

Appendix B: The Questionnaire of Experiment #1: Evaluating Semi-automatic Domain Models (SDM) in Comparison to Human-made Domain Models

Below you may find a Project Management domain description, followed by an ADOM model which was automatically generated by generalizing 4 applications in the domain. **All the questions in this questionnaire refer to this automatically generated model.** For better understanding the domain, two human-made models of the Project Management domain are attached as annexes: annex A contains a model created through reviewing the domain literature and studying relevant ontologies (this model will be termed *user model* for short), while annex B includes a model designed after processing reverse-engineering techniques on open source applications in the domain (this model will be termed *code model* for short).

The questionnaire includes two parts. In Part A, you will be asked to map the automatically generated domain model elements to the other two (human-made) domain models, the user model and the code model. In Part B, you will be asked to grade (and justify) the automatically generated domain model, on a scale from 1 to 5, such that 5 will be the highest grade and 1 will be the lowest grade.

Thanks for your cooperation.

Please fill your personal and background information below.

Full Name:

Year: _____ in the MIS faculty

Additional studies (other academic degrees, non-academic courses relevant to modeling and software engineering fields)

Please estimate your knowledge regarding modeling, analysis, and design (grade 1-10)

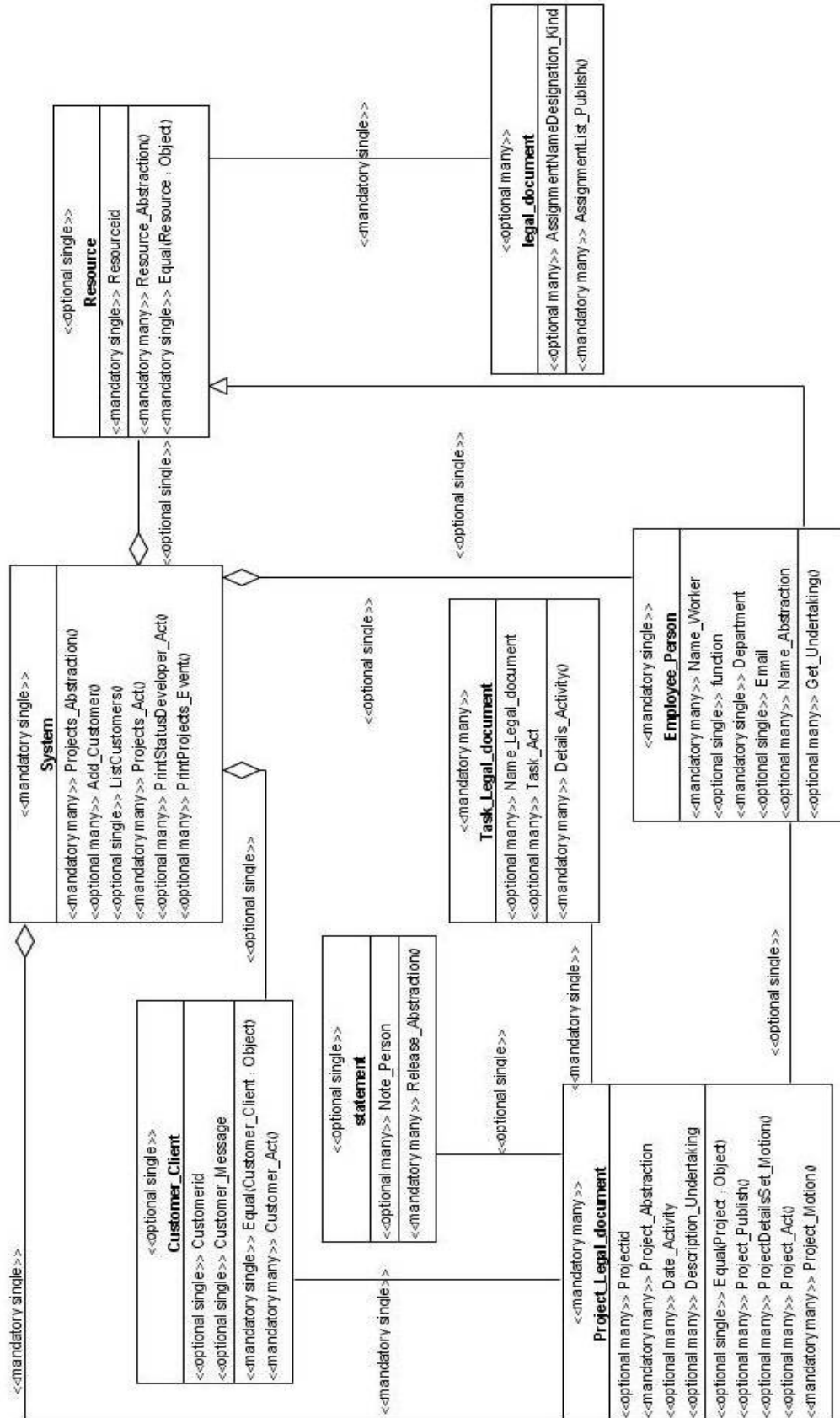
Please estimate your knowledge regarding programming and systems development (grade 1-10) _____

Please provide details regarding your practice in relevant fields (systems modeling, analysis and design)

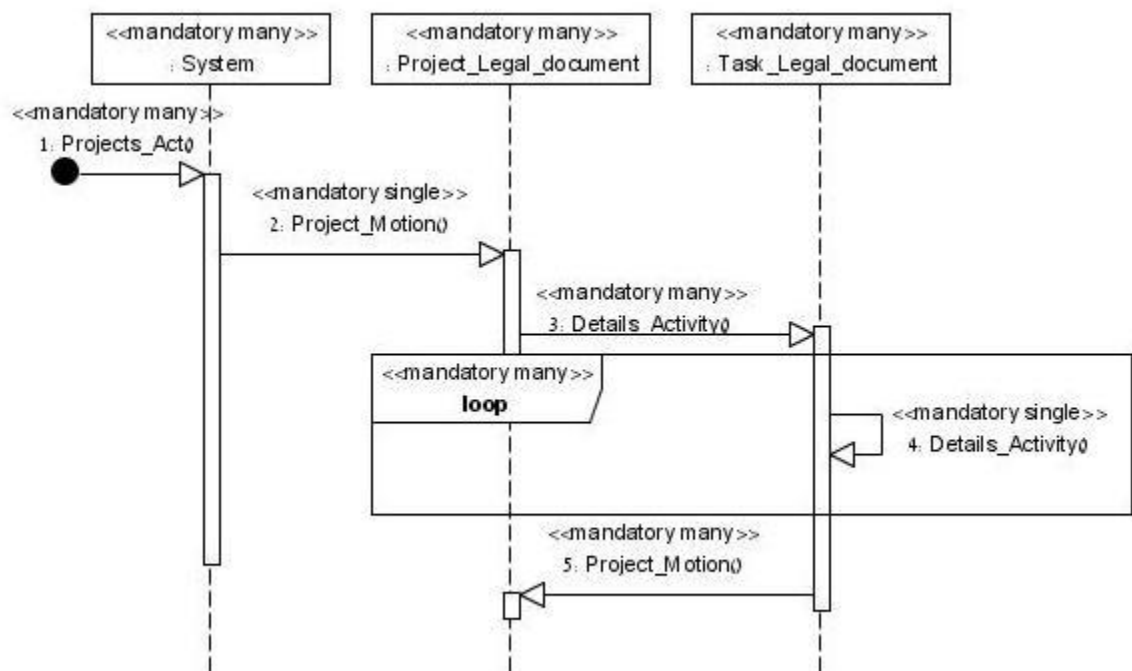
The Project Management Domain

Project management is the application of knowledge, skills, tools, and techniques to a broad range of activities in order to meet the requirements of the particular project. A project is a temporary endeavor undertaken to achieve a particular aim. Managing projects successfully requires balancing and combining available resources effectively. The purpose of project management is to foresee or predict as many of the dangers and problems as possible and to plan organize and control activities so that projects are completed successfully in spite of all the risks. The primary aim of the project manager is to satisfy the project sponsor or purchaser and all the other principal stakeholders, within the promised timescale and budget that were originally set aside or budgeted.

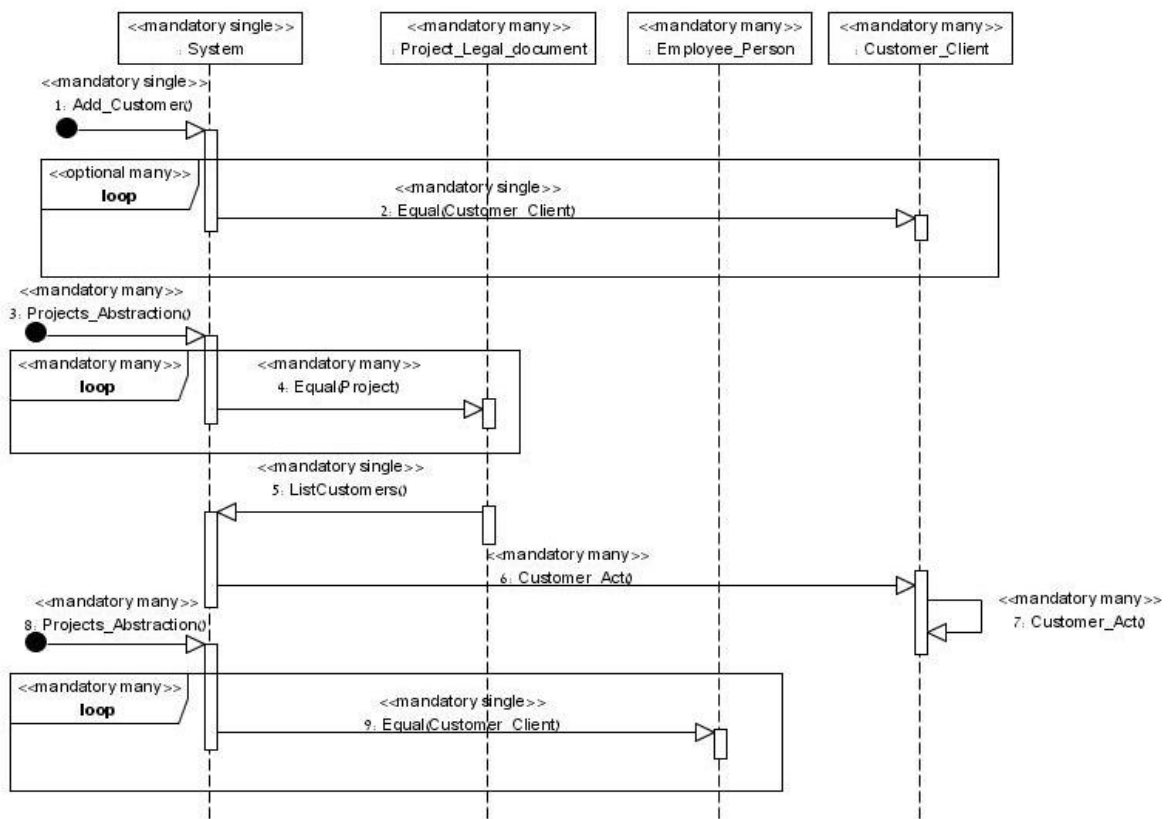
Automatically generated Class Diagram:



Automatically generated sequence diagram: a scheduling scenario



Automatically generated sequence diagram: Adding information



Part A: You are kindly requested to map the core elements (classes, lifelines, messages) of the automatically generated domain model to those of the two other models. Try to map additional elements, such as attributes, operations and relations, as well. Non-trivial mappings should be explicitly explained (use the other side of this page for this purpose).

Class Diagram:

Automatic Model	User Model	Code Model
Customer_Client		
Statement		
Project_Legal_document		
System		
Task_Legal_Document		
Resource		
Legal_document		
Employee_Person		
...		

Sequence Diagrams:

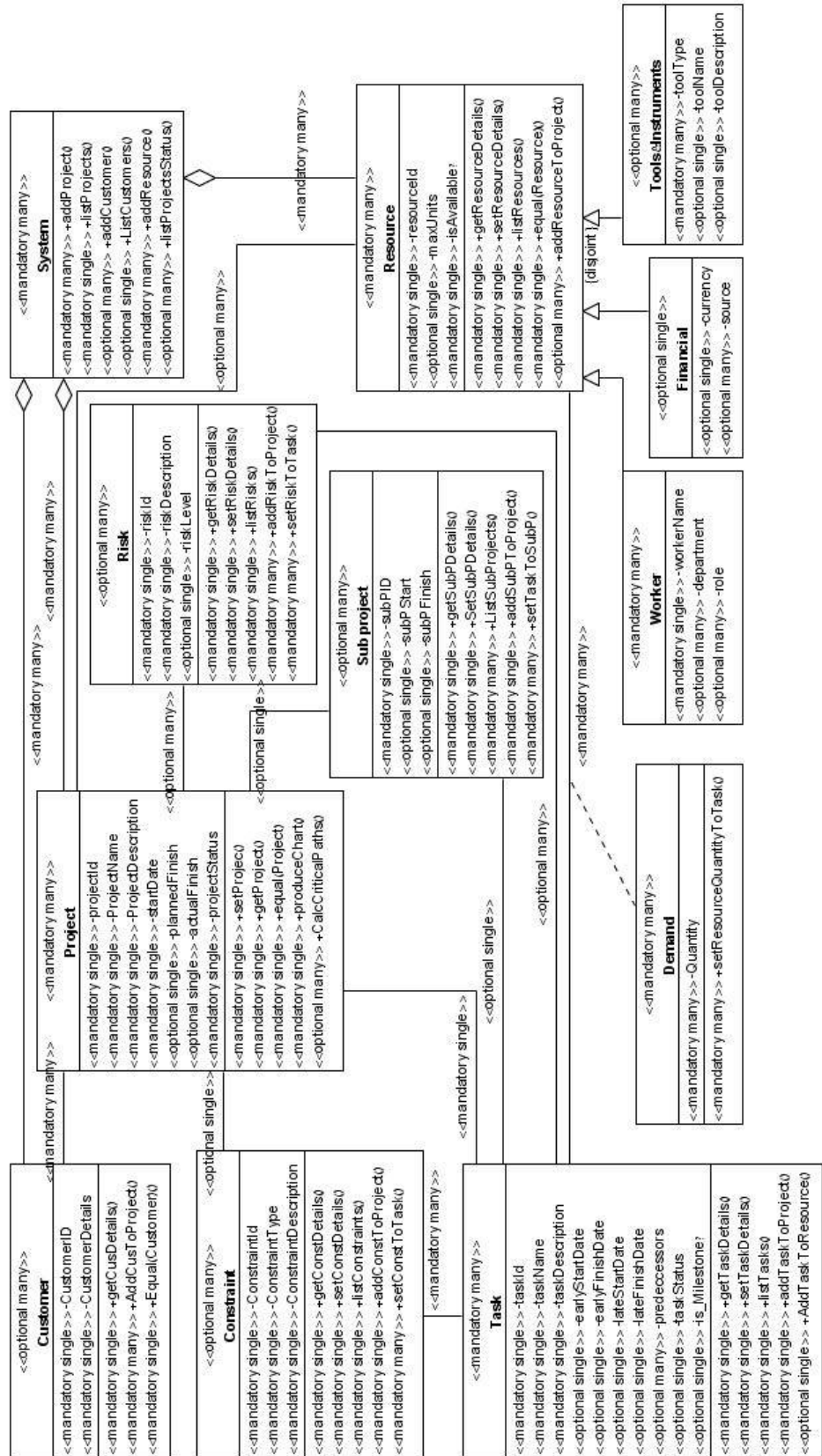
Automatic Model	User Model	Code Model
System		
Project_Legal_document		
Task_Legal_Document		
Projects_Act()		
Project_Motion()		
Details_Activity()		
Employee_Person		
Customer_Client		
Add_Customer()		
Equal (Customer_Client)		
Projects_Abstraction()		
Equal (Project)		
ListCustomers()		
Customer_Act()		
...		

Part B: For each of the following questions, you are kindly requested to grade the automatically generated model of the Project Management domain from 1 (the lowest grade) to 5 (the highest grade). You are also asked to provide a justification for your choice (use the other side of the page for this purpose).

Criterion	Class diagram	Sequence diagram
1. Is the model syntactically correct (in the context of UML)?		
2. Does the model include all core elements? (In the class diagram, the core elements are classes; in the sequence diagrams, core elements are lifelines and messages).		
3. Does the model include all other (secondary) elements? (In the class diagram, the secondary elements are classes; in the sequence diagrams, the secondary elements are combined fragments and messages order).		
4. To what extent is the model redundant (5 means “very redundant”)? Redundant elements are those that, to the best of your knowledge, are not relevant to the domain.		
5. To what extent are the diagrams consistent? In other words, to the best of your understanding, can the sequences be derived from the different classes’ operations?		
6. To what extent has the algorithm recognized correctly elements that should appear in all applications as opposed to optional ones? (mandatory vs. optional)		
7. To what extent has the algorithm recognized correctly elements that can appear at most once as opposed to elements that can appear an unlimited number of times? (many vs. single)		
8. Is the abstraction level of the automatically generated model satisfactory? Refer both to the elements and their names.		
9. Give an overall grade to the model. Refer to completeness, consistency, correctness, and redundancy aspects of the model.		

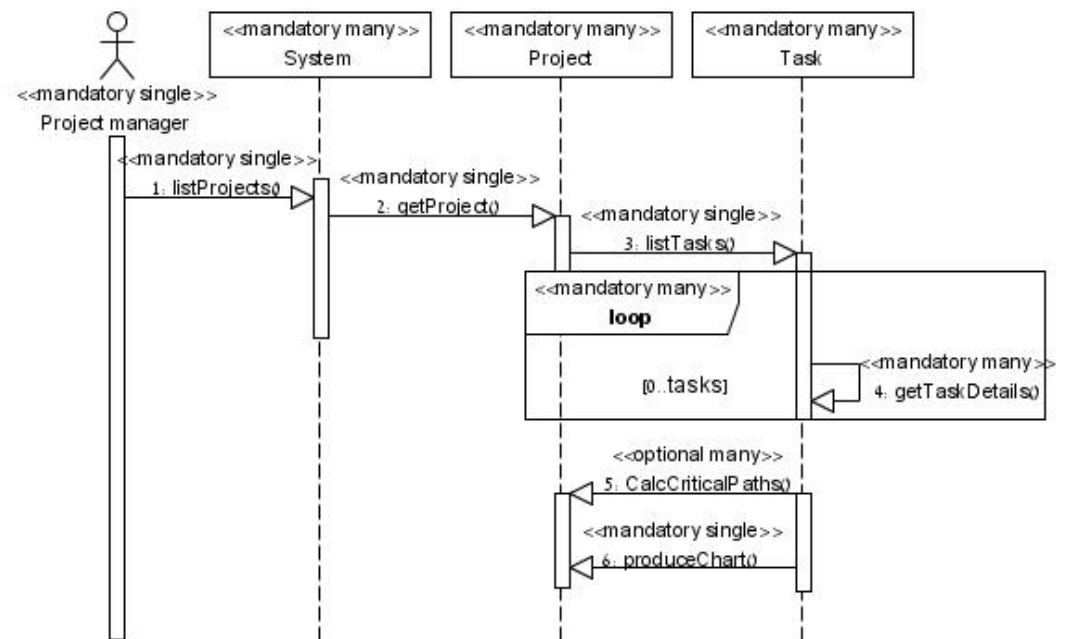
Annex A: The user model of the Project Management Domain

Class diagram

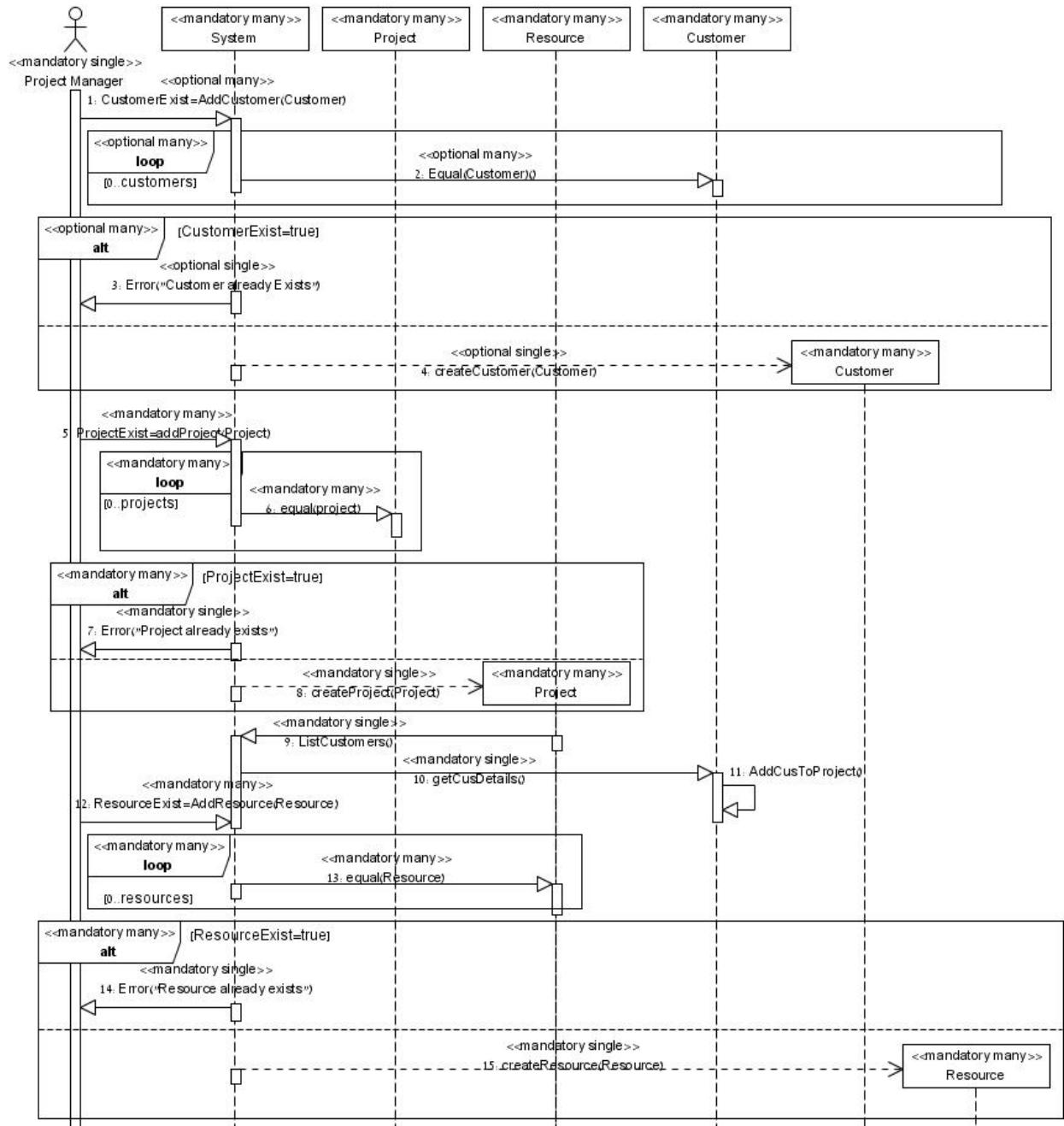


Sequence diagrams

Critical path in Production

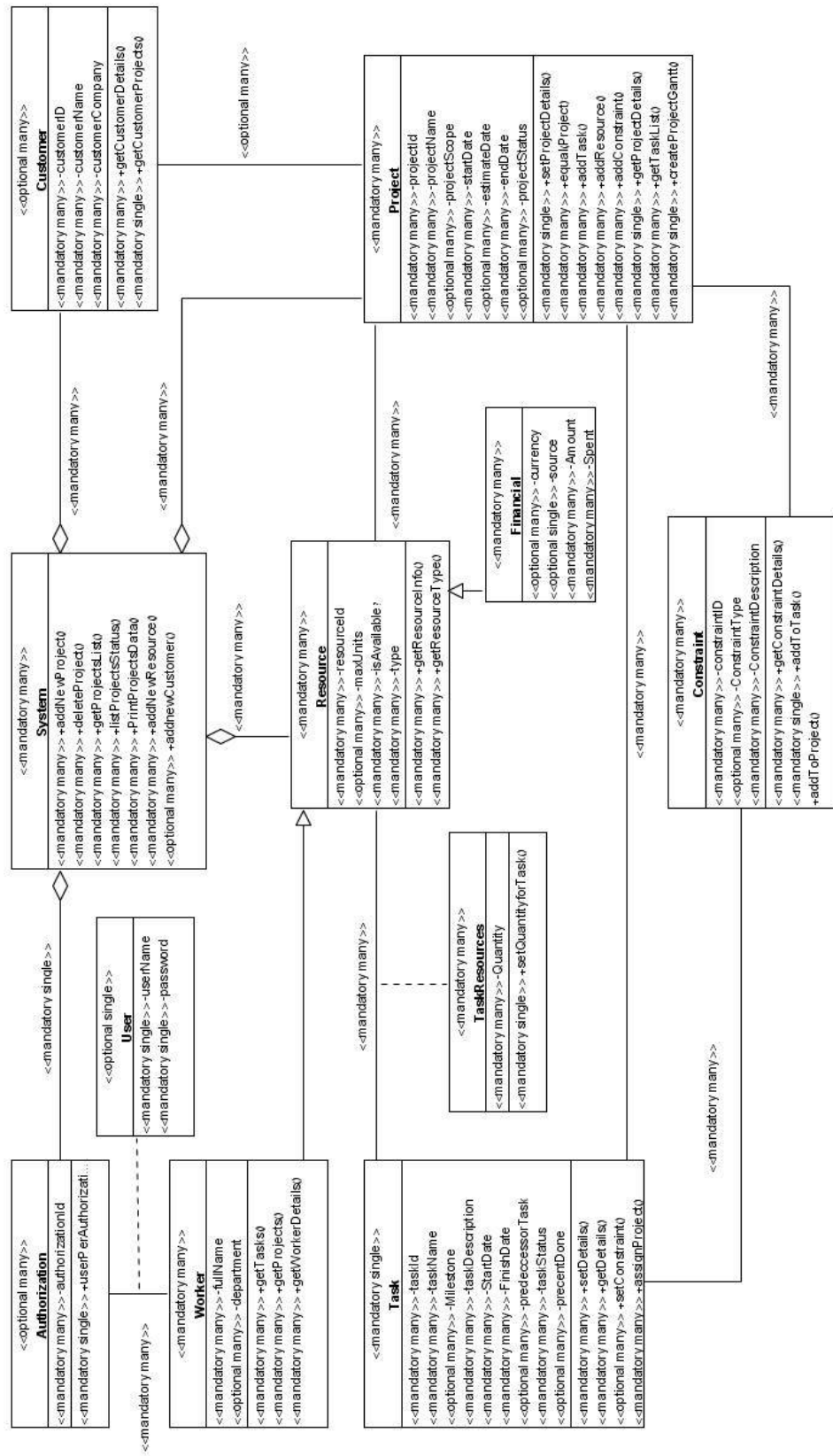


Adding a new project



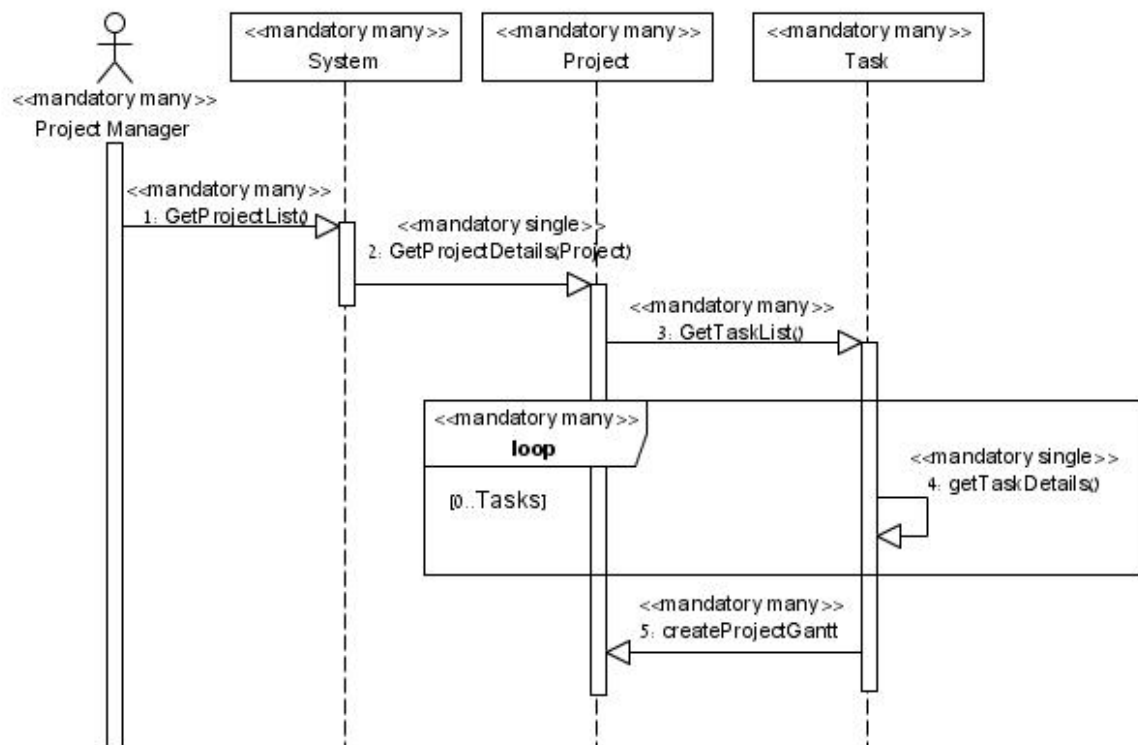
Annex B: The code model of the Project Management Domain

Class diagram



Sequence diagrams

Scheduling process



Adding a new project

