

Chap 2.4 – Example: Requirements Specification »Seminarmanagement«

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The requirements specification is an extension of the requirements document produced in the planning phase

1. Goal of the development
2. Operating environment
3. Product environment
4. Functional requirements
5. Product data
6. Non-functional requirements
7. Global test cases
8. System models
 - a) Scenarios
 - b) Use cases
 - c) Object model
 - d) Dynamic models
 - e) User interface: screen sketches, navigation paths
9. Glossary (definitions of terms used)

Green: new chapter

Black: more precisely
stated

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■ Version history

Version	Author	QS	Date	Status	Comment
2.1	Balzert		03/2020	accepted	
2.2	Balzert		10/2020	accepted	a)
2.3	Balzert		10/2021	accepted	b)

a) /F115/ added

b) /F15/, /F125/, /F135/, /F185/, /D65/ added,
/F130/, /D10/ completed
/D30/, /D70/ changed

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1 Goal of the development

- The company Teachware shall be enabled to manage its seminar offerings with computer support.

1.1 Mandatory Requirements

- Management of seminars
- Management of customers (participants, prospective participants)
- Generation and mailing of invoices
- Queries:
 - When is the next seminar X?
 - Which employees of company X have participated in seminar Y?

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1.2 Optional Requirements

- Extended query capability
- Statistics
- Support for backup
- Reusability of customer and seminar management

1.3 Exclusions

- no integrated bookkeeping (Existing bookkeeping system receives copy of invoices and monitors payments; returns information on late payments)

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2 Operating environment

- The product supports the management of customers and seminars of company Teachware.
- In addition, several queries shall be supported

2.1 Application area

- commercial

2.2 Target user groups

- Employees of Teachware:
 - customer representatives
 - seminar representatives

2.3 Operating conditions

- Office

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3 Product environment

- The product runs on a personal computer

3.1 Software

- Operating system: Windows 10, Windows 11, and successors

3.2 Hardware: PC

3.3 Orgware

- network connection to bookkeeping system

3.4 Product interfaces

- Copy of invoice is stored in a file, to which the bookkeeping system has access.
- Late payments are reported by the bookkeeping system.

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4 Functional requirements

4.1 customer management

- /F10/
Entry, change, and deletion of customer data (participants, prospective clients)
- /F15/
Entry, change, and deletion of companies that send employees to seminars
- /F20/
Registration of customer with check ...
- /F30/
– whether already registered
- /F40/
– whether the desired seminar is offered

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- /F50/
 - whether seminar seats are available
- /F55/
 - whether payments were prompt
- /F60/
 - Mailing of confirmation of registration
- /F70/
 - Cancellation of customer with check ...
- /F80/
 - whether registered
- /F90/
 - whether cancellation 4 weeks or more before seminar (then charge cancellation fee or supply alternate participant).

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- /F100/
 - whether cancellation was less than 4 weeks before seminar (charge 100% of fee or supply an alternate participant)
- /F110/
 - whether Teachware has cancelled the seminar (no fee in this case)
- /F115/

Notification of participants, if Teachware cancels a seminar
- /F120/

Entry, change, or deletion of seminar bookings.

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- /F125/
Companies shall be able to book in-house seminars
- /F130/
Generation of address stickers for mailings to customers and companies
- /F135/
Circular letters sent to customers and companies
- /F140/
Bookkeeping shall report late payments via a provided function.

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4.2 Seminarmanagement

- /F150/
Entry, change, and deletion of seminar events and seminar types
- /F160/
Cancellation of seminar events
- /F170/
Recording of seminar events
- /F180/
Entry, change, deletion of lecturers and assignments of lecturers to seminar events and seminar types.
- /F185/
mailing circular letters to all lecturers

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- /F190/
Generation of participant list for a seminar event (seminar title, date from -- to, location, lecturer(s) first and last name, company)
- /F200/
Generation of certificates for all participants (salutation, first name, last name, date from -- to, seminar title, location, content summary, lecturer).

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4.3 Generation of invoices

- /F210/
when confirming booking, generate invoice for mailing
- /F220/
Store copies of invoices in a file which can be accessed over the network by the bookkeeping system using a function.

4.4 Queries

- /F230/
When is seminar X scheduled next?
- /F240/
Which employees of company Y have participated in seminar X?

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■ /F250Opt/

Further query types should be possible:

- Which 10 companies generated the largest income in a given fiscal year?
- Which seminar types had the most participants in a given fiscal year?

5 Product data

5.1 Customer data

■ /D10/

The following data shall be stored for a customer

- Customer nr., name (Mr/Ms, title, first name, last name), address (street, nr., zip code, city, phone, fax, e-mail, P.O.box), birthdate, function, income, short message, notes, Info-material, customer since).

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- /D20/

If a customer is employed by a company, the following data shall be stored about the company:

- short name; company name; address (..); phone, fax; department, short message, notes, income received, customer since

- /D30/

Is a customer or a company in payment default, the following data shall be recorded:

- date of unpaid invoice, total of invoice.

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■ 5.2 Seminar data

■ /D40/

For every seminar event, the following data shall be recorded:

- Event number, duration (in days), from, to, begin first day, end last day, location (hotel/company, address, room), public (yes/no), net fee, cancellation fee, min/max number of participants, current number of participants, took place (y/n).

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- /D50/

For every seminar type, the following data shall be recorded:

- short title, title, learning goal, teaching method, content overview, daily schedule, duration, learning materials, target group, prerequisites, net fee, min/max number of participants

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■ /D60/

For each lecturer, the following shall be recorded:

- Person number, name, address, phone, fax, e-mail address, birthdate, biography, daily rate, short message, notes, lecturer since

■ /D65/

The system shall record, if a lecturer teaches a seminar event

■ 5.3 Booking data

■ /D70/

For every booking of a seminar event by a customer or a company, the following data shall be recorded

- when registered, when confirmed, when invoice issued, when canceled, when note sent.

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6 Nonfunctional requirements

- /NF10/
Functions /F180/ und /F190/ shall not take longer than 15s, all other functions shall not take longer than 2s
- /NF20/
Capacity shall be maximally 50,000 customers and maximally 10,000 seminar events
- /NF30/
Up to 5% of customers may be behind with their payments

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- /NF40/
Reliability: The system shall experience no more than one outage per week. During normal business hours, the system shall be unavailable no more than 1 h per month.
- /NF50/
Usability: After a training of 4h, users should not commit more than 2 errors per day on average.
- /NF60/
Portability: The product shall use a database complying with the SQL standard and run on Windows 10, 11, and its successors.
- /NF70/
Adaptability: user interface and database shall be replaceable. The system shall contain no more than 0.1% of platform-specific code.

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7 Global Testcases

- Test the following function sequences:
 - /T10/
Customer registration, entry of data, cancellation, registration again, invoice, late payment
 - /T20/
Cancellation of seminar event
 - /T30/
Cancellation of booking, invoice generation
 - /T40/
Entry of seminar event, invoice generation

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- Check the following consistency conditions:
 - /T50/
A booking can only be recorded if there exists a customer entry, a seminar event entry and the seminar event is not fully booked.
 - /T60/
A new seminar event can only be entered if the corresponding seminar type exists.

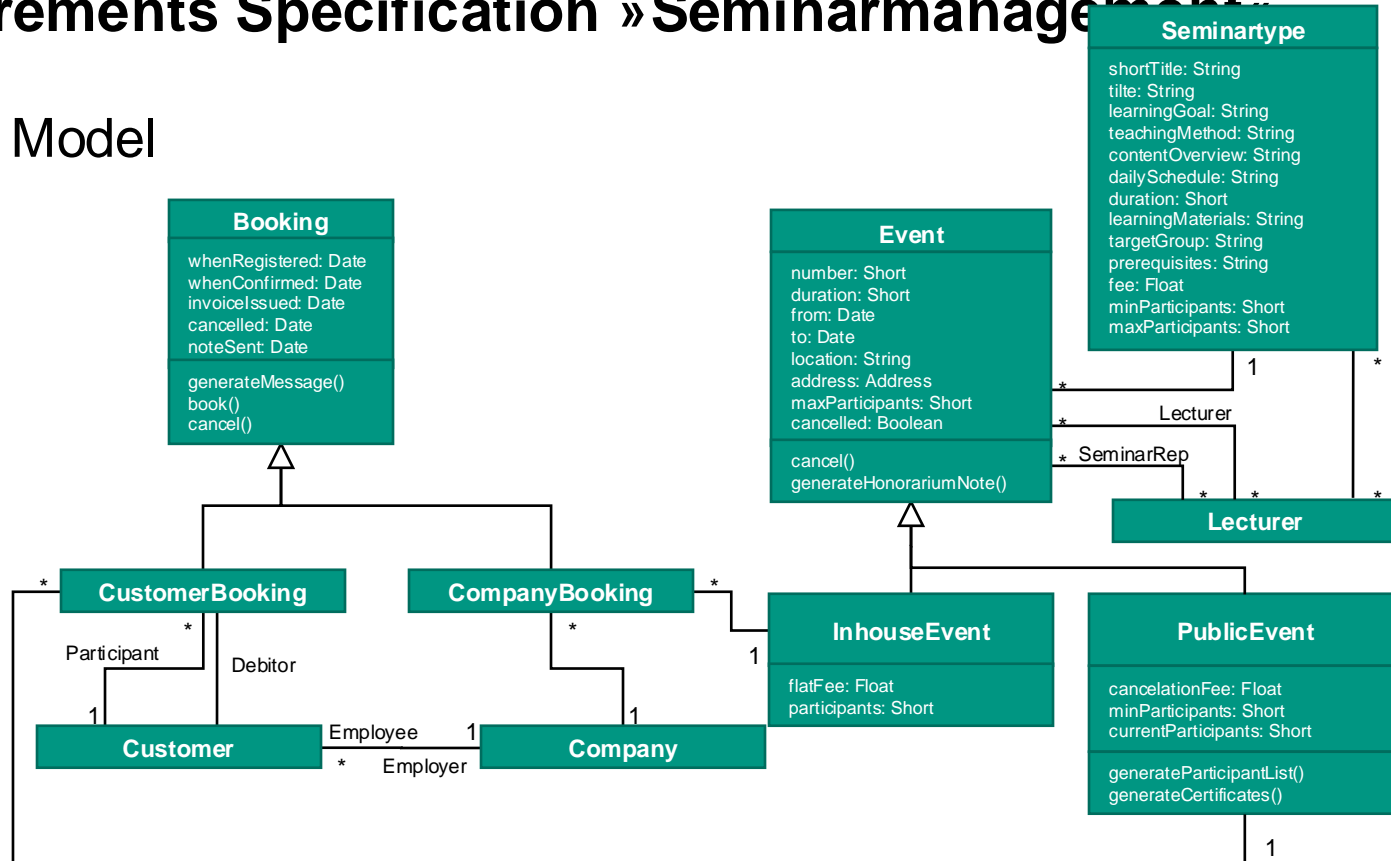
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8 System models

- 8a) Scenarios
- 8b) Use cases
- **8c) Object models**
- **8d) Dynamic models**

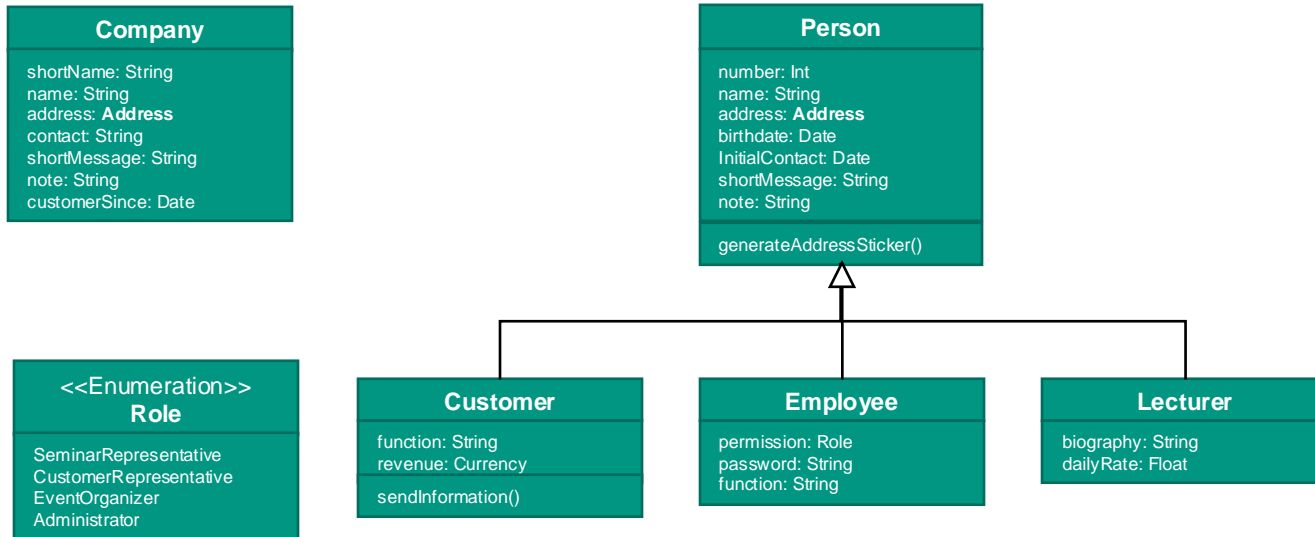
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Object Model

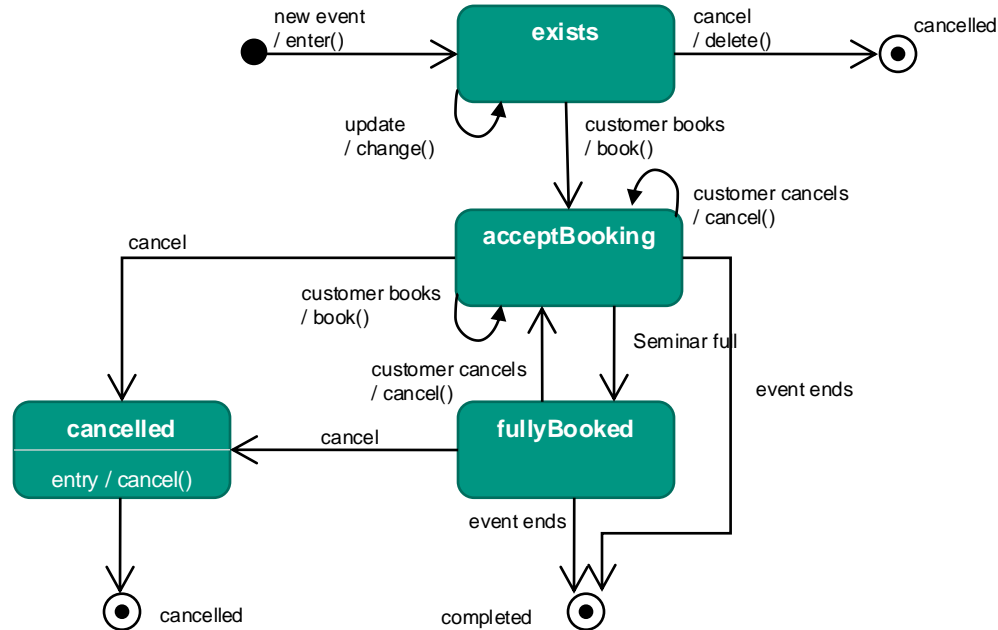


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■ UML class diagram continued

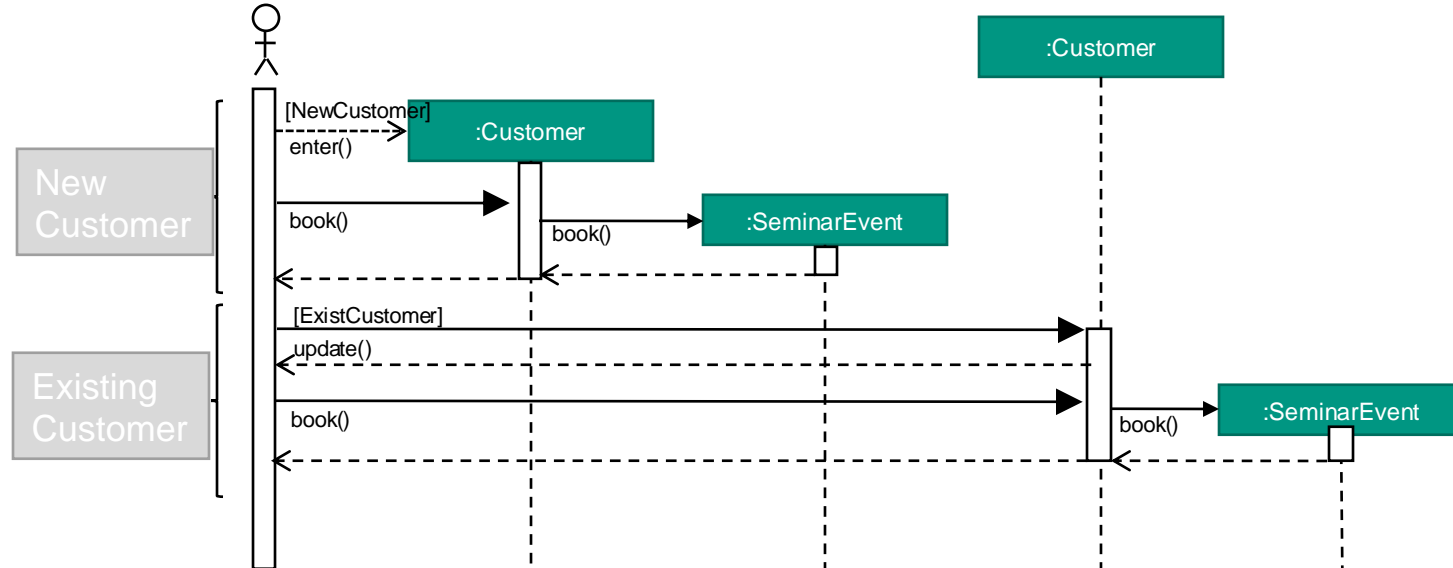


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Sequence Diagram „Registration of a customer“



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8e) User Interface

- /B10/ The user interface shall be operated by mouse and menus
- /B20/ The user interface shall also be useable without a mouse.
- /B30/ The user interface shall be compliant with DIN 66234, part 8
- /B40/ There are two different views:
 - the view of the customer representative and
 - and the view of the seminar representative.
- /B50/
Customer representative may use functions /F10/ to /F130/ and /F230/ to /F250/
Customer representative may access only the data relevant for the above functions. Other data shall be protected.
- /B60/
Seminar representative may use functions /F150/ to /F200/ and /F250/
Seminar representative may access only the data relevant for the above functions. Other data shall be protected.