

Appendix C: The Questionnaire of Experiment #2: Evaluating Semi-automatic Domain Models (SDM) in Comparison to Ontologies

Below you may find a model of a Scheduling domain, represented by a class diagram in ADOM. The main purpose of this domain is allocating resources and/or products, satisfying multiple constraints. The model was generated using a Semi-automated Domain Modeling (SDM) tool. We have run the SDM tool on the following thirteen different application models: (1) *Employee Shift Scheduler (ESS)*, which schedules employees to shifts according to the organization needs and employees preferences; (2) *Galglim 2000*, which manages automobile fleet and conveyances; (3) *Gilboa*, which handles scheduling lecturers and students to courses; (4) *Giraffe*, which enables forecasting and planning production resources demands at a production line; (5) *OddJob*, which schedules tasks in a business-oriented network; (6) *JDRing*, which handles abnormalities alarm; (7) *eTicket*, which enables a convenient service requests management through an email or an Internet site; (8) *Standard Time*, which enables resources planning for large groups of users and projects; (9) *Supervisor*, which supports effective and uniform standard recruitment, scheduling and placement of supervisors; (10) *QAManager*, which enables software QA management and follow-ups, its versions, resources, and relevant data; (11) *eHour*, which is used for controlling human-hours invested within a project; (12) *XPlanner*, which supports development project planning and follow-up control; and (13) *Task Blocks*, which enables tasks scheduling and projects management.

All the questions in this questionnaire refer to this SDM-generated model. The questionnaire includes 3 parts, to be answered in the order of appearance (each part should be submitted separately):

In Part A, you are requested to evaluate the relevancy of the SDM-generated model to the domain of scheduling.

In Part B, you are asked to map the SDM-generated model elements to a widely-used ontology of the domain of discourse, and vice versa.

Finally, in Part C, you are requested to evaluate the quality and usefulness of the SDM-generated domain model.

Thank you for your cooperation.

Please fill your personal and background information below.

Full Name:

Year: _____ in the MIS faculty

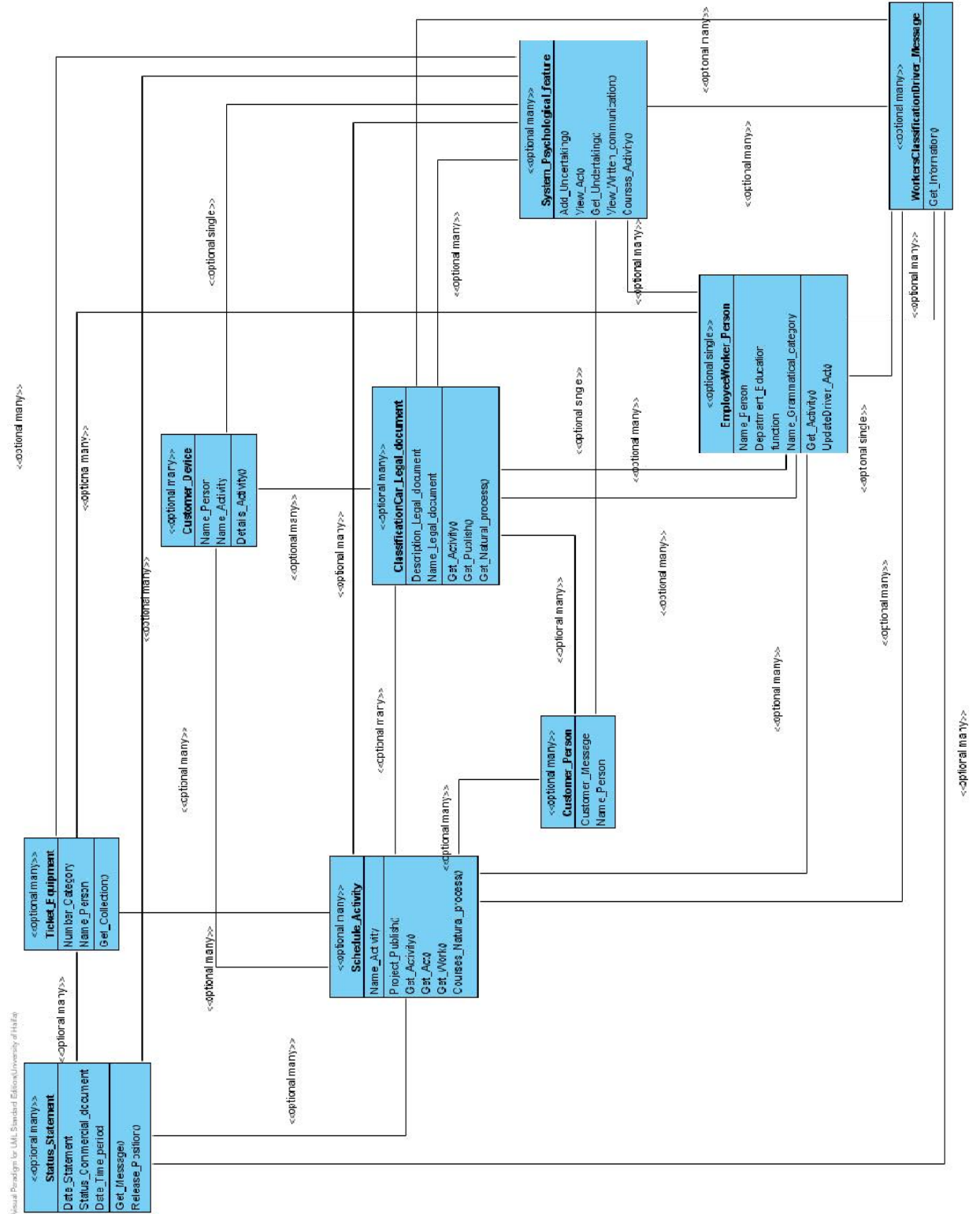
Additional studies (other academic degrees, non-academic courses relevant to modeling and software engineering fields)

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)

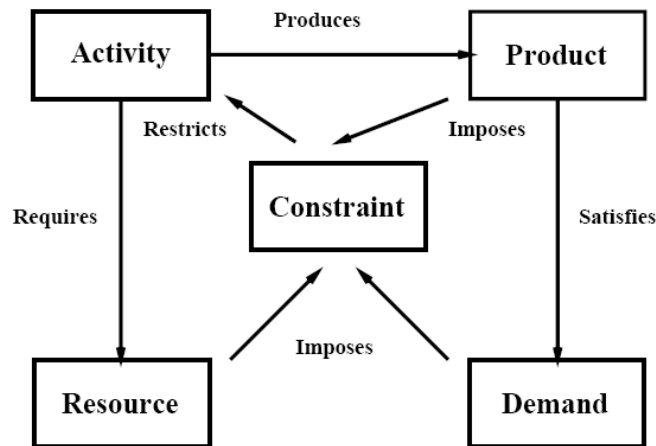
The SDM-generated Model of the Scheduling Domain



Part A: For each core element (class) of the SDM-generated model evaluate its relevancy to the scheduling domain and justify your evaluation (which specific characteristics are relevant and which are not?). If the element is relevant, try to find a more meaningful name for it. Try to map the secondary elements, e.g. attributes, operations, and associations, as well.

The name of an element in the SDM-generated model	Relevant to the domain?	Explanations + more meaningful name
ClassificationCar_Legal_document		
Customer_Device		
Customer_Person		
EmployeeWorker_Person		
Schedule_Activity		
Status_Statement		
System_Psychological_Feature		
Ticket_Equipment		
...		

Part B: The OZONE ontology defines the Scheduling domain terminology. Below you can find the Ozone ontology model, which describes the main concepts in the domain and relations among them.



Map the elements (classes + associations) from the SDM-generated domain model to concepts in the OZONE ontology, and vice versa.

Mapping SDM model elements to the OZONE ontology:

An element name in the SDM model	Relevant elements in the Ozone ontology
ClassificationCar_Legal_document	
Customer_Device	
Customer_Person	
EmployeeWorker_Person	
Schedule_Activity	
Status_Statement	
System_Psychological_feature	
Ticket_Equipment	
...	

Mapping the OZONE ontology to SDM model elements:

An Element name in the Ozone ontology	Relevant elements in the SDM model
Activity	
Product	
Demand	
Resource	
Constraint	
...	

Part C: For each of the following questions, you are kindly requested to grade the SDM-generated model from 1 (the lowest grade) to 5 (the highest grade). You are also asked to provide a justifications for your choices.

Criterion	Grade	Explanation
1. Is the model syntactically correct (with respect to UML)?		
2. To what extent is the model complete (i.e., includes all core elements)? Use the ontology and your knowledge regarding the domain for answering this question.		
3. 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.		
4. To what extent has the tool recognized correctly mandatory elements, as opposed to optional ones?		
5. To what extent has the tool recognized correctly “single” elements, as opposed to “many” ones?		
6. Is the abstraction level of the SDM-generated model satisfactory? Refer both to the elements and their names.		
7. Give an overall grade to the model. Refer to completeness, correctness, and redundancy aspects of the model.		