

# Information Engineering — Example Exam Queries

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We urgently suggest that you practice answering these questions loudly, and together with other students preparing for the same exam. Both sides can learn from this exercise!

- Introductory questions: prepare talks of about 2-3 minutes about each of the following topics. Describe the problems and possible solutions
  - Information Behavior
  - Information Seeking and Searching
  - Enterprise Search
  - Digital Transformation
  - Ontology Engineering
  - Preservation
  - Evaluation
  - Daffodil
  - Fake News
  - Recommendation
- Introduction
  - Data - Information - Knowledge: Differences, Levels?
  - Describe the Information Life Cycle!
  - Which methods/systems can be applied in the different phases of the Information Life Cycle?
  - Describe the SECI-modell of Knowledge management, and give examples for the different types of activities!
  - What is information literacy (Informationskompetenz)? Describe the corresponding six steps?
  - What is search literacy (Suchkompetenz)? Name different aspects!
- Architecture of Web Information Systems
  - Describe the difference between file-based, database/IR-based and CMS systems
  - What are the major functions of a CMS?
  - The university is about to change the style of its Web presence. Which features of the systems described above support this transition?
- Information Behavior, Seeking & Searching
  - Describe the difference between Information Behavior, information Seeking and Information Searching
  - What are the different types of relevance?
  - Give examples of low and high context searches.
  - What are the major facets of information behavior according to Huvila. Give examples of these activities.
  - Describe Ellis' model of Information Seeking Behaviour!
  - For what can this model be used?

- Explain the 5 phases of the Digital Library Life Cycle!
- Describe an Information Searching Model!
- What is polyrepresentation? How can this concept be used for supporting users in information searching?
- Describe the abstraction levels of search activities according to Bates. Give examples for the different levels for Google and Amazon.
- Describe the different degrees of system support according to Bates. Give examples.
- Ontology Engineering
  - What is an Ontology? Where are Ontologies used?
  - What belongs to the definition of a concepts, of a slot?
  - How can a subclass differ from its superclass?
  - How are ontologies used in Amazon?
- Annotations
  - What are the functions of an annotation?
  - Which functions in digital libraries can be supported by annotations?
  - What are the dimensions of annotations according to Marshall?
- Digital Transformation (DT)
  - What is meant by 'Digital transformation'?
  - What are enablers and actors in DT?
  - What are major obstacles in the transformation process within a company?
  - What are DT-features of an online shop?
  - What is the difference between industry 3.5 and 4.0?
- Introduction to Digital Libraries (DL)
  - What's the difference between a DL and traditional libraries?
  - What's the difference between a DL and the general Web? What are the advantages of using a DL, instead of using a standard web search engine?
  - How can one define a DL?
  - How can a DL support collaboration?
- Preservation
  - What are the major problems of Preservation?
  - What are the major technological aspects in archiving (Writing and reading, coding, decoding, compression, data formats, file formats, documentation)? Name some solutions for addressing these problems
  - What are the major quality criteria for electronic records (authenticity, completeness, correctness, reliability, uniqueness, versioning)
  - Describe methods for dealing with authenticity, completeness, correctness.
  - What is the role of metadata in preservation?
  - Where does Preservation play an important role?
- Evaluation
  - Explain the terms construct, context, criteria, measures, method
  - Describe some approaches for each of these five areas.
  - Explain these concepts for an example evaluation (e.g. university library, Daffodil, online shop)
- Daffodil
  - What are the four major concepts underlying Daffodil?

- Give examples of higher level search activities in Daffodil
- How is proactivity supported in Daffodil?
- How does Daffodil support the Digital Library Lifecycle?
- How does Daffodil support collaboration?
- Recommender Systems
  - Name example applications of recommender systems. What is the benefit of using recommenders?
  - Describe the major types of recommendation approaches
  - What are the major problems with the application of collaborative filtering? Which other approach might be helpful here?
- Social Media /Social Network Systems (SNS)
  - From what viewpoints can one define SNS? Name the major SNS properties according to these views.
  - Which types of SNS can one distinguish?
  - Why are trust and privacy important in SNS?
  - How can a SNS be quantitatively analyzed?
  - What are 'Fake News'?
  - Which methods can be used to detect fake news?
- General: Which concepts from this lecture can be found in Google/Amazon/ACM DL?
- Comment on the information seeking problems from the Findwise survey and describe possible solutions you learned during this course:
  - Lack of appropriate metatags
  - Search results not relevant
  - Don't know where to look
  - Not all content sources are searchable
  - Information is outdated
  - Search skills are lacking
  - Poor navigation functionality
  - Access restrictions to content that could be of value
  - Search process takes too long