Web Engineering

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The Short Presentations

You are able to

- **name and briefly present current topics in the area of Web Engineering**

- **understand and structure a topic on your own by thorough research**

- **explain the motivation, principles, applicability, advantages and disadvantages of your topic**

You are able to

- explain your topic in a presentation to other students

- illustrate your topic through a suitable demonstration

- answer unprepared questions about your topic

- think critically about other topics and participate in the technical discussions

You are able to

- outline your topic in compliance with the rules of scientific work in a written form

- evaluate foreign papers regarding content and formal aspects

Seminar timetable

Step	Day / Week
Topic selection	18.04.2023, 09:00 am
Short presentation	03.05.
Presentation	29.05. – 02.06.2023 (days tba)
First Draft	30.06.2023
Reviews	07.07.2023
Final paper	14.07.2023

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Short presentations

Duration

- **5 minutes** **per topic** (also for WES teams!)

Content

- What is in your topic?
- Which literature sources did you research so far?
- What is your idea for a demo?

Slides

- PowerPoint or **PDF**

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2 Understanding and Structuring your topic

Understanding the topic

- What is the goal behind all these questions?

- Do you already have instructions for your result?

- What steps do you need to take for this goal?

- What literature do you need to understand the topic and reach the goal?

Literature research

Conducting literature research

- know which search terms, journals, papers, ... are important

How? Search for:

- **keywords** in title and research questions
- **connections** in research questions
- **examples** given in the topic

Structuring

What story do you want to tell about your topic?

- What research questions are the most important?
- Do you have to order them in another way?
- Do you have to add questions?

Structuring

- research questions from Topic can be starting point, but are not necessarily the direct structure for your work!

- more important for later steps, but you should think about it even for the Short Presentation

Practice

Breakout rooms with 3-4 persons

Time: 10 – 15 minutes

Save search queries and links to sources

- read the given topic and understand it
- discuss possible search queries for a literature research + list them
- search 2 meaningful articles for this topic

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User Experience for Visually Impaired People and its Challenges

- What does the term "Visual Impairment" mean?
- What are User Requirements from People with Visual Impairments for using Web Applications (User Interface, modalities, controls)? Do these requirements differ according to the specific disability?
- Use Case: an Indoor Navigation application
- Write guidelines for accessible Web Applications concerning People with Visual Impairments.
- Build a demonstration application where you implement your guidelines.
- Compare your application with other Web Applications (google maps, OSM, …) in the context of your guidelines and evaluate them.
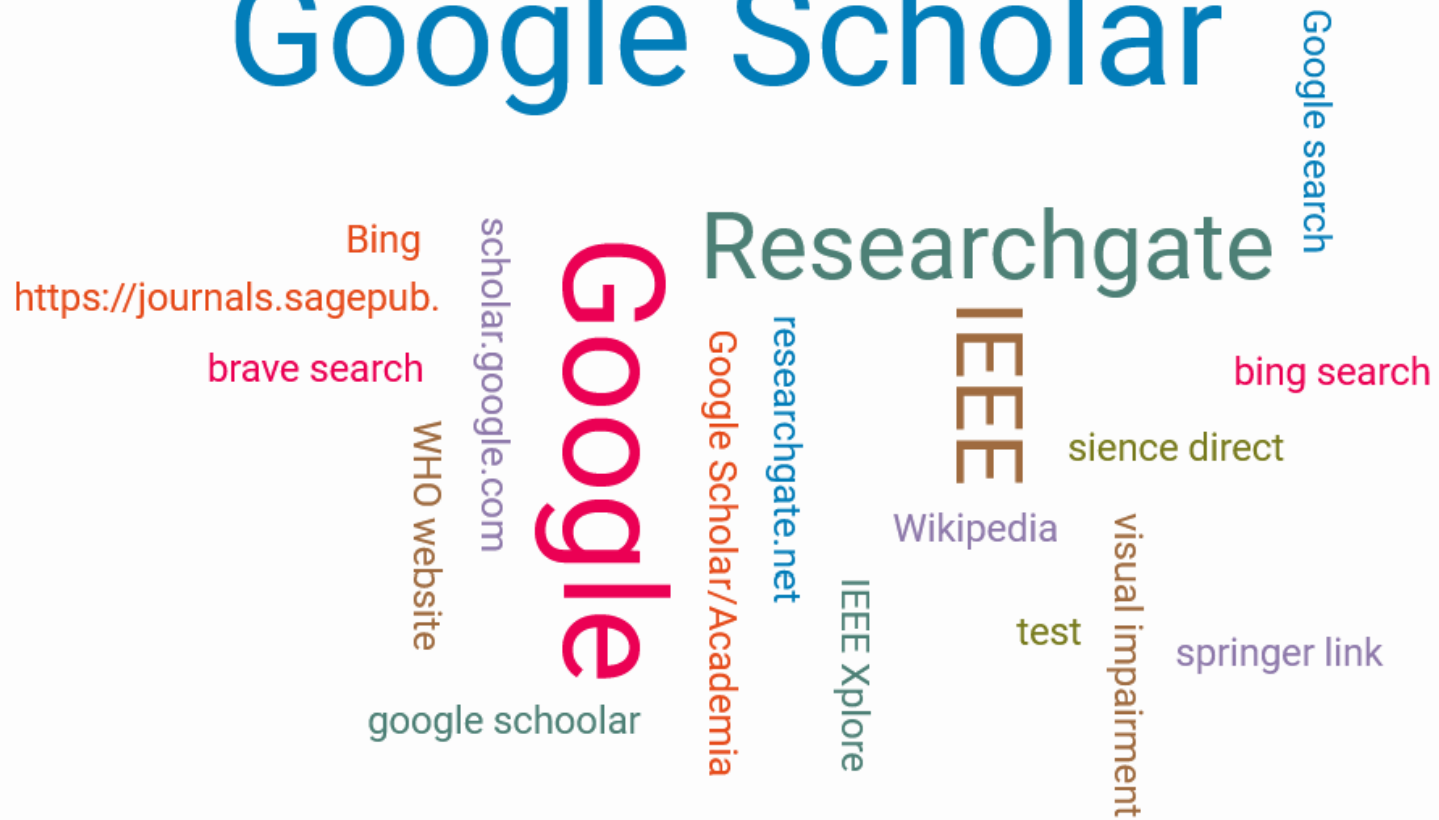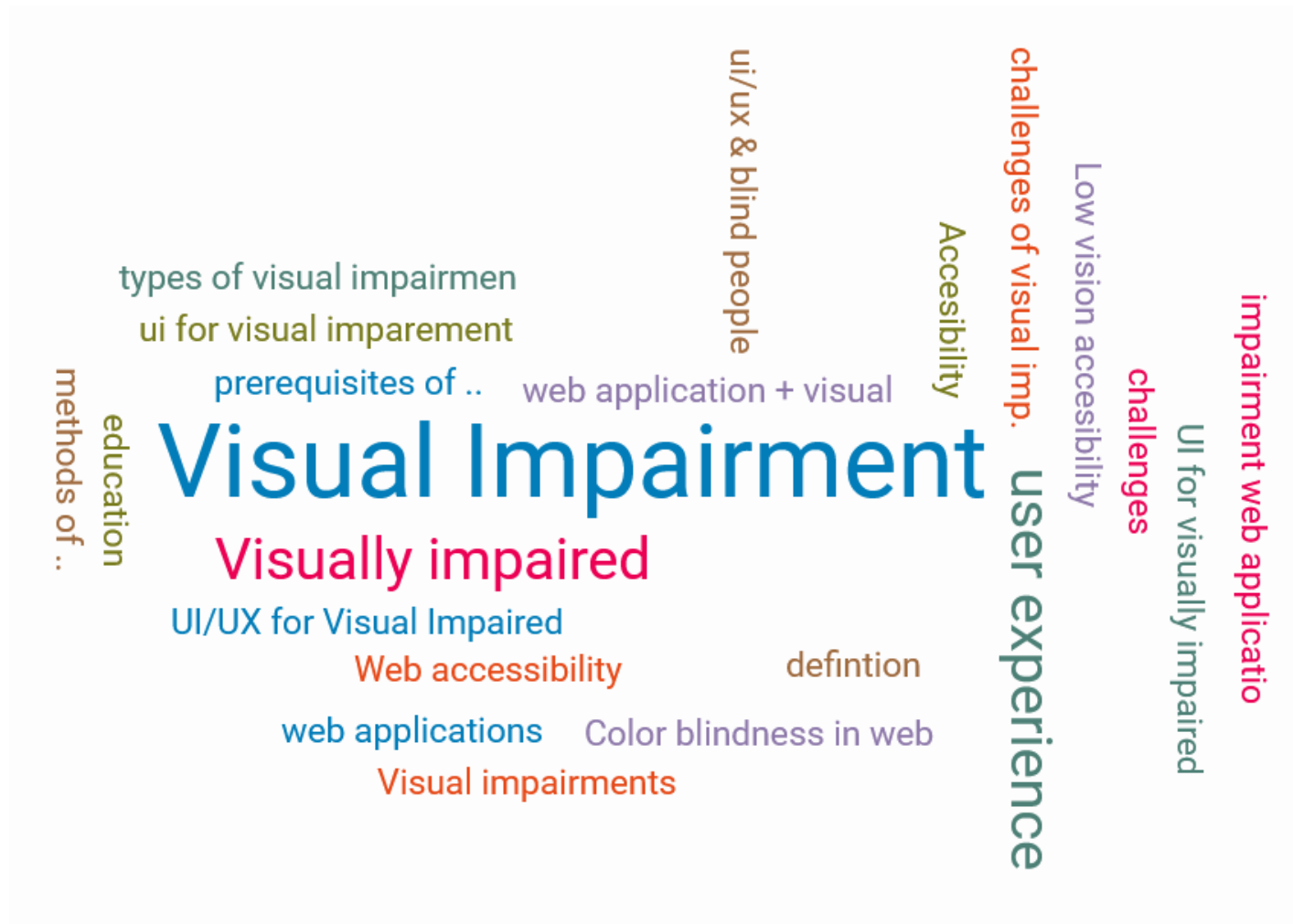
Your results

https://particify.hrz.tu-chemnitz.de/p/14133414

Which platforms/search engines did you use?

Which search queries did you use?

Your results

- https://ieeexplore.ieee.org/abstract/document/6470236
- https://dl.acm.org/doi/abs/10.1145/1839379.1839405
- https://www.tandfonline.com/doi/abs/10.1080/10400435.2021.1907485
- https://uxdesign.cc/tips-on-designing-inclusively-for-visual-disabilities-d42f17cc0dcd
- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6696419/
- https://www.who.int/news-room/fact-sheets/detail/blindness-and-visual-impairment
- https://www.sciencedirect.com/science/article/abs/pii/S0740818816302158
- https://www.sciencedirect.com/science/article/abs/pii/S0039625705000421

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Your results

- https://ietresearch.onlinelibrary.wiley.com/doi/full/10.1049/joe.2014.0136
- http://ophthalmology.pitt.edu/vision-impairment/what-vision-impairment
- https://www.cambridge.org/core/journals/international-journal-of-disability-management/article/systematic-literature-review-of-the-application-of-information-communication-technology-for-visually-impaired-people/D47B1DD148C063141B5402B0E99D5BE6
- https://books.google.de/books?hl=en&lr=&id=EaXlAAAAQBAJ&oi=fnd&pg=PA26&dq=what+does+the+term+visual+impairment+mean&ots=aA4FvX5Fkt&sig=TTYcjC8bYm3Hvp_Hf1wD90wr7f4&redir_esc=y#v=onepage&q=what%20does%20the%20term%20visual%20impairment%20mean&f=false
- https://psycnet.apa.org/record/2006-12732-001

Your results

- https://www.taylorfrancis.com/books/mono/10.4324/9780203831915/disability-new-media-katie-ellis-mike-kent

- https://link.springer.com/article/10.1007/s10209-009-0163-2

- https://www.w3.org/TR/low-vision-needs/

- https://www.inclusivecitymaker.com/apps-blind-visually-impaired-people/

- https://journals.sagepub.com/doi/10.1177/0145482X0710100702

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Hints for Literature Research

Literature search engines

- https://elicit.org
- https://www.connectedpapers.com/
- https://www.scopus.com/
- https://webofknowledge.com/
- https://dl.acm.org/search/advanced
- https://ieeexplore.ieee.org
- https://www.base-search.net/Search/Advanced
- https://dblp.org/search/
- https://core.ac.uk/
- https://www.mendeley.com/search/
- https://www.sciencedirect.com/
- https://www.doaj.org/
- https://ulrichsweb.serialssolutions.com/
- https://link.springer.com/
- https://scholar.google.com/
- https://citeseerx.ist.psu.edu/
- https://katalog.bibliothek.tu-chemnitz.de (+ Ebscohost)

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Research Data Platforms

- https://paperswithcode.com/

- https://zenodo.org/

- https://www.digitalocean.com/

- https://figshare.com/

- https://openai.com/

- (https://www.google.com/)

Literature research: hints 1

Combine different terms for your search queries

- Be aware of search syntaxes (AND, OR, „", ...)!

Visual Impairment + Indoor Navigation
Visual Impairment + Routing
Blind + Indoor Navigation
Indoor Navigation + Accessibility

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Literature research: hints 2

Use abbreviations, when commonly used

Visually Impaired Person → ViP

Web Ontology Languages → OWL

Ressource Description Framework → RDF

Non fungible token → NFT

World Wide Web Consortium → W3C

…

Literature research: hints 3

Look for different options (synonyms, similar plattforms/programs, ...)

WebAssembly + Blazor

→ other framework names:

pyodide, wasmer, teavm, jwebassembly, mono-wasm, ruby-wasm, ...

Literature research: hints 4

Use the papers you already found

- Look through the bibliography
- Look up where this paper was cited
- Look up conference proceedings from other years
- Look at different works from the same authors

…

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In Practice

Live Literature Research

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Short Presentation Examples

Short Presentations

- 5 mins presentation time
  - be short and precise!
  - don't introduce your team
- there will be **no** Q&A Session
- look at following examples
  (previously 10 mins for teams, so more slides)

Example 1 – Slide 1

Web Component

Group Members

Advisor
Christoph Göpfert

Example 1 – Slide 2

- **<u>Web Components:</u>**
  - Web components are a set of web platform APIs that allow you to create new custom, reusable, encapsulated HTML tags to use in web pages and web apps. Web components are based on four main specifications:[1]
    - **<u>Custom Elements:</u>**
      - The Custom Elements specification lays the foundation for designing and using new types of DOM elements.
    - **<u>Shadow DOM:</u>**
      - The shadow DOM specification defines how to use encapsulated style and markup in web components.
    - **<u>ES Modules:</u>**
      - The ES Modules specification defines the inclusion and reuse of JS documents in a standards based, modular, performant way.
    - **<u>HTML Template:</u>**
      - The HTML template element specification defines how to declare fragments of markup that go unused at page load, but can be instantiated later on at runtime.[2]

1:https://www.webcomponents.org/introduction
2:https://www.webcomponents.org/introduction

Example 1 – Slide 3

- **Polyfills and it's use.**
  - A polyfill is a piece of code (usually JavaScript on the Web) used to provide modern functionality on older browsers that do not natively support it.[1]
  - Polyfill.io makes it simpler to support differing browsers by attempting to recreate the missing features with polyfills.
  - You can make use of the latest and greatest features in browsers which support them, and in those that do not.[2]

- **Polymer**
  - This is the most popular Web Components library, created and heavily used by Google. It provides simple API for creating components.
- **Skate.js:**
  - It claims to be a functional abstraction over the Web Components standards. The interesting part is that it allows you to use multiple view libraries, including lit-html, preact and even react.
- **Stencil.js:**
  - It is relatively new Web Components compiler created by Ionic team. It takes popular modern web development concepts (such as Virtual DOM, async rendering, reactive event flow and TSX) and creates clean, standard-based web component code.[3]

[1]:https://developer.mozilla.org/en-US/docs/Glossary/Polyfill
[2]:https://polyfill.io/v3/
[3]:https://medium.com/mug/web-components-with-stencil-js-is-it-the-best-way-to-create-reusable-ui-elements-in-2018-7916e8f973e8

Example 1 – Slide 4

<u>Our Plans</u>

- We use these web components to find out how these are helping in many difficulties to make them easy.

Example 1 – Slide 5

References

- https://polyfill.io/v3/
- https://developer.mozilla.org/en-US/docs/Glossary/Polyfill
- https://medium.com/mug/web-components-with-stencil-js-is-it-the-best-way-to-create-reusable-ui-elements-in-2018-7916e8f973e8
- https://www.webcomponents.org/introduction

Example 1 – Conclusion

- too much text
- too deep into topic
- slides are not self-explanatory
- unclear what group plans for the project
- no idea for demo presented
- no citation style

Example 2 – Slide 1

Gestalt Theory, Principles and Laws

Advisor: Dr.-Ing. Sebastian Heil
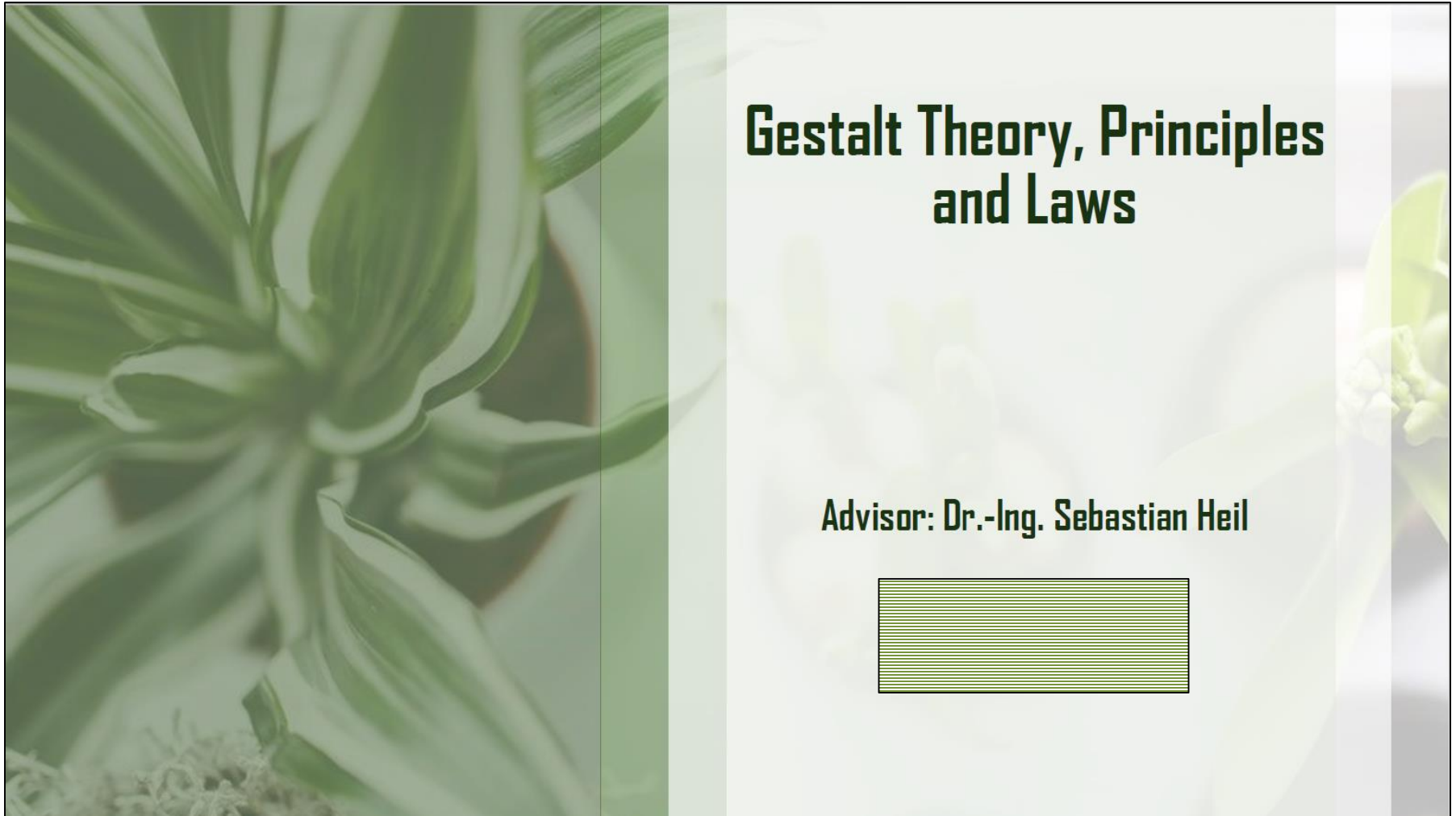
Example 2 – Slide 2

We will talk about:

- General information about Gestalt Theory,Principals & law
- Idea for a demo
- Literature we have searched for

Example 2 – Slide 3
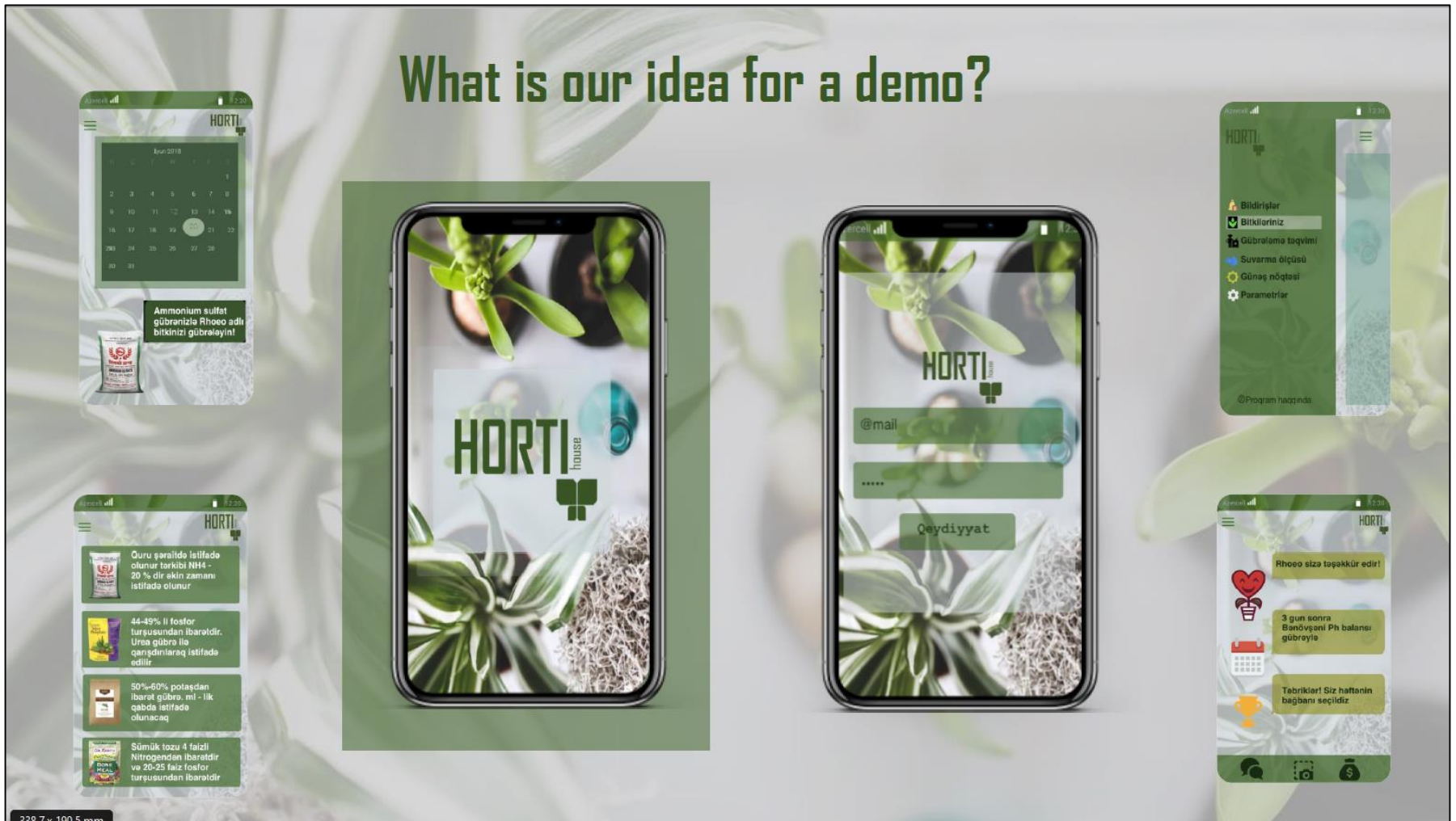
Example 2 – Slide 4

Example 2 – Slide 5

Which literature sources did we research so far?

1. Gestalt psychology: Additional Informatio. Article Encyclopedia Britannica https://www.britannica.com/science/Gestalt-psychology
2. https://www.interaction-design.org/literature/topics/gestalt-principles
3. Ngo D. C. L. and Byrne J. G., Aesthetic Measures for Screen Design, in: OZCHI 98 Conference Proceedings, IEEE Computer Society, Los Alamitos, CA, 1998
4. Jakob Nielsen. 10 Usability Heuristics for User Interface Design. Apr. 24, 1994

Example 2 – Slide 6

Our Team

Thank you for attention.

Example 2 – Conclusion

- no agenda and team introduction needed

- compelling slide design

- demo idea developed and shown

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Materials and Contact

- Seminar homepage
- OPAL
- Seminarworkflow

vsr-seminar@informatik.tu-chemnitz.de

Next meeting

Short presentations

Wednesday, 03.05.2023

Thank You!

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