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# Chapter 1

## Introduction

- 1.1 Overview
- 1.2 Purpose and recipients of the document
- 1.3 Application Domain
- 1.4 Definitions, acronyms and abbreviations
- 1.5 Document structure





## Chapter 2

# General Description

### 2.1 Domain Stakeholders

## 2.2 System's Actors

The objective of this section is not to provide the full requirement elicitation document in this section but to reuse a part of this document to provide a informal introduction to the **Messip** specification of the system under development. The use case model is made of a use case diagrams modelling abstractly and informally the actors and their use cases together with a set of use cases descriptions. In addition, those diagrams and description tables are adapted to the **Messip** specification since actor and messages names together with parameters are partly adapted to be consistent with the specification identifiers (see [ ] for more details).

## 2.3 Use Cases Model

This section contains the use cases elicited during the requirements elicitation phase. The use cases are textually described as suggested by the **Messip** method and inspired by the standard Cokburn template [ ].

### 2.3.1 Use Cases

There are no elements in this category in the system analysed.

### 2.3.2 Use Case Instance(s)

There are no elements in this category in the system analysed.



## Chapter 3

# Environment Model

### 3.1 Environment model view(s)

There are no view(s) for the **messip** environment model.

### 3.2 Actors and Interfaces Descriptions

There are no elements in this category in the system analysed.



# Chapter 4

## Concept Model

### 4.1 Concept Model view(s)

There are no view(s) for the **Messip** concept model.

### 4.2 Concept Model Types Descriptions

This section provides the textual descriptions of all the types defined in the concept model and that can be part of the graphical views provided.

#### 4.2.1 Primary types - Class types descriptions

There are no elements in this category in the system analysed.

#### 4.2.2 Primary types - Datatypes types descriptions

There are no elements in this category in the system analysed.

#### 4.2.3 Primary types - Association types descriptions

There are no association types for the primary types.

#### 4.2.4 Primary types - Aggregation types descriptions

There are no aggregation types for the primary types.

#### 4.2.4.1 Primary types composition types descriptions

There are no composition types for the primary types.

#### 4.2.5 Secondary types - Class types descriptions

There are no elements in this category in the system analysed.

#### 4.2.6 Secondary types - Datatypes types descriptions

There are no elements in this category in the system analysed.

#### 4.2.7 Secondary types - Association types descriptions

There are no association types for the secondary types.

#### 4.2.8 Secondary types - Aggregation types descriptions

There are no aggregation types for the secondary types.

#### 4.2.9 Secondary types - Composition types descriptions

There are no composition types for the secondary types.



## Chapter 5

# Operation Model

This section contains the operation schemes of each operation defined in either an actor, its output interface, in a primary or secondary type (class, datatype or enumeration types). The **messi** OCL code listing is joined to the comment table.

### 5.1 Environment - Out Interface Operation Schemes

There are no elements in this category in the system analysed.

### 5.2 Environment - Actor Operation Schemes

There are no elements in this category in the system analysed.

### 5.3 Primary Types - Operation Schemes for Classes

There are no elements in this category in the system analysed.

### 5.4 Primary Types - Operation Schemes for Datatypes

There are no elements in this category in the system analysed.

### 5.5 Primary Types - Operation Schemes for Enumerations

There are no elements in this category in the system analysed.

### 5.6 Secondary Types - Operation Schemes for Classes

There are no elements in this category in the system analysed.

### 5.7 Secondary Types - Operation Schemes for Datatypes

There are no elements in this category in the system analysed.

## 5.8 Secondary Types - Operation Schemes for Enumerations

There are no elements in this category in the system analysed.

## Chapter 6

# Test Model(s)

There are no elements in this category in the system analysed.



## Chapter 7

# Additional Constraints



# Appendix A

## Undocumented Messir Specification Elements

### A.1 Undocumented Use Cases

#### A.1.1 Undocumented User-Goal Level Use Cases

- lu.uni.lassy.excalibur.sep.g05.mike.usecases.ugAddBook
- lu.uni.lassy.excalibur.sep.g05.mike.usecases.ugManagingLoans
- lu.uni.lassy.excalibur.sep.g05.mike.usecases.ugReinstateCustomer
- lu.uni.lassy.excalibur.sep.g05.mike.usecases.ugRemoveBook
- lu.uni.lassy.excalibur.sep.g05.mike.usecases.ugRequestCustomerBan
- lu.uni.lassy.excalibur.sep.g05.mike.usecases.ugRequestCustomerUnban
- lu.uni.lassy.excalibur.sep.g05.mike.usecases.ugSetNote
- lu.uni.lassy.excalibur.sep.g05.mike.usecases.ugSuspendCustomer

#### A.1.2 Undocumented Subfunction Level Use Cases

- lu.uni.lassy.excalibur.sep.g05.mike.usecases.sfAccessBookDatabase
- lu.uni.lassy.excalibur.sep.g05.mike.usecases.sfAccessCustomerDatabase
- lu.uni.lassy.excalibur.sep.g05.mike.usecases.sfAddBook
- lu.uni.lassy.excalibur.sep.g05.mike.usecases.sfAddLoan
- lu.uni.lassy.excalibur.sep.g05.mike.usecases.sfInspectCustomer
- lu.uni.lassy.excalibur.sep.g05.mike.usecases.sfReinstateCustomer
- lu.uni.lassy.excalibur.sep.g05.mike.usecases.sfRemoveBook
- lu.uni.lassy.excalibur.sep.g05.mike.usecases.sfRequestCustomerBan
- lu.uni.lassy.excalibur.sep.g05.mike.usecases.sfRequestCustomerUnban
- lu.uni.lassy.excalibur.sep.g05.mike.usecases.sfReturnBook

- lu.uni.lassy.excalibur.sep.g05.mike.usecases.sfSearchBook
- lu.uni.lassy.excalibur.sep.g05.mike.usecases.sfSearchCustomer
- lu.uni.lassy.excalibur.sep.g05.mike.usecases.sfSetNote
- lu.uni.lassy.excalibur.sep.g05.mike.usecases.sfSuspendCustomer

### A.1.3 Undocumented Use Case Views

- uc-ugAddBook
- uc-ugManagingLoans
- uc-ugReinstateCustomer
- uc-ugRemoveBook
- uc-ugRequestCustomerBan
- uc-ugRequestCustomerUnban
- uc-ugSetNote
- uc-ugSuspendCustomer

## A.2 Undocumented Use Case Instances

### A.2.1 Undocumented User-Goal Level Use Case Instances

- usecases.uciugManagingLoans.uciugAddBook
- usecases.uciugManagingLoans.uciugManagingLoans
- usecases.uciugManagingLoans.uciugReinstateCustomer
- usecases.uciugManagingLoans.uciugRemoveBook
- usecases.uciugManagingLoans.uciugRequestCustomerBan
- usecases.uciugManagingLoans.uciugRequestCustomerUnban
- usecases.uciugManagingLoans.uciugSetNote
- usecases.uciugManagingLoans.uciugSuspendCustomer

### A.2.2 Undocumented Use Case Instance Views

- uci-uciugAddBook
- uci-uciugManagingLoans
- uci-uciugReinstateCustomer
- uci-uciugRemoveBook
- uci-uciugRequestCustomerBan



- uci-uciugRequestCustomerUnban
- uci-uciugSetNote
- uci-uciugSuspendCustomer

### A.3 Undocumented Actors

- lu.uni.lassy.excalibur.sep.g05.mike.environment.actCustomer
- lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian

### A.4 Undocumented Primary Types

#### A.4.1 Undocumented Primary Classe Types

- lu.uni.lassy.excalibur.sep.g05.mike.concepts.primarytypes.classes.ctState



## Appendix B

# Messir Specification Files Listing

### B.1 File ./src-gen/messir-spec/.views.msr

```
1 //
2 //DON'T TOUCH THIS FILE !!!
3 //
4 package uuid8953ab999204777b3858769e538c72c {
5   Concept Model {}
6 }
```

Listing B.1: Messir Spec. file .views.msr.

### B.2 File ./src-gen/messir-spec/environment/environment.t.msr

```
1 /*
2 * @author nicentra
3 * @date Tue Nov 21 23:30:54 CET 2017
4 */
5
6 package lu.uni.lassy.excalibur.sep.g05.mike.environment {
7
8   import lu.uni.lassy.messir.libraries.calendar
9   import lu.uni.lassy.messir.libraries.math
10  import lu.uni.lassy.messir.libraries.primitives
11  import lu.uni.lassy.messir.libraries.string
12
13  Environment Model {
14
15    actor actLibrarian role ractLibrarian cardinality[1 .. *] {
16      input interface inactLibrarian {
17
18      }
19      output interface outactLibrarian {
20
21      }
22    }
23
24    actor actCustomer role ractCustomer cardinality[0 .. *] {
25      input interface inactCustomer {
26
27      }
28      output interface outactCustomer {
29
30      }
31    }
32  }
```

Listing B.2: Messir Spec. file environment.msr.

### B.3 File `./src-gen/messir-spec/concepts/primarytypes-associations/primarytypes-associations.msr`

```

1 /*
2 * @author nicentra
3 * @date Tue Nov 21 23:30:54 CET 2017
4 */
5
6 package lu.uni.lassy.excalibur.sep.g05.mike.concepts.primarytypes.associations {
7
8 import lu.uni.lassy.messir.libraries.calendar
9 import lu.uni.lassy.messir.libraries.math
0 import lu.uni.lassy.messir.libraries.primitives
1 import lu.uni.lassy.messir.libraries.string
2
3 Concept Model {
4
5   Primary Types {
6
7   }
8 }
9 }

```

Listing B.3: Messir Spec. file `primarytypes-associations.msr`.

### B.4 File `./src-gen/messir-spec/concepts/primarytypes-classes/primarytypes-classes.msr`

```

1 /*
2 * @author nicentra
3 * @date Tue Nov 21 23:30:54 CET 2017
4 */
5
6 package lu.uni.lassy.excalibur.sep.g05.mike.concepts.primarytypes.classes {
7
8 import lu.uni.lassy.messir.libraries.calendar
9 import lu.uni.lassy.messir.libraries.math
0 import lu.uni.lassy.messir.libraries.primitives
1 import lu.uni.lassy.messir.libraries.string
2
3 import lu.uni.lassy.messir.libraries.primitives
4
5 Concept Model {
6
7   Primary Types {
8
9     state class ctState {
0       attribute vpStarted: ptBoolean
1
2       operation init(AvpStarted:ptBoolean): ptBoolean
3     }
4
5   }
6 }
7 }

```

Listing B.4: Messir Spec. file `primarytypes-classes.msr`.

### B.5 File `./src-gen/messir-spec/concepts/primarytypes-datatypes/primarytypes-datatypes.msr`

```

1 /*
2 * @author nicentra
3 * @date Tue Nov 21 23:30:54 CET 2017

```

```

4 */
5
6 package lu.uni.lassy.excalibur.sep.g05.mike.concepts.primarytypes.datatypes {
7
8 import lu.uni.lassy.messir.libraries.calendar
9 import lu.uni.lassy.messir.libraries.math
10 import lu.uni.lassy.messir.libraries.primitives
11 import lu.uni.lassy.messir.libraries.string
12
13 Concept Model {
14
15 Primary Types {
16
17 }
18 }
19 }

```

Listing B.5: Messir Spec. file primarytypes-datatypes.msr.

## B.6 File `./src-gen/messir-spec/concepts/secondarytype s-associations/secondarytypes-associations.msr`

```

1 /*
2 * @author nicentra
3 * @date Tue Nov 21 23:30:54 CET 2017
4 */
5
6 package lu.uni.lassy.excalibur.sep.g05.mike.concepts.secondarytypes.associations {
7
8 import lu.uni.lassy.messir.libraries.calendar
9 import lu.uni.lassy.messir.libraries.math
10 import lu.uni.lassy.messir.libraries.primitives
11 import lu.uni.lassy.messir.libraries.string
12
13 Concept Model {
14
15 Secondary Types {
16
17 }
18 }
19 }

```

Listing B.6: Messir Spec. file secondarytypes-associations.msr.

## B.7 File `./src-gen/messir-spec/concepts/secondarytype s-classes/secondarytypes-classes.msr`

```

1 /*
2 * @author nicentra
3 * @date Tue Nov 21 23:30:54 CET 2017
4 */
5
6 package lu.uni.lassy.excalibur.sep.g05.mike.concepts.secondarytypes.classes {
7
8 import lu.uni.lassy.messir.libraries.calendar
9 import lu.uni.lassy.messir.libraries.math
10 import lu.uni.lassy.messir.libraries.primitives
11 import lu.uni.lassy.messir.libraries.string
12
13 Concept Model {
14
15 Secondary Types {
16
17 }
18 }

```

9 }

Listing B.7: Messir Spec. file secondarytypes-classes.msr.

## B.8 File `./src-gen/messir-spec/concepts/secondarytype` `s-` `datatypes/secondarytypes-datatypes.msr`

```

1 /*
2 * @author nicentra
3 * @date Tue Nov 21 23:30:54 CET 2017
4 */
5
6 package lu.uni.lassy.excalibur.sep.g05.mike.concepts.secondarytypes.datatypes {
7
8 import lu.uni.lassy.messir.libraries.calendar
9 import lu.uni.lassy.messir.libraries.math
10 import lu.uni.lassy.messir.libraries.primitives
11 import lu.uni.lassy.messir.libraries.string
12
13 Concept Model {
14
15   Secondary Types {
16
17   }
18
19 }
20 }
```

Listing B.8: Messir Spec. file secondarytypes-datatypes.msr.

## B.9 File `./src-gen/messir-spec/tests/tests.msr`

```

1 /*
2 * @author nicentra
3 * @date Tue Nov 21 23:30:54 CET 2017
4 */
5
6 package lu.uni.lassy.excalibur.sep.g05.mike.tests {
7
8 import lu.uni.lassy.messir.libraries.calendar
9 import lu.uni.lassy.messir.libraries.math
10 import lu.uni.lassy.messir.libraries.primitives
11 import lu.uni.lassy.messir.libraries.string
12
13 Test Model {
14
15   }
16
17 }
```

Listing B.9: Messir Spec. file tests.msr.

## B.10 File `./src-gen/messir-spec/usecases/usecaseinstance-` `ugManagingLoans-uciugManagingLoans.msr`

```

1 package usecases.uciugManagingLoans {
2 import lu.uni.lassy.excalibur.sep.g05.mike.usecases
3
4 Use Case Model {
5
6   use case instance uciugManagingLoans : ugManagingLoans{
7     actors {
8       mikeSchmitz : lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian
9     }
10   use case steps {
```

```

1  mikeSchmitz executed instance of subfunction sfAddLoan("36958", "What if?", "003") {
2      ieLoan("Loan successfully granted.") returned to mikeSchmitz
3  }
4
5  mikeSchmitz executed instance of subfunction sfReturnBook("36958", "What if?", "003") {
6      ieReturnedBook("Book successfully returned.") returned to mikeSchmitz
7  }
8  }
9  }
0
2  use case instance uciugAddBook : ugAddBook{
2  actors {
3      mikeSchmitz : lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian
4  }
3  use case steps {
8      mikeSchmitz executed instance of subfunction sfAccessBookDatabase() {
2          ieBookDatabase("Book database opened.") returned to mikeSchmitz
8      }
2
0      mikeSchmitz executed instance of subfunction sfAddBook("0-544-27299-4", "Randall Munroe", "What
        If?") {
3          ieBookAdded("Book successfully returned.") returned to mikeSchmitz
2      }
3      }
3  }
5
6  use case instance uciugReinstateCustomer : ugReinstateCustomer{
2  actors {
8      mikeSchmitz : lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian
9  }
0  use case steps {
4      mikeSchmitz executed instance of subfunction sfAccessCustomerDatabase() {
2          ieCustomerDatabase("Customer database opened.") returned to mikeSchmitz
3      }
4
5      mikeSchmitz executed instance of subfunction sfSearchCustomer("John Smith") {
6          ieCustomerQuery("Customer retrieved") returned to mikeSchmitz
4      }
8
9      mikeSchmitz executed instance of subfunction sfInspectCustomer() {
6          ieCustomerProfile("Customer profile opened") returned to mikeSchmitz
5      }
2
3      mikeSchmitz executed instance of subfunction sfReinstateCustomer() {
5          ieCustomerReinstated("Customer reinstated") returned to mikeSchmitz
5      }
6      }
3      }
8
9  use case instance uciugRemoveBook : ugRemoveBook {
6  actors {
6      mikeSchmitz: lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian
8  }
8  use case steps {
4      mikeSchmitz executed instance of subfunction sfAccessBookDatabase() {
6          ieBookDatabase("Book database opened") returned to mikeSchmitz
6      }
8      mikeSchmitz executed instance of subfunction sfRemoveBook("#000003") {
8          ieBookRemoved("Book successfully removed") returned to mikeSchmitz
9      }
0      }
7      }
2
3  use case instance uciugRequestCustomerBan : ugRequestCustomerBan{
4  actors {
5      mikeSchmitz : lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian
6      }
7  use case steps {
8      mikeSchmitz executed instance of subfunction sfAccessCustomerDatabase() {
9          ieCustomerDatabase("Customer database opened.") returned to mikeSchmitz

```

```

6      }
7
8      mikeSchmitz executed instanceof subfunction sfSearchCustomer("John Smith") {
9          ieCustomerQuery("Customer retrieved") returned to mikeSchmitz
10     }
11
12     mikeSchmitz executed instanceof subfunction sfInspectCustomer() {
13         ieCustomerProfile("Customer profile opened") returned to mikeSchmitz
14     }
15
16     mikeSchmitz executed instanceof subfunction sfRequestCustomerBan("Second time now the customer
17         has returned a book in an almost destroyed state") {
18         ieSentBanRequest("Ban request send off") returned to mikeSchmitz
19     }
20 }
21
22 use case instance uciugRequestCustomerUnban : ugRequestCustomerUnban{
23     actors {
24         mikeSchmitz : lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian
25     }
26     use case steps {
27         mikeSchmitz executed instanceof subfunction sfAccessCustomerDatabase() {
28             ieCustomerDatabase("Customer database opened.") returned to mikeSchmitz
29         }
30
31         mikeSchmitz executed instanceof subfunction sfSearchCustomer("John Smith") {
32             ieCustomerQuery("Customer retrieved") returned to mikeSchmitz
33         }
34
35         mikeSchmitz executed instanceof subfunction sfInspectCustomer() {
36             ieCustomerProfile("Customer profile opened") returned to mikeSchmitz
37         }
38
39         mikeSchmitz executed instanceof subfunction sfRequestCustomerUnban("Customer has paid all
40             outstanding fines plus an extra donation and has handed in a long apology letter") {
41             ieSentUnbanRequest("Unban request send off") returned to mikeSchmitz
42         }
43     }
44 }
45
46 use case instance uciugSetNote : ugSetNote{
47     actors {
48         mikeSchmitz : lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian
49     }
50     use case steps {
51         mikeSchmitz executed instanceof subfunction sfAccessCustomerDatabase() {
52             ieCustomerDatabase("Customer database opened.") returned to mikeSchmitz
53         }
54
55         mikeSchmitz executed instanceof subfunction sfSearchCustomer("John Smith") {
56             ieCustomerQuery("Customer retrieved") returned to mikeSchmitz
57         }
58
59         mikeSchmitz executed instanceof subfunction sfInspectCustomer() {
60             ieCustomerProfile("Customer profile opened") returned to mikeSchmitz
61         }
62
63         mikeSchmitz executed instanceof subfunction sfSetNote("Customer is overdue on 2 books, suspended
64             until fine of 20 Euro is paid") {
65             ieSetNote("Note set") returned to mikeSchmitz
66         }
67     }
68 }
69
70 use case instance uciugSuspendCustomer : ugSuspendCustomer{
71     actors {
72         mikeSchmitz : lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian
73     }
74     use case steps {

```



```

1  mikeSchmitz executed instanceof subfunction sfAccessCustomerDatabase() {
2      ieCustomerDatabase("Customer database opened.") returned to mikeSchmitz
3  }
4
5  mikeSchmitz executed instanceof subfunction sfSearchCustomer("John Smith") {
6      ieCustomerQuery("Customer retrieved") returned to mikeSchmitz
7  }
8
9  mikeSchmitz executed instanceof subfunction sfInspectCustomer() {
10     ieCustomerProfile("Customer profile opened") returned to mikeSchmitz
11 }
12
13 mikeSchmitz executed instanceof subfunction sfSuspendCustomer() {
14     ieCustomerSuspended("Customer suspended") returned to mikeSchmitz
15 }
16 }
17 }
18 }
19 }

```

Listing B.10: Messir Spec. file usecaseinstance-ugManagingLoans-uciugManagingLoans.msr.

## B.11 File ./src-gen/messir-spec/usecases/usecases.msr

```

1  /*
2  * @author nicentra
3  * @date Tue Nov 21 23:30:54 CET 2017
4  */
5
6  package lu.uni.lassy.excalibur.sep.g05.mike.usecases {
7
8  import lu.uni.lassy.messir.libraries.calendar
9  import lu.uni.lassy.messir.libraries.math
10 import lu.uni.lassy.messir.libraries.primitives
11 import lu.uni.lassy.messir.libraries.string
12
13 Use Case Model {
14
15 use case system subfunction sfAccessCustomerDatabase() {
16     actor lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian[primary, active]
17     returned messages{
18         ieCustomerDatabase returned to lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian
19     }
20 }
21
22 use case system subfunction sfSearchCustomer() {
23     actor lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian[primary, active]
24     returned messages{
25         ieCustomerQuery returned to lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian
26     }
27 }
28
29 use case system subfunction sfInspectCustomer() {
30     actor lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian[primary, active]
31     returned messages{
32         ieCustomerProfile returned to lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian
33     }
34 }
35
36 use case system subfunction sfAddLoan() {
37     actor lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian[primary, active]
38     returned messages{
39         ieLoan returned to lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian
40     }
41 }
42
43 use case system subfunction sfReturnBook() {
44     actor lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian[primary, active]
45     returned messages{
46         ieReturnedBook returned to lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian

```

```

6   }
7   }
8
9   use case system subfunction sfSuspendCustomer() {
10  actor lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian[primary, active]
11  returned messages{
12    ieCustomerSuspended returned to lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian
13  }
14  }
15
16  use case system subfunction sfReinstateCustomer() {
17  actor lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian[primary, active]
18  returned messages{
19    ieCustomerReinstated returned to lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian
20  }
21  }
22
23  use case system subfunction sfRequestCustomerBan() {
24  actor lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian[primary, active]
25  returned messages{
26    ieSentBanRequest returned to lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian
27  }
28  }
29
30  use case system subfunction sfRequestCustomerUnban() {
31  actor lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian[primary, active]
32  returned messages{
33    ieSentUnbanRequest returned to lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian
34  }
35  }
36
37  use case system subfunction sfSetNote() {
38  actor lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian[primary, active]
39  returned messages{
40    ieSetNote returned to lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian
41  }
42  }
43
44  use case system subfunction sfAccessBookDatabase() {
45  actor lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian[primary, active]
46  returned messages{
47    ieBookDatabase returned to lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian
48  }
49  }
50
51  use case system subfunction sfSearchBook() {
52  actor lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian[primary, active]
53  returned messages{
54    ieBookQuery returned to lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian
55  }
56  }
57
58  use case system subfunction sfAddBook() {
59  actor lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian[primary, active]
60  returned messages{
61    ieBookAdded returned to lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian
62  }
63  }
64
65  use case system subfunction sfRemoveBook() {
66  actor lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian[primary, active]
67  returned messages{
68    ieBookRemoved returned to lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian
69  }
70  }
71
72  use case system usergoal ugManagingLoans() {
73  actor lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian[primary, active]
74  reuse lu.uni.lassy.excalibur.sep.g05.mike.usecases.sfAddLoan[0..*]
75  reuse lu.uni.lassy.excalibur.sep.g05.mike.usecases.sfReturnBook[0..*]

```

```

6
7     step a: lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian executes sfAddLoan()
8     step b: lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian executes sfReturnBook()
9
10    ordering constraint "step a must be executed first"
11 }
12
13 use case system usergoal ugSuspendCustomer() {
14     actor lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian[primary, active]
15     reuse lu.uni.lassy.excalibur.sep.g05.mike.usecases.sfAccessCustomerDatabase[1..1]
16     reuse lu.uni.lassy.excalibur.sep.g05.mike.usecases.sfSearchCustomer[1..1]
17     reuse lu.uni.lassy.excalibur.sep.g05.mike.usecases.sfInspectCustomer[1..1]
18     reuse lu.uni.lassy.excalibur.sep.g05.mike.usecases.sfSuspendCustomer[1..1]
19
20     step a: lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian executes
21             sfAccessCustomerDatabase()
22     step b: lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian executes sfSearchCustomer()
23     step c: lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian executes sfInspectCustomer()
24     step d: lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian executes sfSuspendCustomer()
25
26     ordering constraint "step a must be executed first"
27     ordering constraint "step b must be executed second"
28     ordering constraint "step c must be executed third"
29     ordering constraint "step d must be executed fourth"
30 }
31
32 use case system usergoal ugReinstateCustomer() {
33     actor lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian[primary, active]
34     reuse lu.uni.lassy.excalibur.sep.g05.mike.usecases.sfAccessCustomerDatabase[1..1]
35     reuse lu.uni.lassy.excalibur.sep.g05.mike.usecases.sfSearchCustomer[1..1]
36     reuse lu.uni.lassy.excalibur.sep.g05.mike.usecases.sfInspectCustomer[1..1]
37     reuse lu.uni.lassy.excalibur.sep.g05.mike.usecases.sfReinstateCustomer[1..1]
38
39     step a: lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian executes
40             sfAccessCustomerDatabase()
41     step b: lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian executes sfSearchCustomer()
42     step c: lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian executes sfInspectCustomer()
43     step d: lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian executes sfReinstateCustomer
44             ()
45
46     ordering constraint "step a must be executed first"
47     ordering constraint "step b must be executed second"
48     ordering constraint "step c must be executed third"
49     ordering constraint "step d must be executed fourth"
50 }
51
52 use case system usergoal ugRequestCustomerBan() {
53     actor lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian[primary, active]
54     reuse lu.uni.lassy.excalibur.sep.g05.mike.usecases.sfAccessCustomerDatabase[1..1]
55     reuse lu.uni.lassy.excalibur.sep.g05.mike.usecases.sfSearchCustomer[1..1]
56     reuse lu.uni.lassy.excalibur.sep.g05.mike.usecases.sfInspectCustomer[1..1]
57     reuse lu.uni.lassy.excalibur.sep.g05.mike.usecases.sfRequestCustomerBan[1..1]
58
59     step a: lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian executes
60             sfAccessCustomerDatabase()
61     step b: lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian executes sfSearchCustomer()
62     step c: lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian executes sfInspectCustomer()
63     step d: lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian executes
64             sfRequestCustomerBan()
65
66     ordering constraint "step a must be executed first"
67     ordering constraint "step b must be executed second"
68     ordering constraint "step c must be executed third"
69     ordering constraint "step d must be executed fourth"
70 }
71
72 use case system usergoal ugRequestCustomerUnban() {
73     actor lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian[primary, active]
74     reuse lu.uni.lassy.excalibur.sep.g05.mike.usecases.sfAccessCustomerDatabase[1..1]
75     reuse lu.uni.lassy.excalibur.sep.g05.mike.usecases.sfSearchCustomer[1..1]

```

```

3 reuse lu.uni.lassy.excalibur.sep.g05.mike.usecases.sfInspectCustomer[1..1]
3 reuse lu.uni.lassy.excalibur.sep.g05.mike.usecases.sfRequestCustomerUnban[1..1]
3
3 step a: lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian executes
      sfAccessCustomerDatabase()
3 step b: lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian executes sfSearchCustomer()
3 step c: lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian executes sfInspectCustomer()
3 step d: lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian executes
      sfRequestCustomerUnban()
3
3 ordering constraint "step a must be executed first"
3 ordering constraint "step b must be executed second"
3 ordering constraint "step c must be executed third"
3 ordering constraint "step d must be executed fourth"
3 }
3
3 use case system usergoal ugSetNote() {
3 actor lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian[primary, active]
3 reuse lu.uni.lassy.excalibur.sep.g05.mike.usecases.sfAccessCustomerDatabase[1..1]
3 reuse lu.uni.lassy.excalibur.sep.g05.mike.usecases.sfSearchCustomer[1..1]
3 reuse lu.uni.lassy.excalibur.sep.g05.mike.usecases.sfInspectCustomer[1..1]
3 reuse lu.uni.lassy.excalibur.sep.g05.mike.usecases.sfSetNote[1..1]
3
3 step a: lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian executes
      sfAccessCustomerDatabase()
3 step b: lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian executes sfSearchCustomer()
3 step c: lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian executes sfInspectCustomer()
3 step d: lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian executes sfSetNote()
3
3 ordering constraint "step a must be executed first"
3 ordering constraint "step b must be executed second"
3 ordering constraint "step c must be executed third"
3 ordering constraint "step d must be executed fourth"
3 }
3
3 use case system usergoal ugAddBook() {
3 actor lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian[primary, active]
3 reuse lu.uni.lassy.excalibur.sep.g05.mike.usecases.sfAccessBookDatabase[1..1]
3 reuse lu.uni.lassy.excalibur.sep.g05.mike.usecases.sfAddBook[1..*]
3
3 step a: lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian executes
      sfAccessBookDatabase()
3 step b: lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian executes sfAddBook()
3
3 ordering constraint "step a must be executed first"
3 }
3
3 use case system usergoal ugRemoveBook() {
3 actor lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian[primary, active]
3 reuse lu.uni.lassy.excalibur.sep.g05.mike.usecases.sfAccessBookDatabase[1..1]
3 reuse lu.uni.lassy.excalibur.sep.g05.mike.usecases.sfRemoveBook[1..*]
3
3 step a: lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian executes
      sfAccessBookDatabase()
3 step b: lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian executes sfRemoveBook()
3
3 ordering constraint "step a must be executed first"
3 }
3
3 // use case system summary suDeployAndRun() {
3 // actor lu.uni.lassy.excalibur.sep.g05.mike.environment.actLibrarian[primary, active]
3 //
3 // reuse ugManagingLoans[0..*]
3 // reuse sfAccessCustomerDatabase[0..*]
3 //
3 // // step shit
3 //
3 // //ordering constraint
3 //
3 //

```

```
1 // }  
2 }  
3 }
```

Listing B.11: Messir Spec. file usecases.msr.



