

Evaluate

Apply

Remember





variables sketches



Document projec



Analysis of visual variable







Fusion to construction plan

Introduction to visual variables

Apply visual variables



Introduction to InfoVis

Deconstruct a visualization

Create visualization variations

Understand

Introduction to InfoVis

 Input: lecture slides that follow the what-why-how approach
 Output: foundations about information visualization principles and techniques

 Remember / Facutal
 Whole course (graduate level)

 Image: 0nline & Offline
 Image: prox. 180 min

HOM

Basic InfoVis terminology and important key concepts of an information visualization are introduced. The lecture follows the what-why-how approach and covers data types and attributes, typical visualization tasks, a brief introduction to marks, channels, visualization and interaction types, and important visualization tools and frameworks.

Team Building



Input: icebreaker template and different skills categorized by colored dots

Output: interdisciplinary teams of 2-3 students





Participants get acquainted by forming small teams of 2-3 students with different interdisciplinary backgrounds. An introductory activity involves a quick construction of an avatar using a miro icebreaker template to create an online representative. The participants are asked to stick colored dots on their avatar to assess and indicate their background knowledge (e.g. design disciplines, programming skills)

Data Abstraction

WHA.

Input: worksheets in the miro board that document the identified data structures, types, and web source.

Output: an analyzed data with data structures and attributes types



HOM

Each team searches for interesting data sets they would like to visualize during the semester project and websites with freely usable data sets are provided by the advisor. The team should analyze their data sets and by assigning attribute types (e.g., nominal, ordinal) and by identifying data structures such as temporal or spatial structures.

Search visualization example



Input: blogs and websites with visualization examples as inspiration

Output: two different visualizations per team member





Based on the identified data structures and tasks, students are asked to search for visualization examples that serve as personal inspiration for their project. The activity is performed by each team member individually as homework and the advisor provides different visualization online collections and websites.

Creation of visualization sheet



HOM

The student is asked to fill our the worksheet to describe the chosen visualization in his/her own words. This worksheet included the data structures and types (WHAT), the task that can be solved with the visualization (WHY) and the description of the visualization and interaction technique (HOW). Furthermore a link to the original source of the visualization and a screenshot is required.

Introduction to construction kit





The structure of the construction kit is explained in a short presentation. Afterwards some examples are deconstructed by asking the students for building blocks used in this visualization. Feedback is given by the advisor to practice the deconstructing process.

Reverse-Engineering



HOM

The students are asked to deconstruct their visualization sheet example using the building blocks of the construction kit.

Morphological Analysis

WHAT	Input: template with combination table and deconstructed pattern with building blocks	S	Dutput: different variations as ketches
WHY	Analyze / Procedural	MHO	Individual(graduate level)
WHERE	Online & Offline	TIME	homework (approx. 40 min)

HOM

The design space is explored systematically by combining different building blocks in a combination table and sketching a quick solution for each combination.

Selection of three solutions



HOM

Each student selects three promising solutions. The decision for which sketch is best is obtained by re-evaluating the data and task types and judging which solutions fits best to the given problem.

Pattern creation

Input: selected solution of the sketching task

Output: idea described with building blocks, sketch, data and task type in a pattern template

 Understand / Procedural
 Individual(graduate level)

 Image: State of the state of t



An empty pattern template is filled out with name, building blocks, suitable data structure and task to describe the visualization idea.

Fusion to construction plan

In me	put: three patterns of each group mber	Output: a visualization idea presented as a sketch and as a construction plan
Cro	eate / Procedural	Group(team)
On:	line & Offline	homework (approx. 30 min)

HOM

The created patterns are discussed in the team and promising solutions are fused to an interface concept. The concept is described as construction plan using the pattern templates and connectors.

Introduction to visual variables



HOM

A short introduction on visual encodings and their limitations and their ranking for different data types are explained. An focus is on the application and pitfalls of color and various tools are presented to support the color selection.

Analysis of visual variables



HOM

Since the concept developed in the previous activities has only been described as a rough sketch, only some visual variables are "occupied" already by the chosen layout structure, such as position or size.

The aim of the next activity is to consequently analyze the concept and identify the visual variables.

Visual variables sketches

WHAT

Input: template with visual variables and their ranking

Output: sketches that apply different visual variables and a range of solution for further discussion





The students are asked to apply further visual variables through a quick sketch. The activity includes the judgement of which visual variables are most suitable for their concept and the revised concept, which includes the final design decisions on the visual variables.

Develop prototype



Each team develops their concept with a tool of their choice.

Document project

 Input: intermediate steps from the miro board, screenshots, prototype
 Output: a documentation that presents the design process and explains design decisions

 VP
 Evaluate / Meta-cognitive
 Team (graduate level)

 VP
 Online & Offline
 Image: Additional stress of the design process and explains design decisions

HOM

The students are asked to document their project by using the intermediate steps from the miro board. In this learning activity, personal design decisions must be justified and explained.