Notes on Deliverable 1

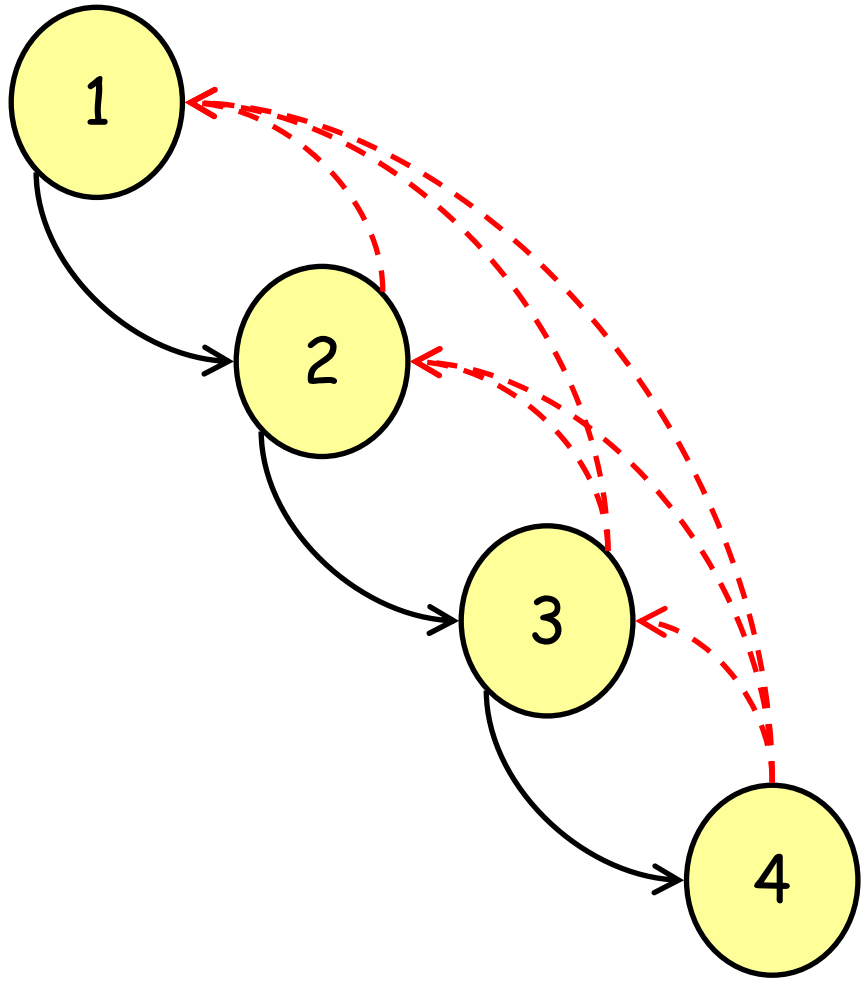
Massimo Felici

Steps Towards Deliverable 1

1. Gathering Requirements
   - Writing a Requirements Specification Document (e.g., see the VOLERE template)
2. Capturing functional requirements into Use Cases
   - Describe use cases by a Use Case Template
3. Modelling a preliminary system design into Class Diagrams
4. Validating your design by CRC cards

Steps Towards Deliverable 1

1. Requirements
2. Use Cases
3. Class Diagrams
4. Validation

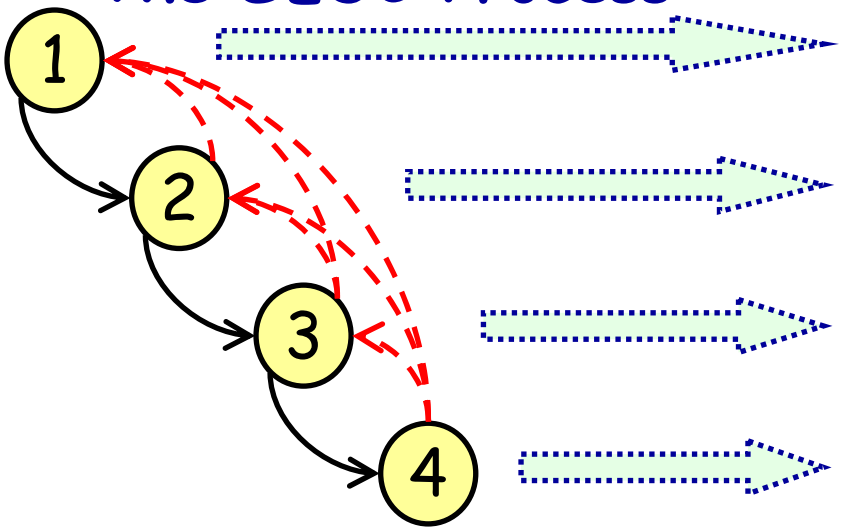


The SEOC Project Deliverable 1

1. Requirements Specification
2. Use Case Model
3. Class Model
4. Validation of Class Model
5. Deliverable Assessment

SEOC Activity Deliverables

The SEOC Process



Deliverable 1

- Requirements Specification
- Use Case Model
- Class Model
- Validation of Class Model
- Deliverable Assessment

Deliverable 1 Assessment

Deliverable 1

- Requirements Specification
- Use Case Model
- Class Model
- Validation of Class Model

Part 3 - Deliverable Marking Scheme

Deliverable Marking Scheme		
Deliverable Part	**Questions**	**Marks**
Requirements **Marks Limit: [20/100]**	**Q1.** Did you organise/collect the system requirements by using a Requirements Specification template (e.g., Volere)? Assess the quality of your Software Requirements Specification (SRS) document.	[/ 5]
	Q2. Did you distinguish different types of requirements (e.g., functional or non-functional)? Assess how your SRS identifies different types of requirements.	[/ 5]
	Q3. Do you believe you got most of the system requirements (requirements completeness)? Assess the extent to which you have elicited and gathered requirements from the main sources.	[/ 5]
	Q4. Have you identified/resolved conflicting requirements (requirements correctness)? Assess the extent to which you have resolved conflicting requirements among different types (e.g., functional and non-functional) or across teams.	[/ 5]
Use Cases **Marks Limit: [30/100]**	**Q5.** Did you graphically represent the functional requirements by Use Cases? Assess to which extent your use case diagram captures main system functionalities and actors.	[/ 10]
	Q6. Did you refine the use cases by generalization, include or extend relationships? Assess to which extent you have refined and structured use cases.	[/ 10]
	Q7. Did you use a template for describing use cases? Assess to which extent you have clarified and described use case information (completeness and correctness).	[/ 10]
Class Diagrams **Marks Limit: [30/100]**	**Q8.** Does your class diagram identify the main classes of the system? Assess to which extent your class diagram realizes system use cases.	[/ 10]
	Q9. Did you specify Attributes and Operations for each class? Assess the completeness of class specification.	[/ 10]
	Q10. Did you identify relationships (i.e., Dependency, Association, Aggregation, Composition and Inheritance or Generalization) between classes? Assess the object orientation quality of your class diagram.	[/ 10]
CRC Cards **Marks Limit: [20/100]**	**Q11.** Did you construct CRC cards for your system design? Assess the completeness and correctness of CRC cards.	[/ 10]
	Q12. Did you verify your Class Diagrams? Did you play any use case with the CRC Cards in order to verify your class diagram? Assess the quality and the coverage of your requirements and design verification by CRC cards.	[/ 10]
Deliverable Mark		[/100]

CARMATCH

CARMATCH Background

- CARMATCH is a franchising company that is being set up to promote car sharing
- Organizational goal: reduce carbon emissions
- CARMATCH seeks to promote car sharing
  - Matching potential car sharers
- CARMATCH consists of a three layer structure: (non-for-profit trust) global operation; national central operating company; local franchises
- In some countries, it offers insurances
- Main Profits: membership fees, consultancies, insurance commissions
- CARMATCH needs (has the requirements for) a computer system that can be used by its franchisees

CARMATCH Requirements

1. To develop a system that will hold information about members of the CARMATCH scheme
2. To match members up with other members as car sharers
3. To record insurance sales
4. To record details of potential and actual consultancy in the area of operation
5. The system must be capable of future expansion to incorporate information about toll and road-pricing and equipment sold to and installed for members

CARMATCH Requirements Specification

The ..... System
Requirements Specification
Version ...

Table of Contents

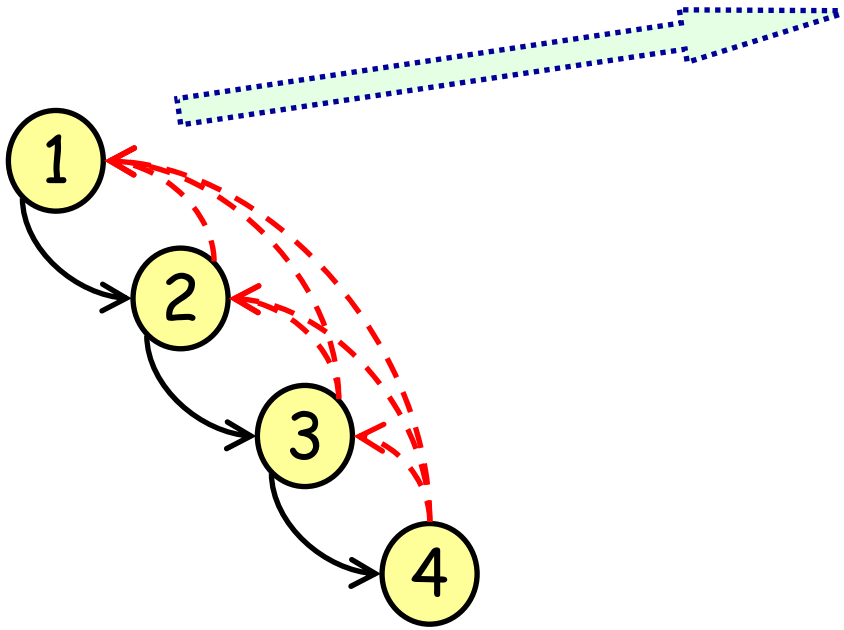
- **Project Drivers**
  - CARMATCH background
  - CARMATCH organization, Local governments, EU?, Locan franchises, car sharers, etc.
  - System Users?
- **Project Constraints**
  - Budget, Deadlines, Laws, etc.?
- **Functional Requirements**

1. To hold information about members
   1. 1
   2. 2
   3. 3
2. To match car sharers
3. To record insurance sales
4. To record details consultancies

- **Non-functional Requirements**
- **Project Issues**

© 2004-2008

Requirements Specification



CARMATCH Requirements Specification

The ..... System
Requirements Specification
Version ...

Table of Contents

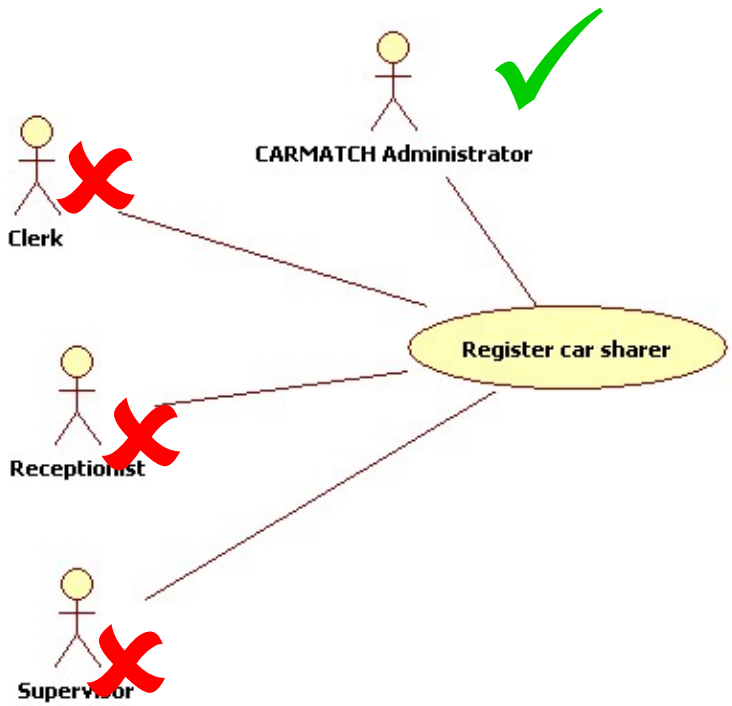
Specification prepared by ..... Date .....

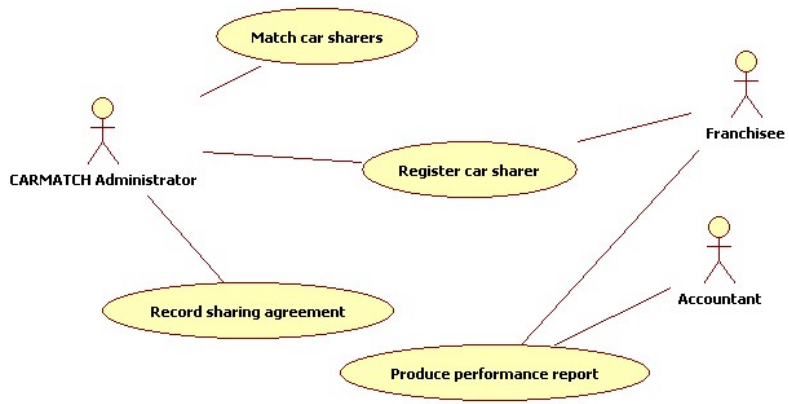
- **Project Drivers**
  - CARMATCH background
  - CARMATCH organization, Local governments, EU?, Locan franchises, car sharers, etc.
  - System Users?
- **Project Constraints**
  - Budget, Deadlines, Laws, etc.?
- **Functional Requirements**

1. To hold information about members
   1. 1
   2. 2
   3. 3
2. To match car sharers
3. To record insurance sales
4. To record details consultancies

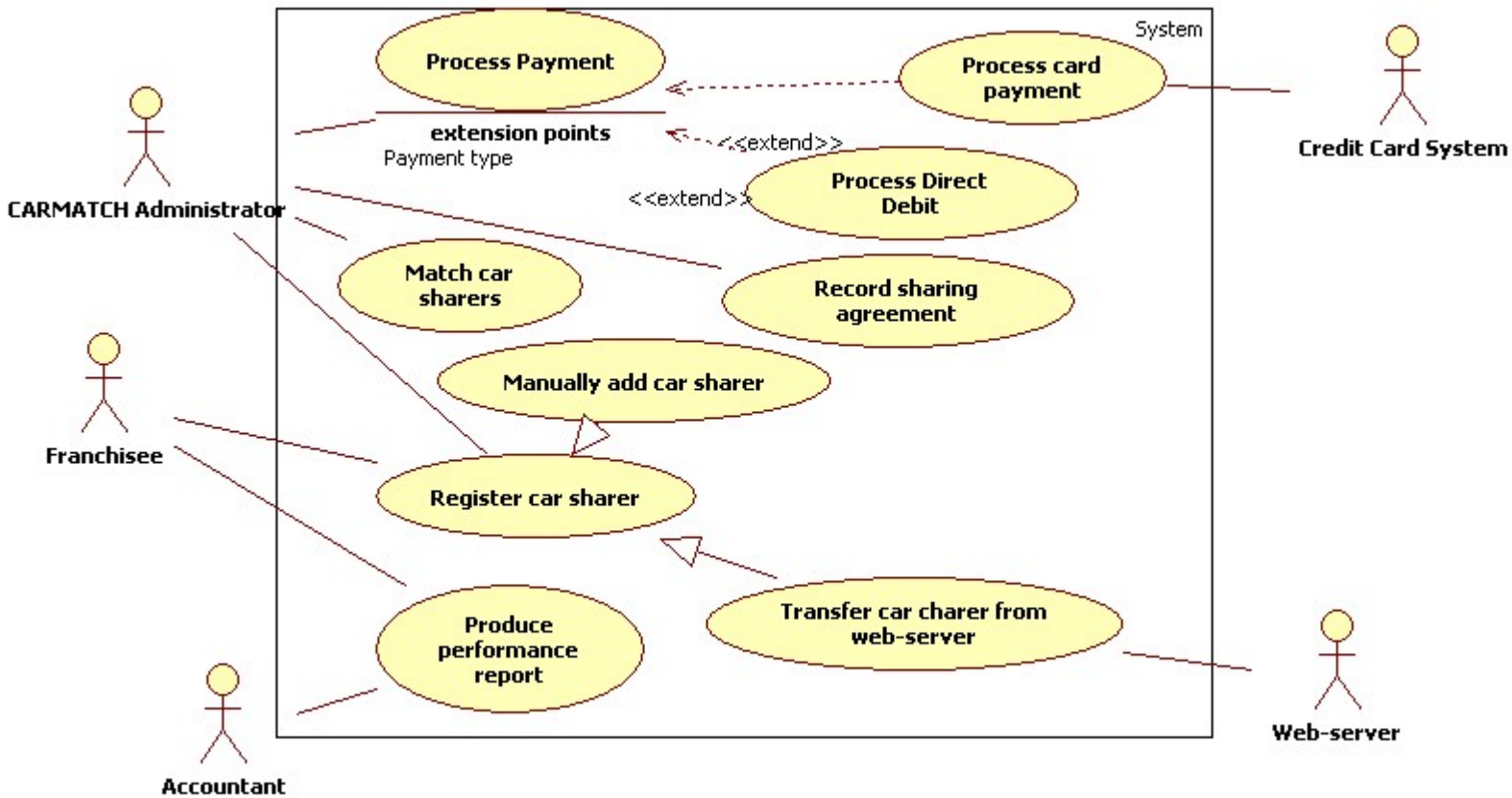
- **Non-functional Requirements**
- **Project Issues**

CARMATCH Actors and Use Cases





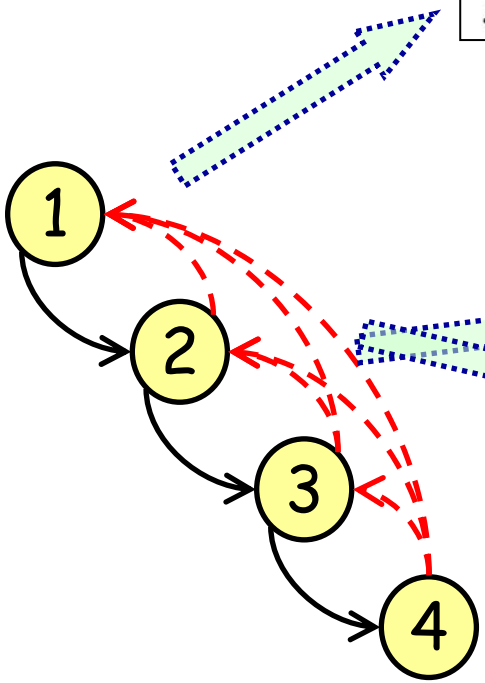
CARMATCH System Use cases



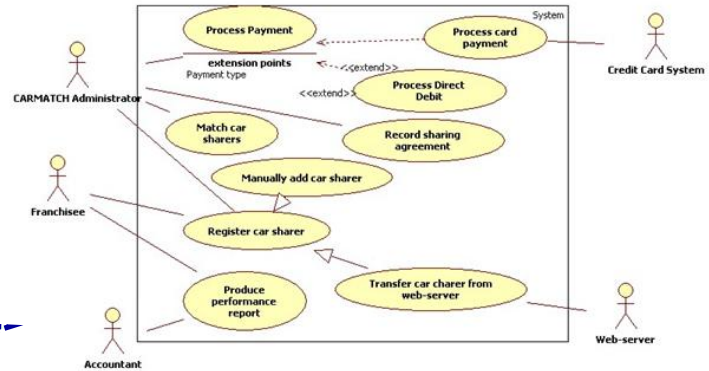
CARMATCH Use Case Description

Use Case: Register car sharer
Description: The registration of the car sharer information and the association with a membership number
Actors: CARMATCH Administrator, Car sharer
Assumptions: the CARMATCH Administrator has to confirm information, and the car sharer has to accept CARMATCH policy
Steps: 1. The CARMATCH Administrator enters name, address and all requested (mandatory) information of the car sharer in system entry window 2. The CARMATCH Administrator enters sharing information (e.g., time, starting address, car type, etc.) 3. …
Variations (optional): any variations in the steps of a use case
Non-Functional (optional): List of non-functional requirements that the use case must meet.
Issues: List of issues that remain to be solved

Use Cases



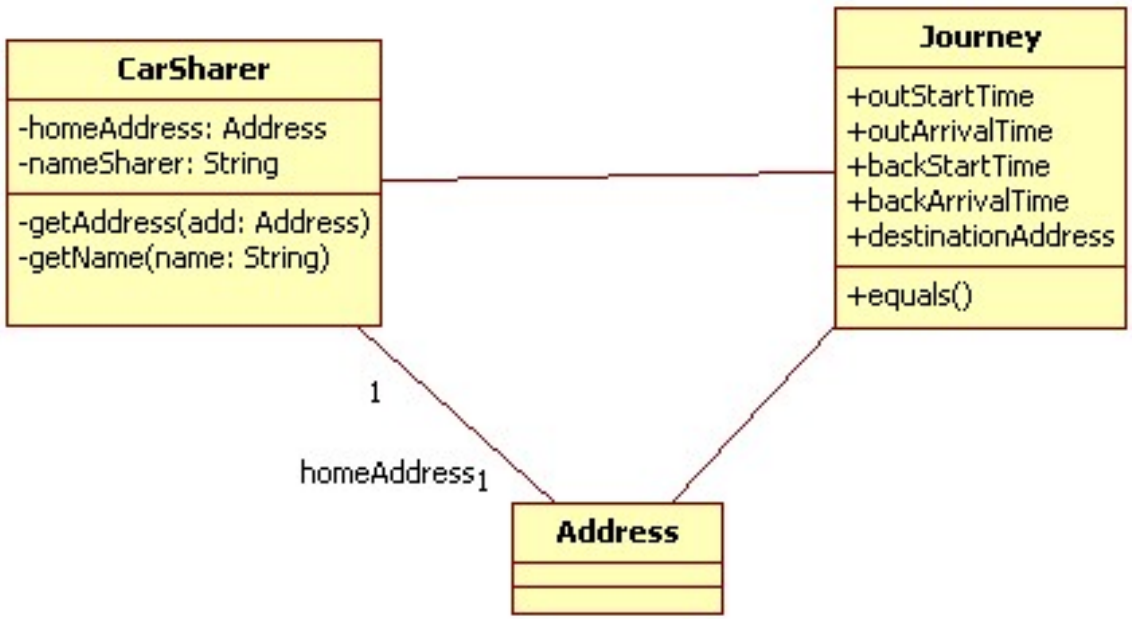
CARMATCH System Use cases



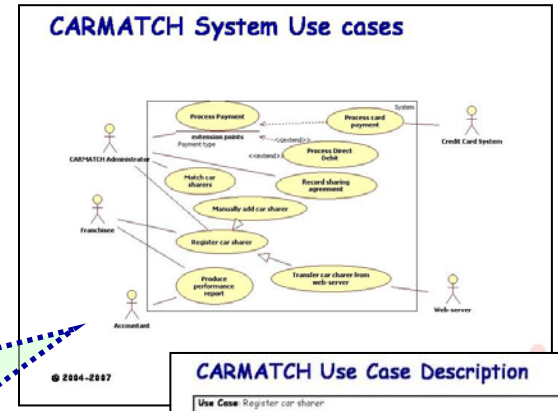
CARMATCH Use Case Description

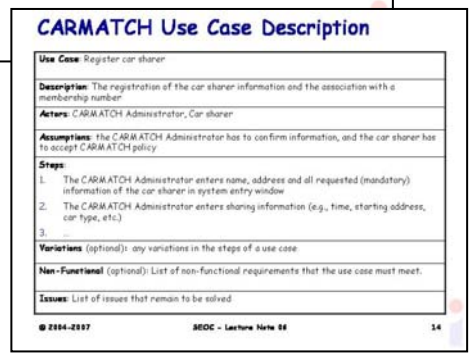
Use Case: Register car sharer
Description: The registration of the car sharer information and the association with a membership number
Actors: CARMATCH Administrator, Car sharer
Assumptions: the CARMATCH Administrator has to confirm information, and the car sharer has to accept CARMATCH policy
Steps: 1. The CARMATCH Administrator enters name, address and all requested (mandatory) information of the car sharer in system entry window 2. The CARMATCH Administrator enters sharing information (e.g., time, starting address, car type, etc.) 3. ...
Variations (optional): any variations in the steps of a use case
Non-Functional (optional): List of non-functional requirements that the use case must meet.
Issues: List of issues that remain to be solved

CARMATCH Class Diagram



Class Diagram





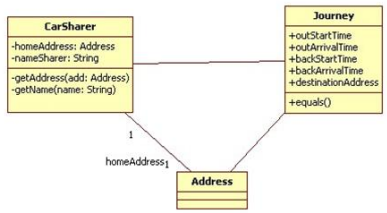
1

2

3

4

CARMATCH Class Diagram



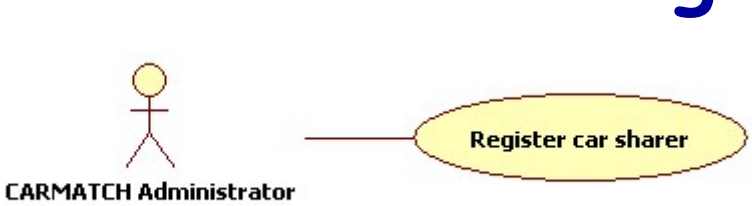
CARMATCH Validation

carSharer	
Record personal information	
Record Address	Address
Record Journeys	Journey

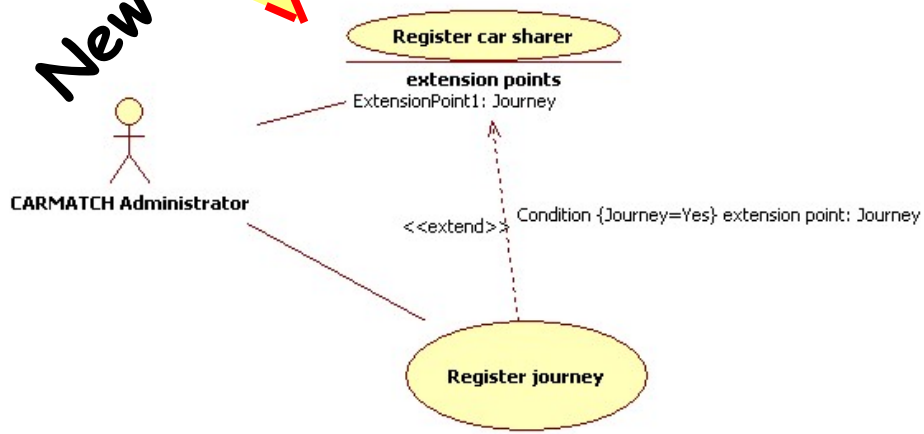
Journey	
Record journey Times	Address
Record journey Addresses	
Find journey matches	

Address	
Record Address	

CARMATCH: Register car sharer



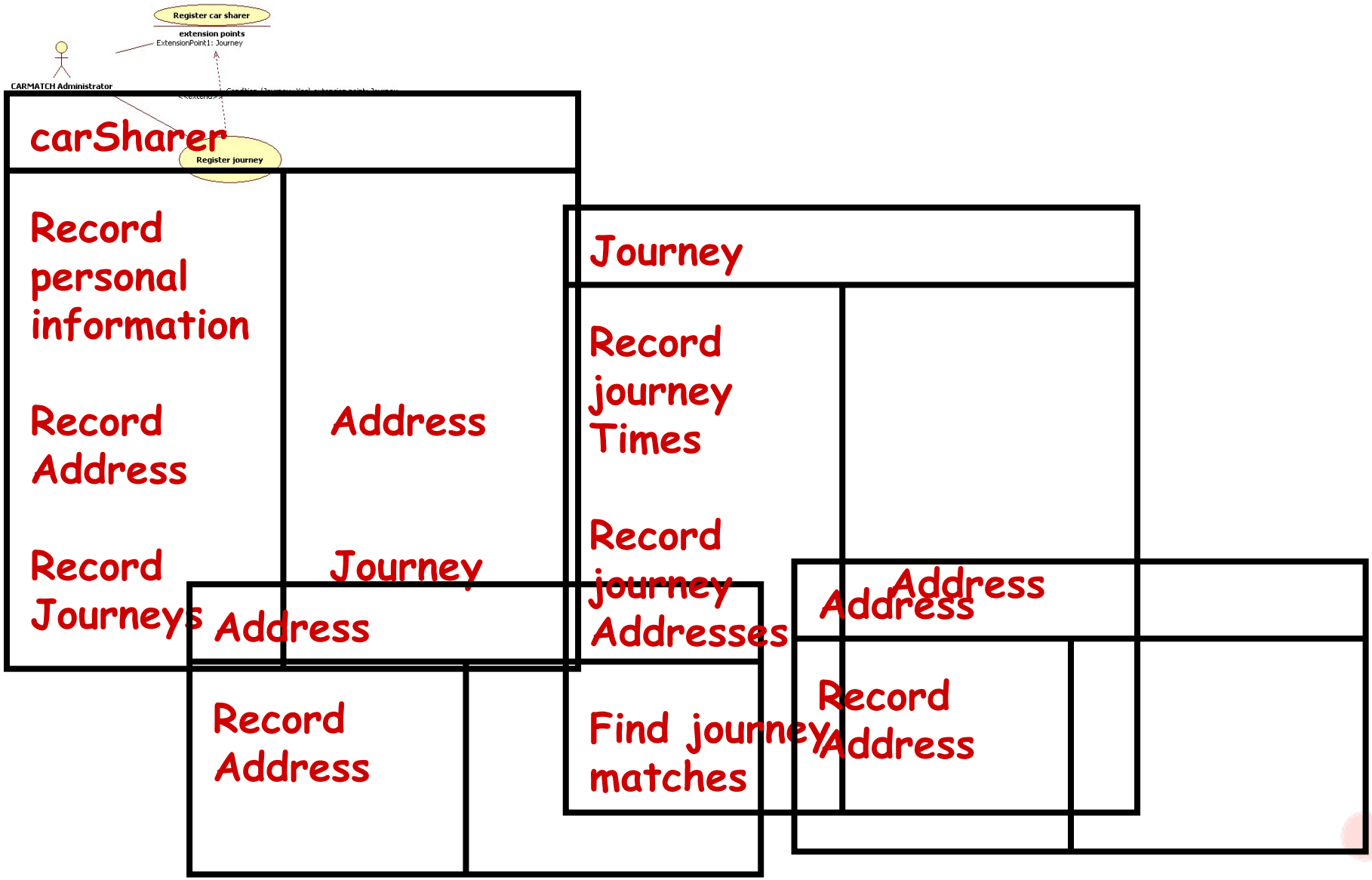
New Use Case



carSharer	
Record personal information	
Record Address	Address
Record Journeys	Journey

Address	
Record Address	

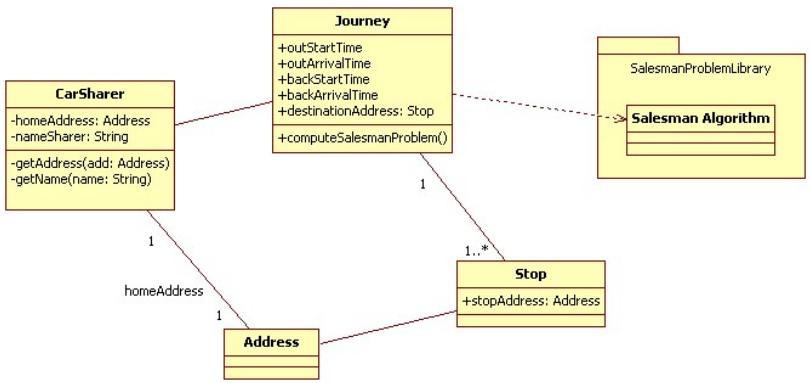
CARMATCH: Register Journey

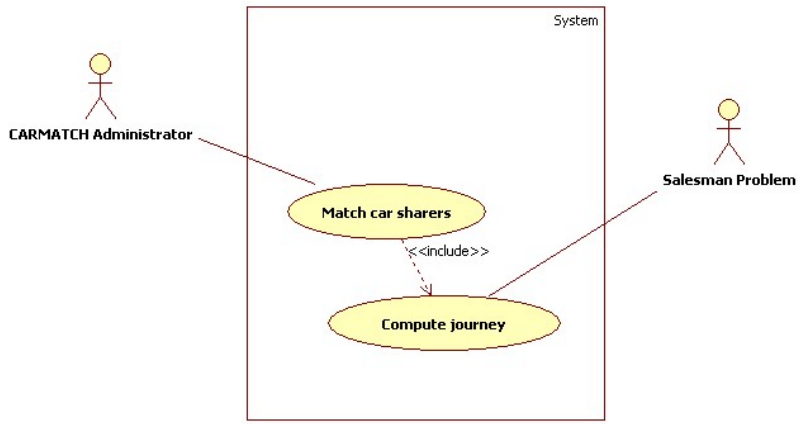


CARMATCH new requirements

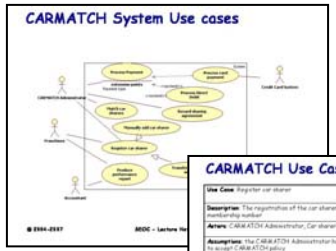
- Efficiency: maximize the combination of journeys by combining multiple stops (i.e., journeys)
- Note that it is a non-functional requirements
- Are there any implications? How does it affect your preliminary design?

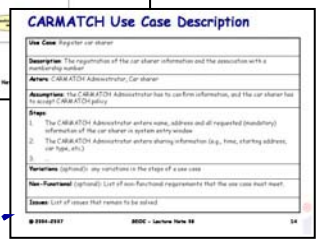
CARMATCH Changes

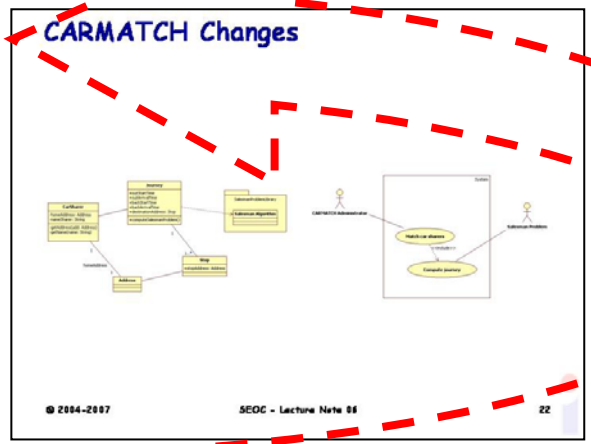


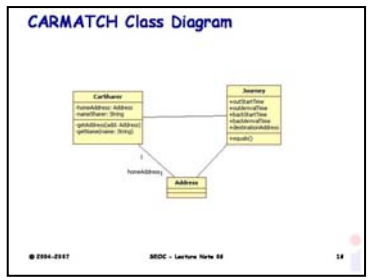


CARMATCH validation







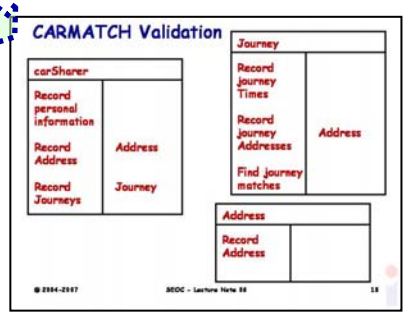


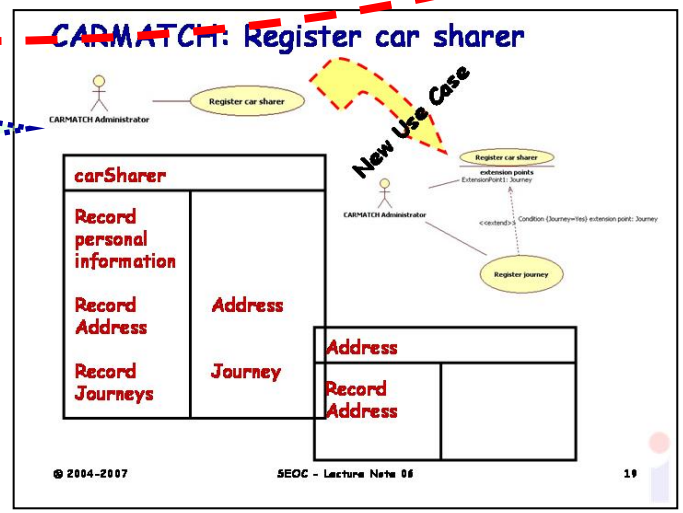
1

2

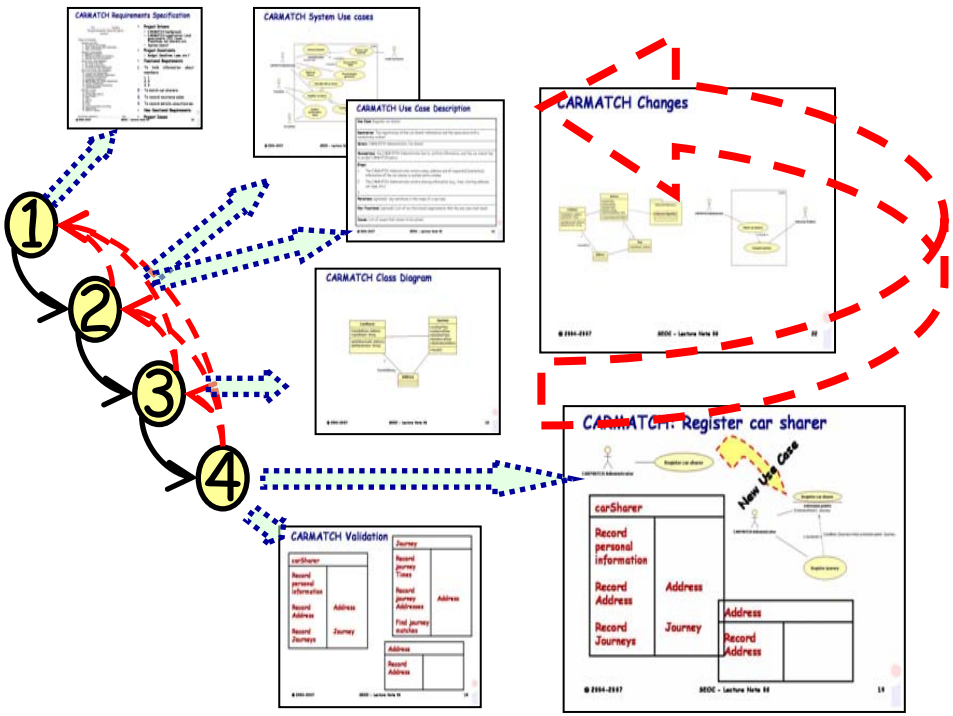
3

4





Assessment



Part 3 - Deliverable Marking Scheme

Deliverable Marking Scheme		
Deliverable Part	**Questions**	**Marks**
Requirements **Marks Limit: [20/100]**	**Q1.** Did you organise/collect the system requirements by using a Requirements Specification template (e.g., Volere)? Assess the quality of your Software Requirements Specification (SRS) document.	[/ 5]
	Q2. Did you distinguish different types of requirements (e.g., functional or non-functional)? Assess how your SRS identifies different types of requirements.	[/ 5]
	Q3. Do you believe you got most of the system requirements (requirements completeness)? Assess the extent to which you have elicited and gathered requirements from the main sources.	[/ 5]
	Q4. Have you identified/resolved conflicting requirements (requirements correctness)? Assess the extent to which you have resolved conflicting requirements among different types (e.g., functional and non-functional) or across teams.	[/ 5]
Use Cases **Marks Limit: [30/100]**	**Q5.** Did you graphically represent the functional requirements by Use Cases? Assess to which extent your use case diagram captures main system functionalities and actors.	[/ 10]
	Q6. Did you refine the use cases by generalization, include or extend relationships? Assess to which extent you have refined and structured use cases.	[/ 10]
	Q7. Did you use a template for describing use cases? Assess to which extent you have clarified and described use case information (completeness and correctness).	[/ 10]
Class Diagrams **Marks Limit: [30/100]**	**Q8.** Does your class diagram identify the main classes of the system? Assess to which extent your class diagram realizes system use cases.	[/ 10]
	Q9. Did you specify Attributes and Operations for each class? Assess the completeness of class specification.	[/ 10]
	Q10. Did you identify relationships (i.e., Dependency, Association, Aggregation, Composition and Inheritance or Generalization) between classes? Assess the object orientation quality of your class diagram.	[/ 10]
CRC Cards **Marks Limit: [20/100]**	**Q11.** Did you construct CRC cards for your system design? Assess the completeness and correctness of CRC cards.	[/ 10]
	Q12. Did you verify your Class Diagrams? Did you play any use case with the CRC Cards in order to verify your class diagram? Assess the quality and the coverage of your requirements and design verification by CRC cards.	[/ 10]
Deliverable Mark		[/100]