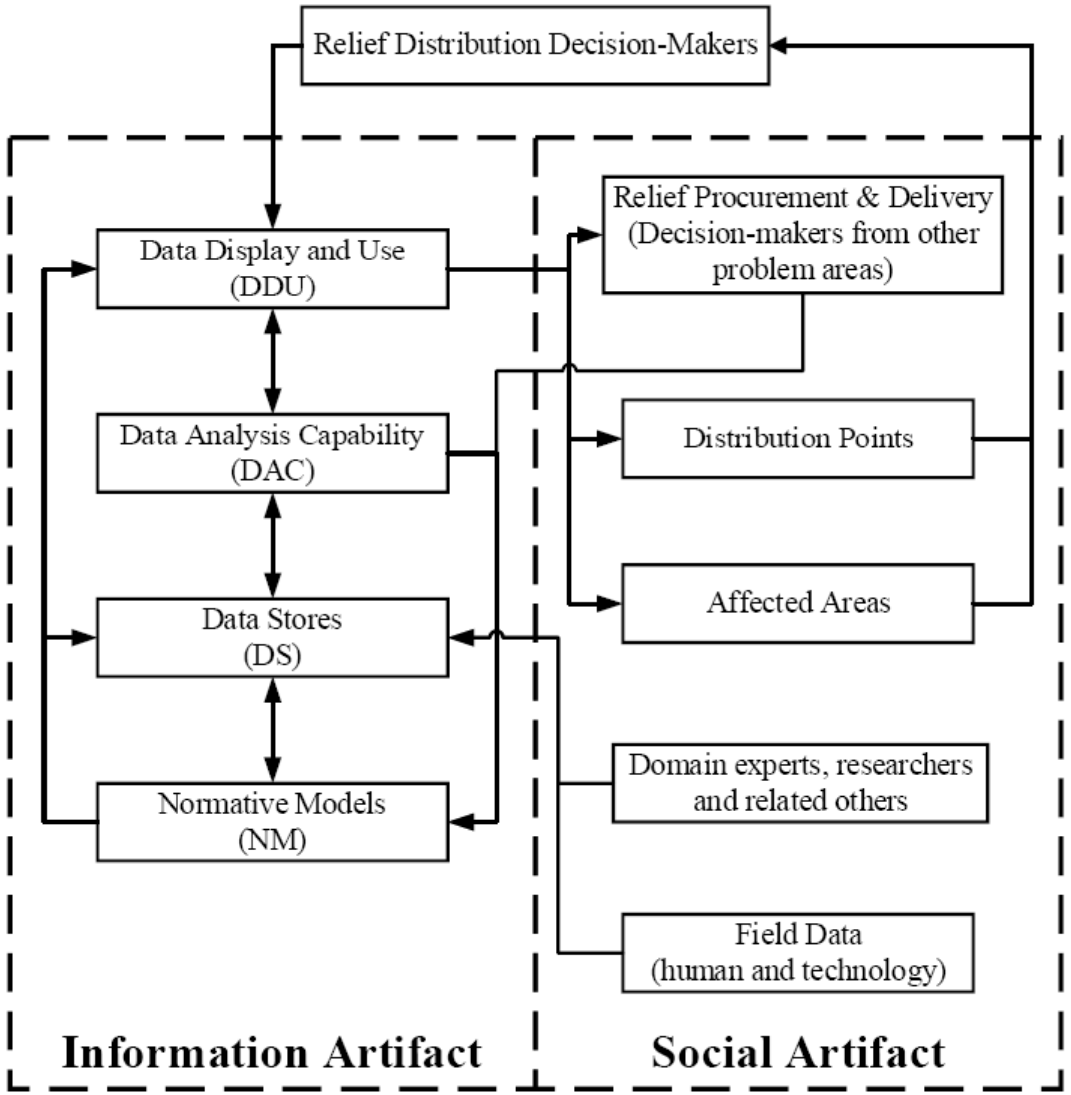
Evaluation

Data Analytics

- can be gathered and analyzed when a system or service is implemented.
- provides insights on
  - system performance and
  - the behaviors of individuals
- provides designers with
  - data visualization and
  - tools to manipulate and analyze data
- examines individual and group activities
- helps deploying new versions of software
- refines UX of commercial websites.

Evaluation

Examples



Task Analysis

Conceptualization

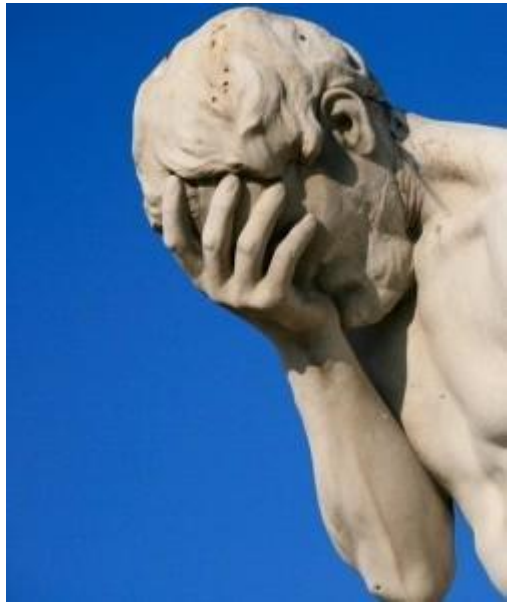
- identifies important actions towards achieving specific goals
- helps in getting a good understanding of the existing users and the usage of the system
- describes a task in detail
- learns about the ordinary users
- observes users' activities

- identify the tasks that your website and applications must support
- help you refine or re-define your site's navigation or search

Task Analysis

Purpose

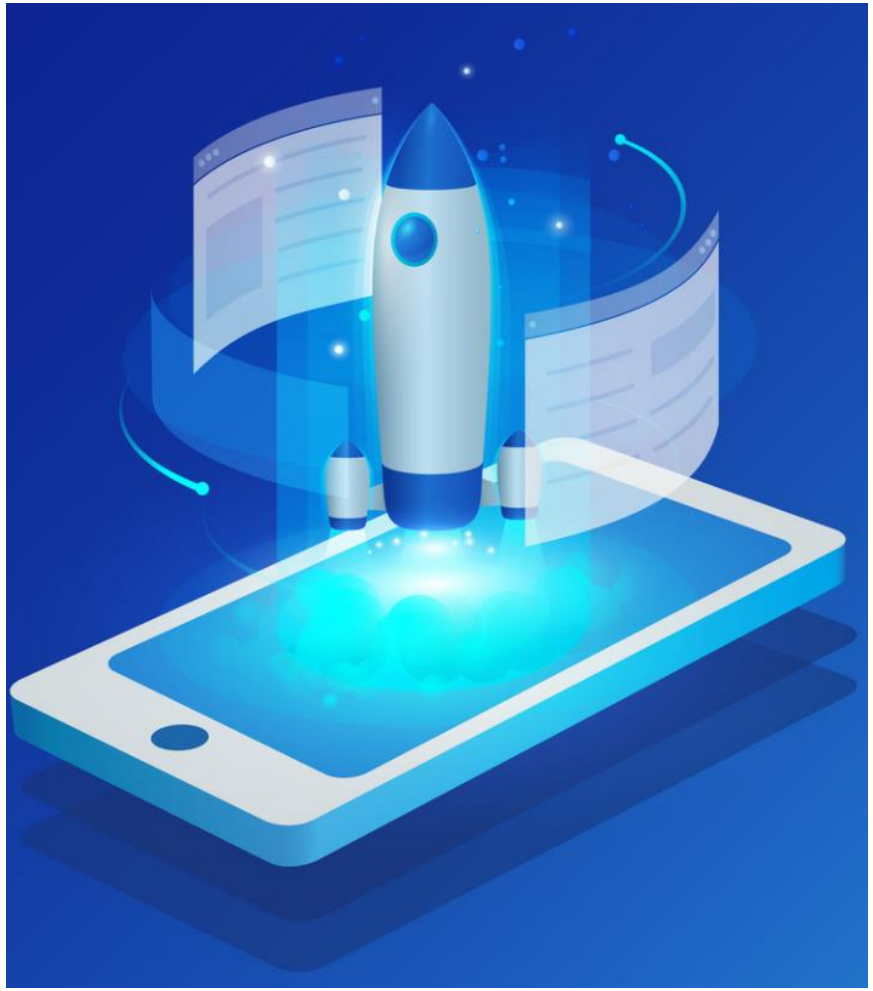
- Understanding users' goals
- Understanding users' activities
- Understanding users' experiences
- Understanding the physical environment
- Understanding the influences from previous knowledge and experience



Task Analysis

When to perform

- early in you process
- prior to design work
- website requirements gathering
- developing your content strategy and site structure
- wireframing and prototyping
- performing usability testing



Task Analysis

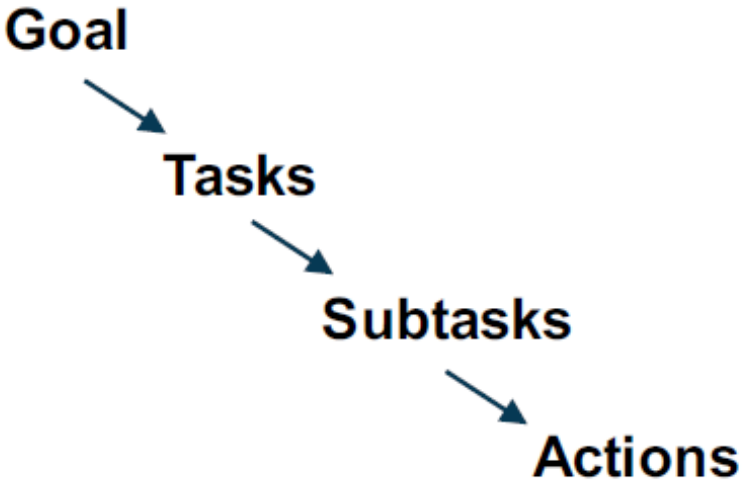
Elements

Goals: is a state of application domain that a work system tries to achieve.

Tasks: set of structured activities required, used, or believed to be necessary for achieving specific goals

Subtasks: tasks can be decomposed up to a standard levels of description

Actions: decomposition can be done until we reach the level, where further broken down is not possible.



Task Analysis

Approaches

Two most used approaches for task analysis:

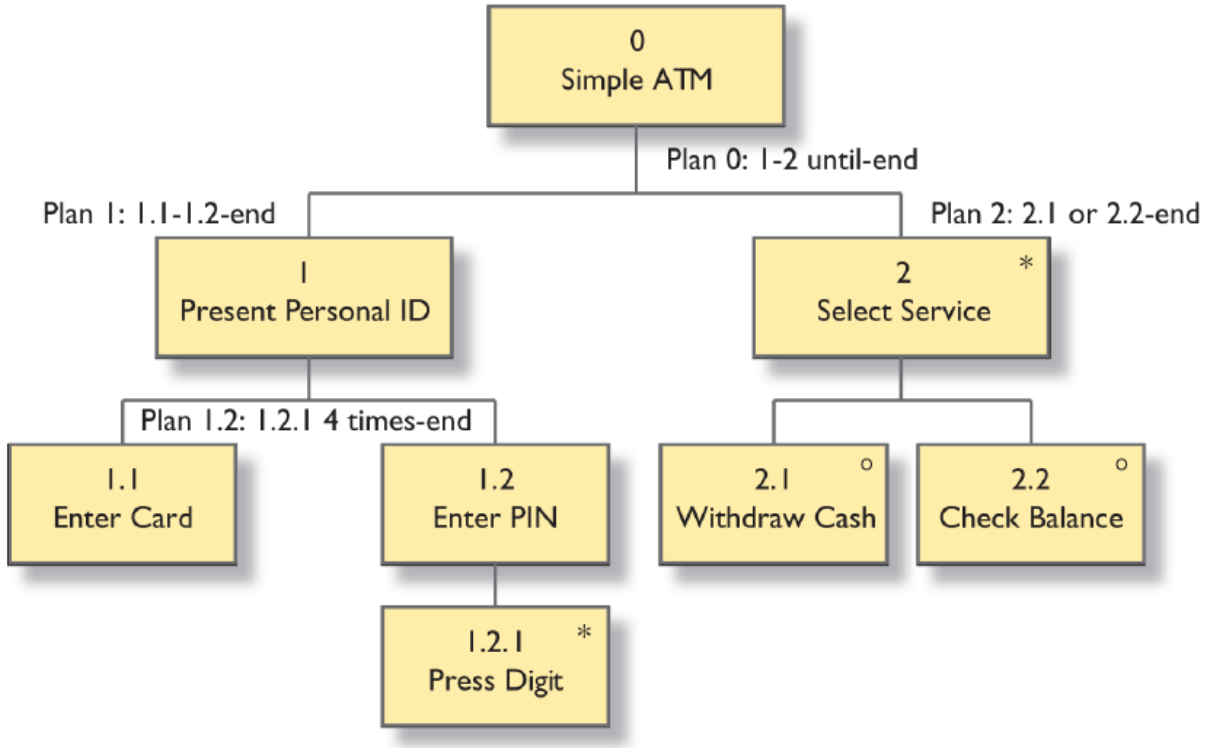
- Hierarchical task analysis (HTA)
  - decomposes a high-level task into logical subtasks
  - focus on physical and observable actions
  - a sequence of tasks, subtasks, and actions
- Cognitive task analysis (CTA)
  - concerned with a cognitive analysis of tasks
  - focus on cognitive aspects of tasks
  - procedural knowledge needed to achieve a goal

How to do it:

- start with a user goal which is examined and the main tasks for achieving it are identified
- tasks are sub-divided into sub-tasks
- subtasks are grouped as plans which specify how the tasks might be performed in

Task sheet:

0. To use ATM
1. Present personal ID
    1.1. Enter card
    1.2. Enter PIN
        1.2.1. Press digit
2. Select service
    2.1. Withdraw cash
    2.2. Check balance

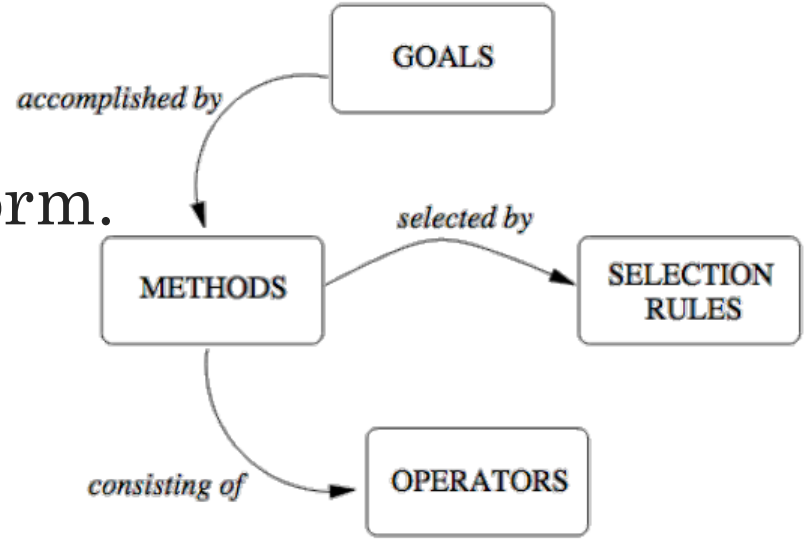


Hierarchical Task Analysis

- Making a cup of tea
- Take 15 minutes
- Textual representation
- Also think about plans

How to perform CTA: GOMS method

- includes Goals, Operators, Methods, Selection rules
- focuses on the cognitive processes
- underlies the physical actions a user must perform.
- represent human problem-solving behavior.
- decomposes a task flow into atomic pieces.
- can be linked to nominal times for actions
- requires formulating an effective task list



Understanding GOMS terms:

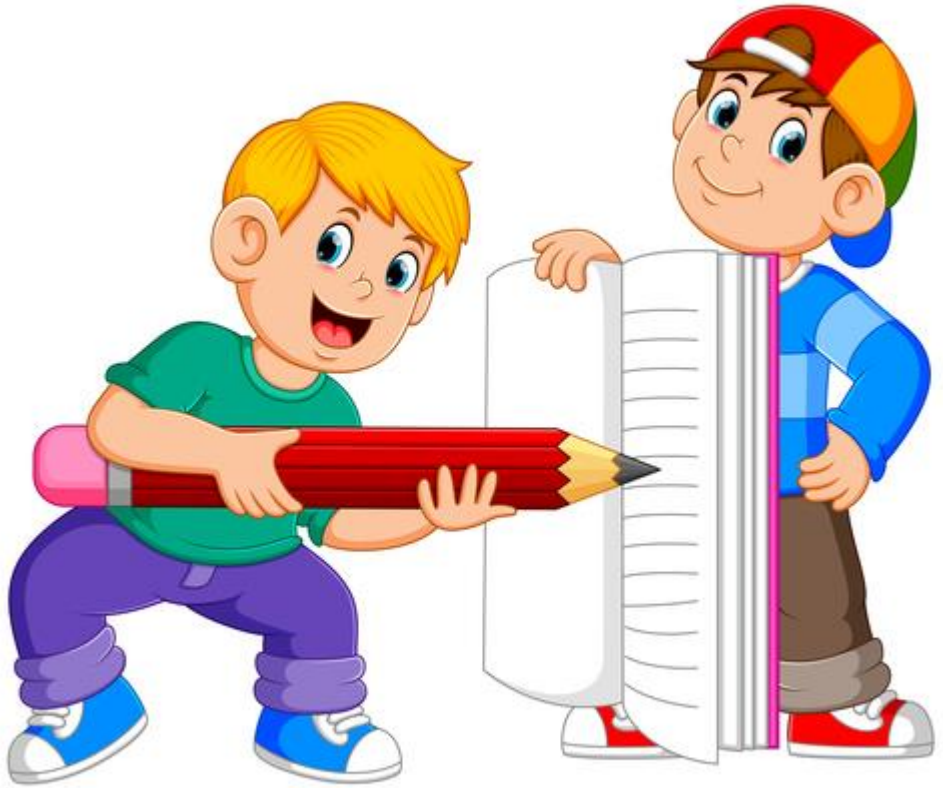
- Goal is defined as the successful end state for the task.
- Operator is an action performed on the machine.
- Method is a series of Operators chained together to form a single unit.
- Selection is a decision made, and this is required when a task flow has parallel actions.

Task Analysis

Summary

Task analysis is

- a source of generating documentation
- a source of designing tutorial material
- guiding system design
- necessary for
  - requirements capture
  - bringing domain knowledge into the design
  - making new design or procedure as familiar and sensible and hence learnable as possible



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