LECTURER: JOHN DOE

SPECIFICATION

Who are you?

- Name
- Employer
- Position/responsibilities
- Fun Fact
- Previous knowledge? Expectations?

SPECIFICATION
TOPIC OUTLINE

UNIT 1

Introduction to Software Requirements Specification (SRS)

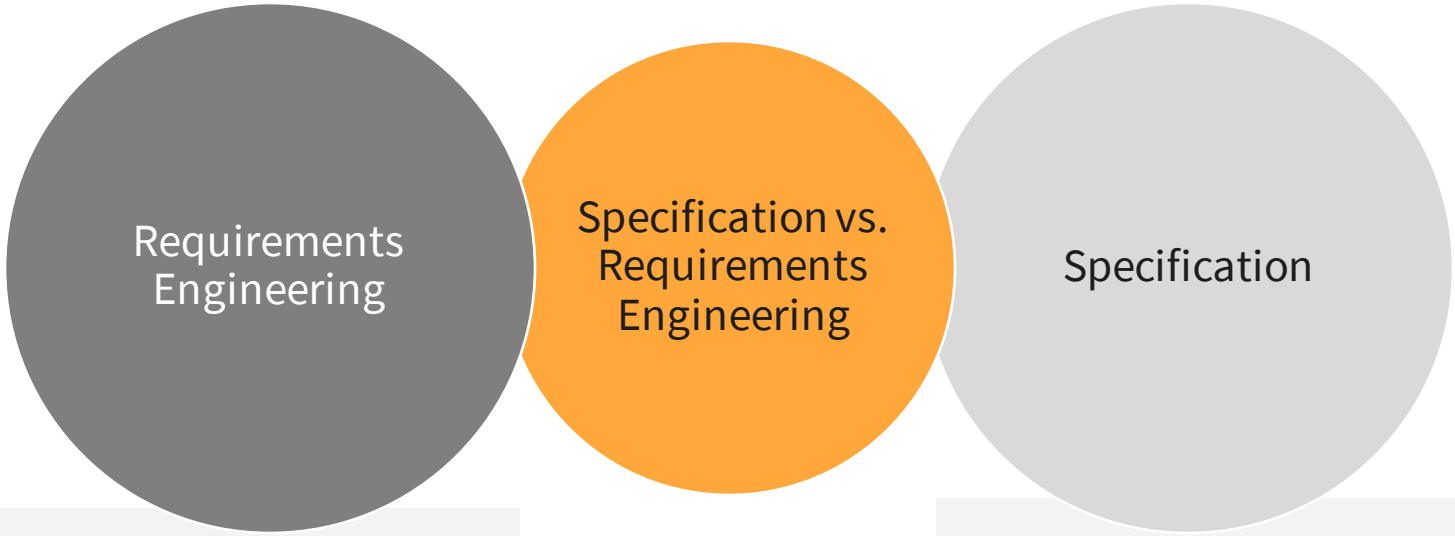
STUDY GOALS

- Know the difference between the term specification and requirements engineering.
- Describe typical system elements of a specification.
- Explain which forms of documentation can be used for specifications.

EXPLAIN SIMPLY

1. What role does specification play in subsequent tests and why is it important that the specification is as accurate as possible?
2. What is meant by the system boundary?
3. What is the essential difference between an activity diagram and a class diagram?

SPECIFICATION BASICS AND KEY TERMS

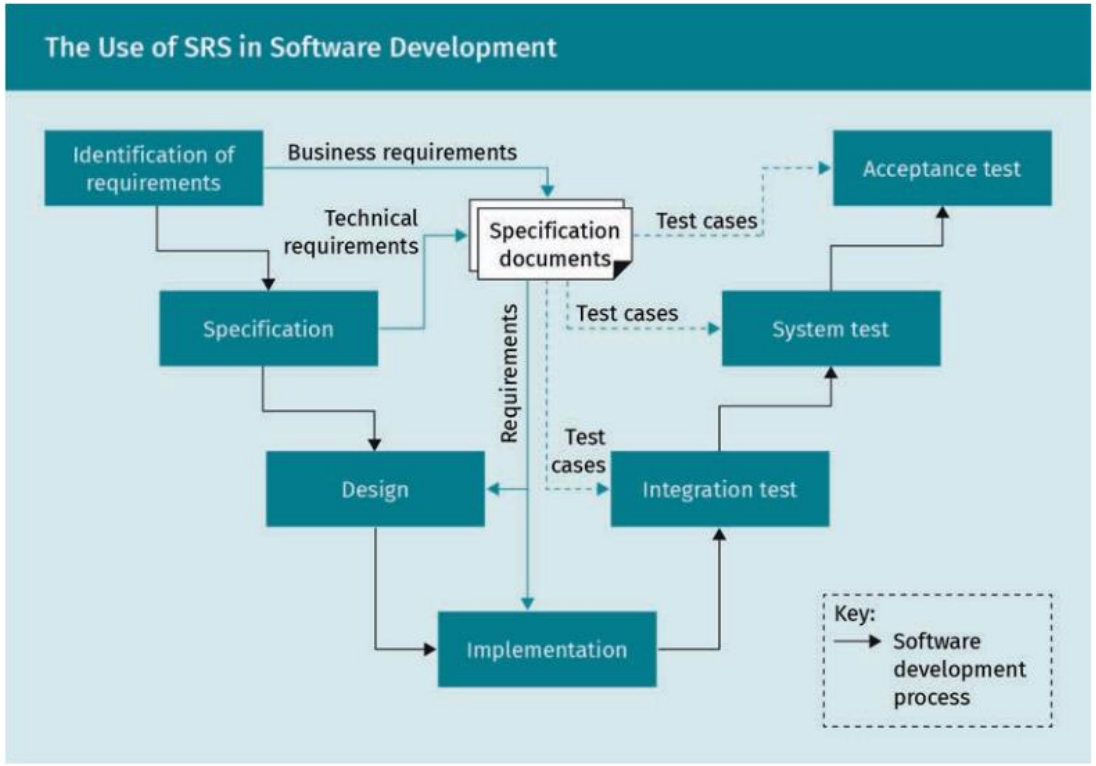


- Requirements engineering refers to the activities, methods, and techniques involved in determining, documenting, coordinating, and testing business requirements.

- Preparation of detailed technical documentation.
- Relevant are external requirements.
- Related to the activities of requirements engineering, is the specification of an extension and detailing of the documentation of requirements.

Use of the specification in software development:

- Business requirements are extended and refined by **technical requirements** during specification.
- **Result: Functional-technical specification**.
- Based on the specification, first the **system design** and then the **implementation** is created.
- The specification also forms the basis for **test cases** and the various **test stages**.
- **Errors in the specification have far-reaching effects on the project**.



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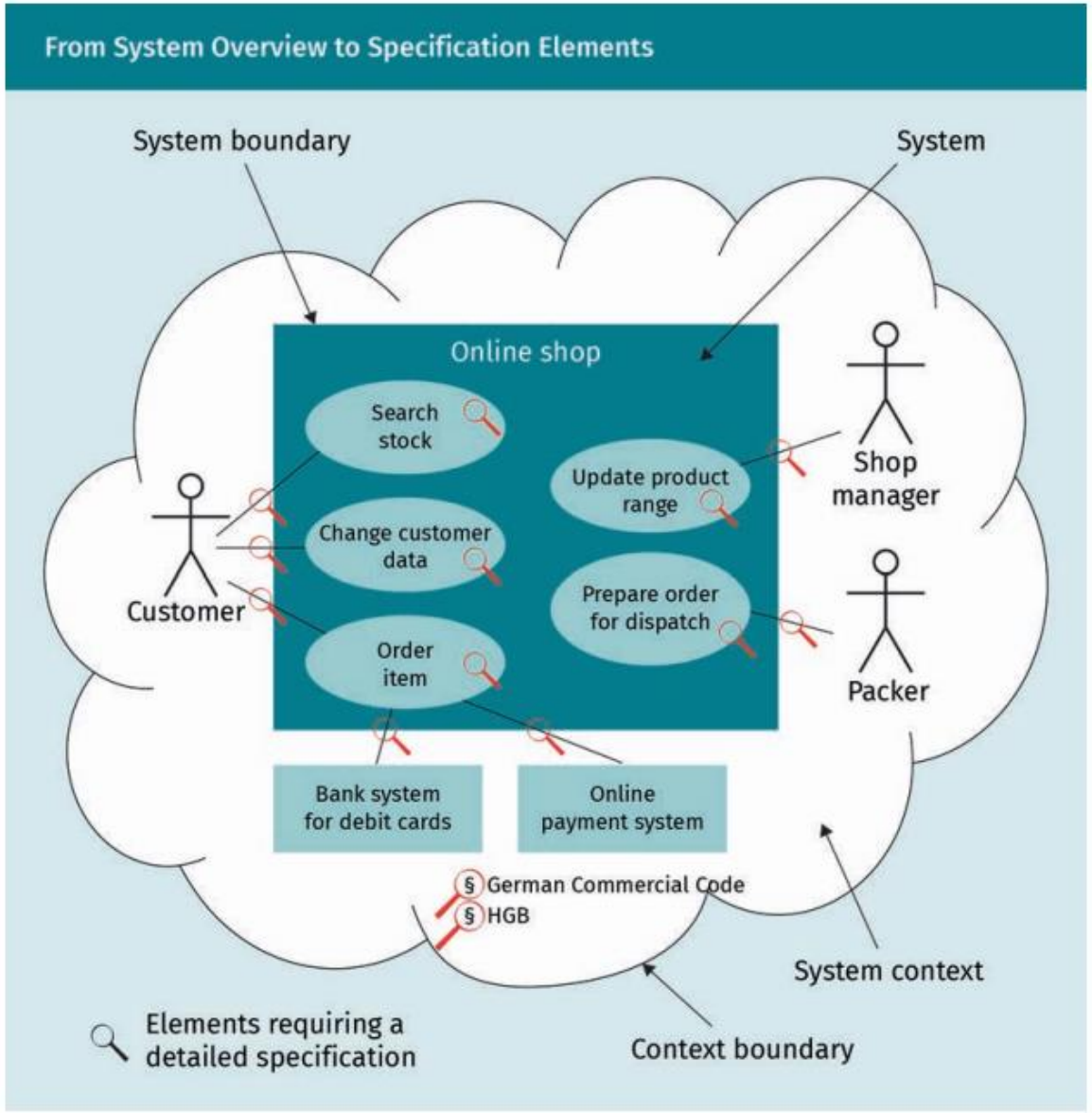
SPECIFICATION KEY ELEMENTS AND OUTLINE

From system overview to elements of a specification:

- **System boundary**: Area that can be designed.
- **Elements outside of the system boundary**: Area that cannot be influenced by the project.
- All **use cases** within the system are relevant for the specification.
- In addition to business and technical processes, **rules, business objects and system components** must be specified.
- Every **intersection** must be specified.
- **Framework conditions**, e.g., of a legal, technical or organizational nature, are also relevant.



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STRUCTURE AND DOCUMENTATION FORMS OF THE SPECIFICATION

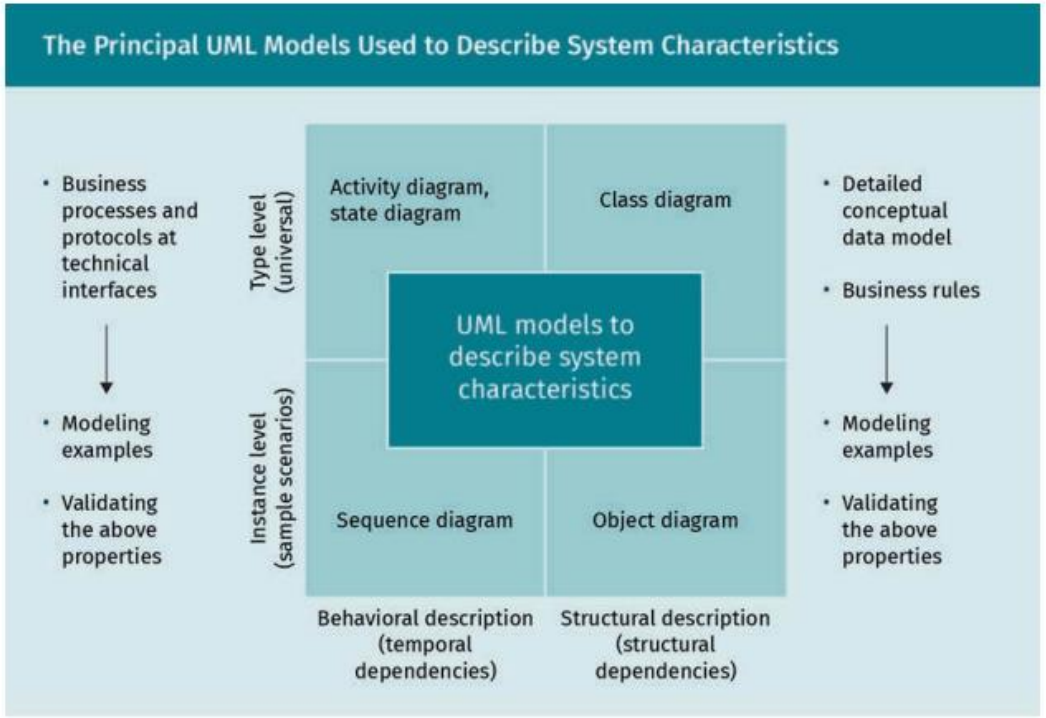
Outline specification documents:

1. **Meta information:** Document information such as directories, important terms, notations used, brief description, outline notes, version notes, current status, etc.
2. **Introduction:** Description of the project goal or purpose of the system with regards to the target audience.
3. **System overview:** Rough business description of the system based on data models, business functions, business rules and quality properties, architectural sketches of the system environment, overview of business processes and data formats at interfaces.
4. **Business system components:** Overview and their interrelationship, business description of components, technical description of component interfaces, quality characteristics and constraints.
5. **Information on regulations to be observed (compliance):** E.g., BDSG, DSGVO, GDPdU, GoBS, KonTraG, MaRisk.
6. **Appendix:** Glossary, specification of peripheral systems and existing components, detailed technical data models, reference to documents used.

STRUCTURE AND DOCUMENTATION FORMS OF THE SPECIFICATION

Important UML models for describing system properties:

- **Activity diagrams and state diagrams:** Modeling domain-specific processes, representing general system behavior.
- **Sequence diagrams:** Modeling of a concrete sequence, representation of system behavior based on a concrete example.
- **Class diagrams:** Specification of the domain-oriented data model and business rules.
- **Object diagrams:** Representation of a very specific data set based on the structure specified in the class diagram.



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REVIEW STUDY GOALS

- Know the difference between the term specification and requirements engineering.
- Describe typical system elements of a specification.
- Explain which forms of documentation can be used for specifications.

SESSION 1

TRANSFER TASK

TRANSFER TASKS

1. You receive the order to program an online store. The online store should enable customers to browse the product range, add items to the shopping cart, make payments using various payment methods, etc.

Think about valid use cases and present your results as a UML use case diagram.

2. Look into activity diagrams and state charts in more detail. Discuss in the group whether - and if so, how - the two diagram types differ.

Then present the group's opinion with valid arguments in plenary.

TRANSFER TASK
PRESENTATION OF THE RESULTS

Please present your results.

The results will be discussed in plenary.

1. The term software requirements specification (SRS)

   …

   a) … refers to the outcome of activities for documenting detailed technical testing.
   b) … involves completely different activities to conceptual requirements engineering.
   c) … refers to activities for documenting detailed technical requirements.
   d) … refers to the results obtained by a software architect from design-related activities.

2. The elements to be taken into account in SRS are ...
   a) … identifiable from the rendering of the system context.
   b) … only interfaces between human and technical actors and the system.
   c) … all business-related functions but excluding use cases.
   d) … all outside of the system context.

3. The specification of quality characteristics …
   a) … has a major influence on the set of conceptual requirements.
   b) … is only needed if the system provides an interface to human users.
   c) … can be omitted from a project if there is a tight deadline because no conceptual functions are specified.
   d) … is particularly important for enabling architects to design an appropriate architecture.

LIST OF SOURCES