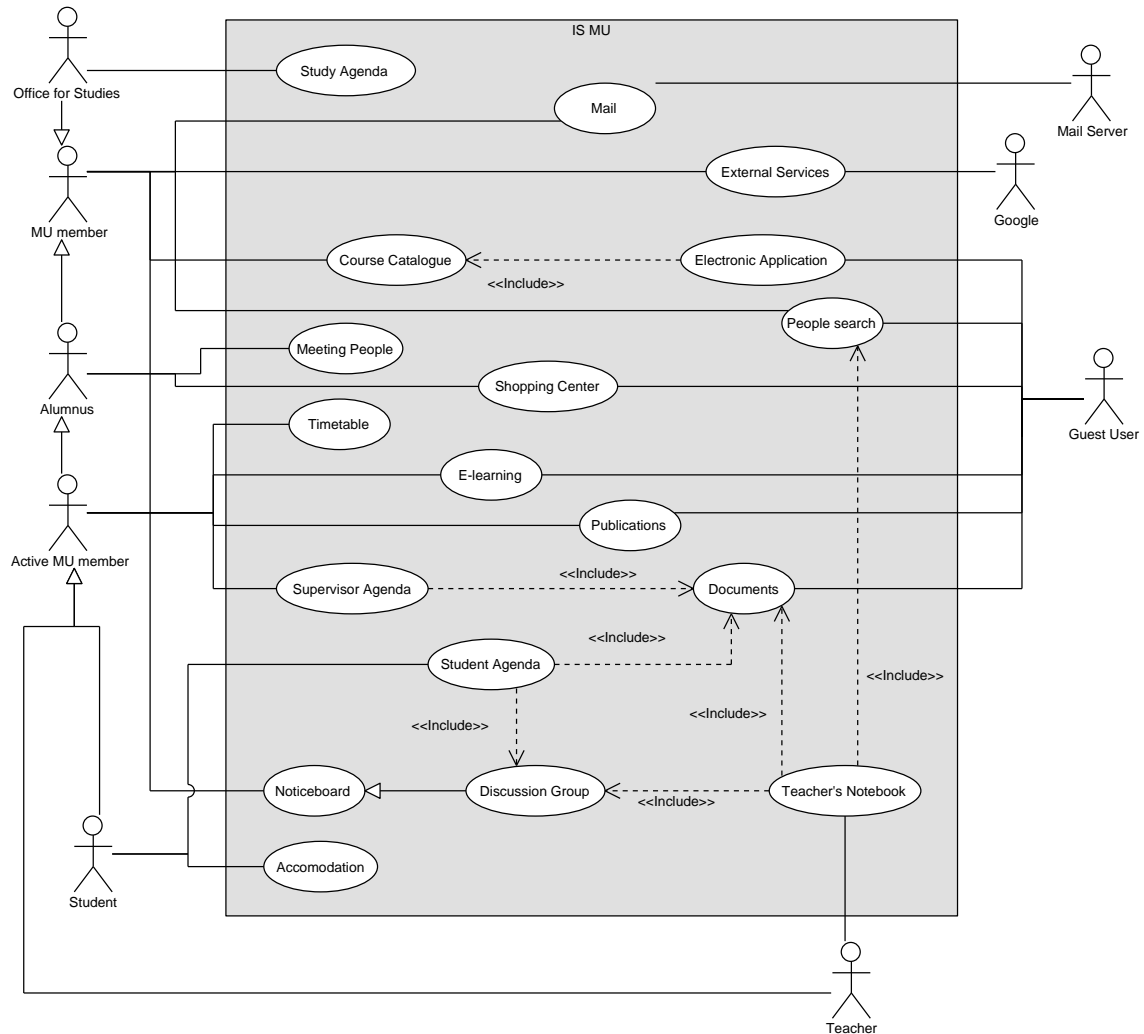


IS MU - PV167 Project

Faculty of Informatics
Radek Oslejsek

Use Case Diagram Overview
















Hala 422551
Bocanova 422450












Name	Value
Name	Overview
Show Information Item Option	2

Summary

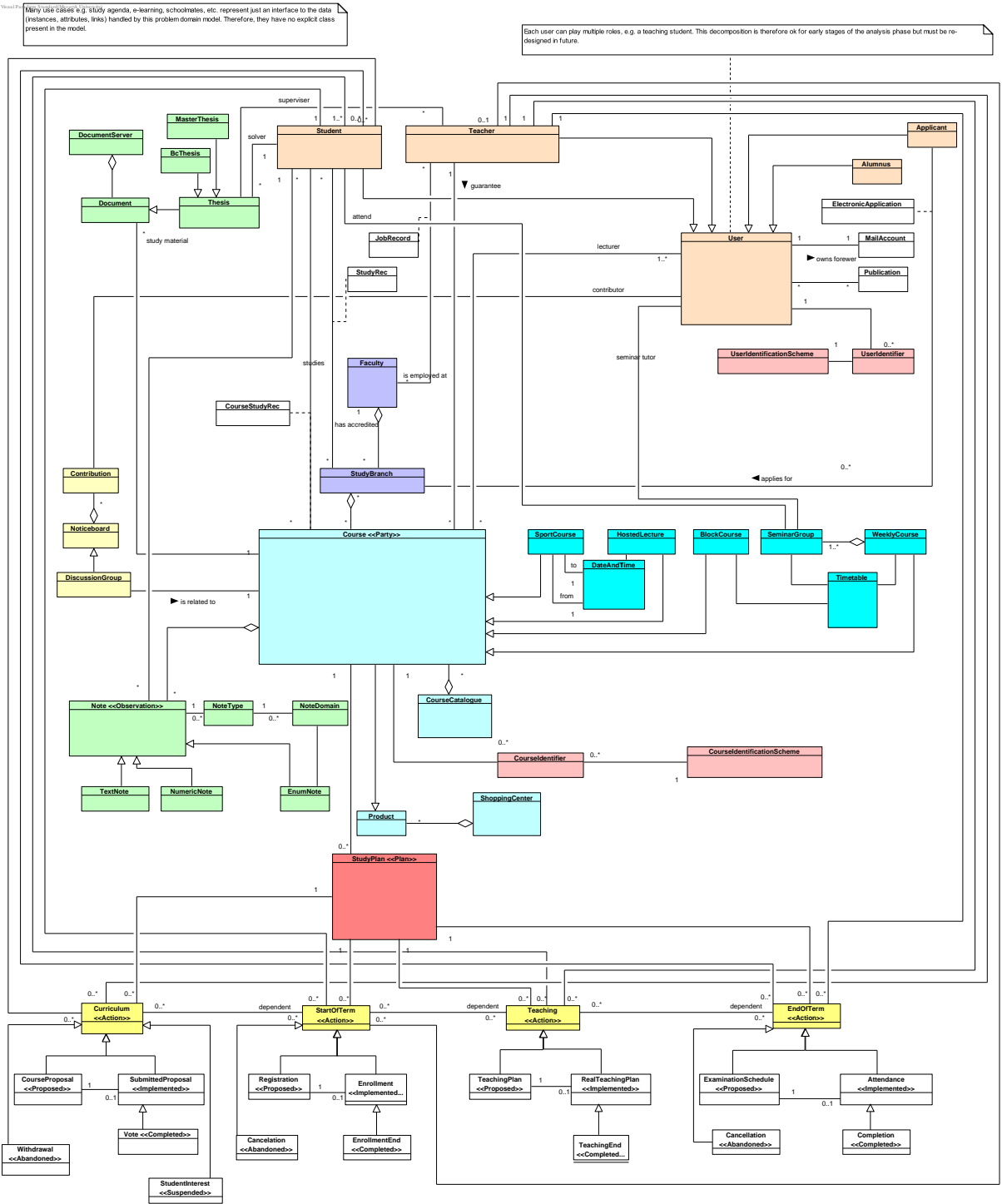
Name	Description
Office for Studies	Employee of the office for studies.
MU member	
Alumnus	Ex-student, e.g. a past student with no active study at MU.
Active MU member	User with active relationship with MU, e.g. active student, internal or external teacher, employee, etc.
Student	Active student, i.e. a student with at least one active study at MU.

 Teacher	Internal or external teacher. This role includes PhD students as well.
 Google	Currently, this actor covers Google Apps, Google Mail and Google Disk.
 Mail Server	SMTP server for sending e-mail. Incoming mails are stored directly in IS MU.
 Guest User	Non-authenticated user, e.g. guest users, applicants, etc.
 N/A	Hala 422551 Bocanova 422450
 Electronic Application	Users can create and submit electronic applications to MU, browse study fields, view status of submitted applications, view statistics, etc.
 Shopping Center	Users can purchase products and services offered by MU, e.g. courses, books, gifts, cards. It's possible to pay via various methods, check status of orders and print invoice.
 Accommodation	Students can find available dormitory accommodation as well as information about school-owned canteens. Dormitory fees are paid using electronic account accessible and manageable from this agenda.
 E-learning	Active members can prepare E-courses using provided tools and templates. Courses can be labeled and categorized based on difficulty level, topic, estimated completion time etc. Any visitor to the site can start any E-course, however progress saving is only offered to registered users.
 Meeting People	MU members can contact, exchange information with and cooperate with other members even after graduation (the access to IS MU and e-mail account are for life). Some of the tools to achieve this are Activities (displays activities of friends and group members), Personal Page, My Friends, Groups, Blogs, Discussion Group, Noticeboard, Bookmarks, etc.
 External Services	MU members can use free external services from providers like Google, Microsoft. Services compatible with MU account are Google Mail, Google Disk and Documents, Google Calendar, Google Keep, etc.
 Discussion Group	All registered users can join discussion here with both read and write access. Any registered member can start and moderate new topical group. Each course has associated discussion group moderated by teachers of the course.
 Noticeboard	Globally visible space where notices can be posted by the school administration, IS administration or other authorized personnel. Notices have assigned priority and target group, only members of the target group can see the notice.
 Documents	Serves as a repository for arbitrary textual data, media etc. Each user has their own document repository where they can upload anything within allowed quotas. Document owner can choose to publish it to other selected users or publicly.
 Course Catalogue	Users can search information about any course in the Course Catalogue. Some of the searching criteria are course name, abstract, teacher, code, faculty, etc. 'AND', 'OR', '%' can be used in searched expression. It's also possible to browse and print faculty or term calendars.

 Timetable	Active MU members can display and print their timetable in various formats. There are several types of timetable, e.g. student timetable, timetable of a course(s), timetable of a teacher(s), timetable of rooms.
 Student Agenda	<p>Student can access materials for enrolled courses and browse catalogue of all available courses. Student can display summary information about their studies and statistical comparison to other students. Study related events, such as new awarded course points or seminar attendance info, are aggregated in the agenda.</p> <p>Student can choose to monitor any discussion group, new events from the group will pop up as events in the agenda.</p>
 Publications	Active members can list their publications such as journal entries and books. Any visitor to the site can browse and search for publications submitted by the users.
 Supervisor Agenda	Course supervisors can use this agenda to upload materials for the course. Submitted homework can be viewed by the supervisors for grading, feedback for students can be posted here.
 Teacher's Notebook	There is one notebook per course taught, one user can teach any number of courses simultaneously. List of students enrolled in the course is available, students can be graded and group emails can be sent to all students of the course. Teacher can choose to be notified of any posts in the discussion group associated with the course. Teacher can upload materials for the course and set visibility of the uploaded materials.
 Study Agenda	Office for Studies has access to information about courses, information about studies of specific students, managing study fields, managing absences, etc.
 People search	Users can search for a MU member by their name and surname. There are advanced search options like relation to the university (employee, student, inactive member), faculty.
 Mail	MU members can send or receive e-mails via mail.muni.cz domain. It's also possible to save contacts, manage folders, forward messages to another e-mail address, turn on/off spam filter, set automatic signature, etc.
 IS MU	

Class Diagram
























Problem Domain Model



Name	Value
Name	Problem Domain Model
Show Information Item Option	2

Summary

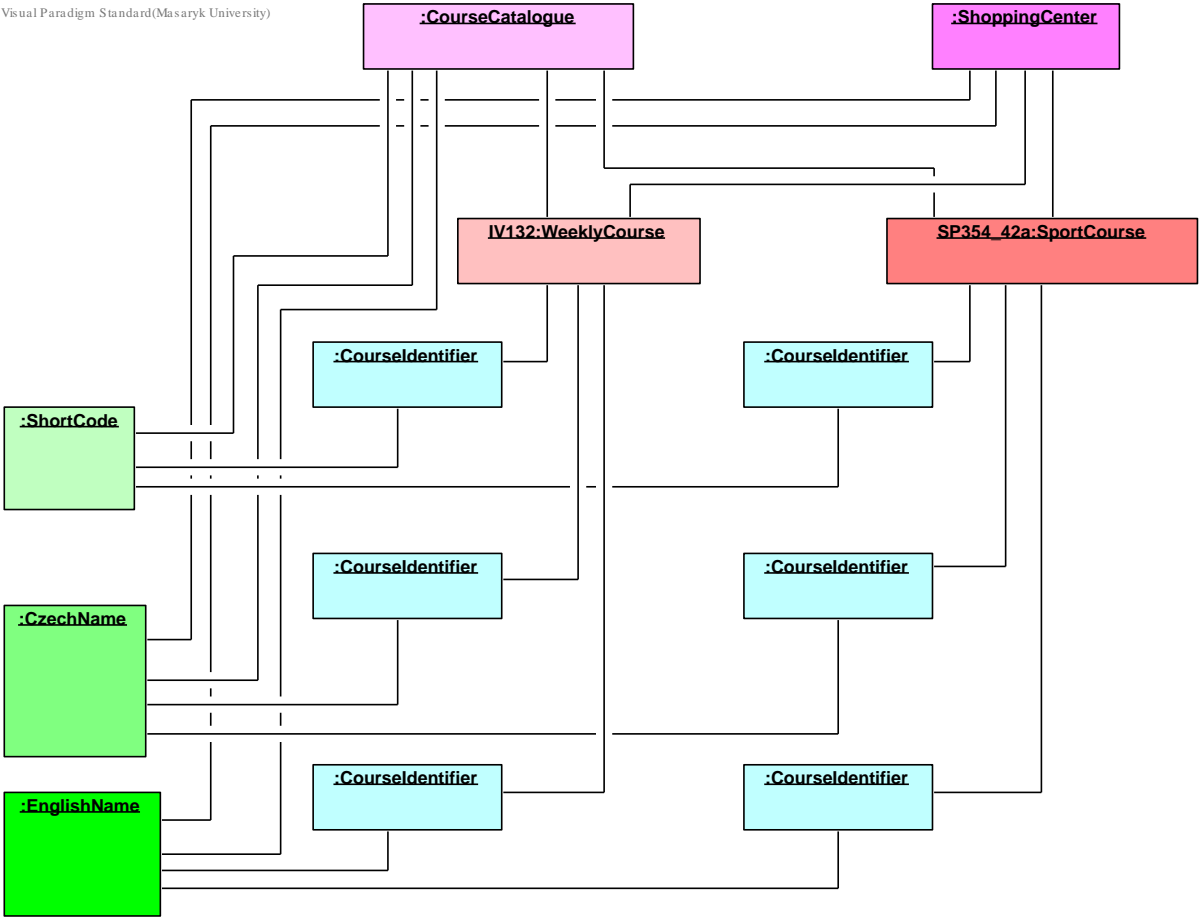
Name	Description
 MasterThesis	
 Applicant	
 Student	
 Teacher	
 DocumentServer	
 BcThesis	
 Alumnus	
 Thesis	
 Document	
 ElectronicApplication	
 JobRecord	
 User	
 MailAccount	
 StudyRec	
 Publication	
 UserIdentificationScheme	
 UserIdentifier	
 Faculty	
 CourseStudyRec	
 Contribution	
 StudyBranch	
 Noticeboard	
 Course <<Party>>	
 SportCourse	
 HostedLecture	
 BlockCourse	
 SeminarGroup	
 WeeklyCourse	
 DateAndTime	
 DiscussionGroup	
 Timetable	
 CourseCatalogue	
 Note <<Observation>>	
 NoteType	
 NoteDomain	
 CourseIdentificationScheme	
 CourseIdentifier	
 TextNote	
 NumericNote	
 EnumNote	
 ShoppingCenter	
 Product	

 StudyPlan <<Plan>>	
 Curriculum <<Action>>	
 EndOfTerm <<Action>>	
 StartOfTerm <<Action>>	
 Teaching <<Action>>	
 CourseProposal <<Proposed>>	
 SubmittedProposal <<Implemented>>	
 Registration <<Proposed>>	
 Enrollment <<Implemented>>	
 TeachingPlan <<Proposed>>	
 RealTeachingPlan <<Implemented>>	
 ExaminationSchedule <<Proposed>>	
 Attendance <<Implemented>>	
 Vote <<Completed>>	
 Cancellation <<Abandoned>>	
 Completion <<Completed>>	
 Cancelation <<Abandoned>>	
 EnrollmentEnd <<Completed>>	
 TeachingEnd <<Completed>>	
 Withdrawal <<Abandoned>>	
 StudentInterest <<Suspended>>	
 N/A	Many use cases e.g. study agenda, e-learning, schoolmates, etc. represent just an interface to the data (instances, attributes, links) handled by this problem domain model. Therefore, they have no explicit class present in the model.
 N/A	Each user can play multiple roles, e.g. a teaching student. This decomposition is therefore ok for early stages of the analysis phase but must be re-designed in future.

Object Diagram









IdentificationScheme - Course

Visual Paradigm Standard(Masaryk University)



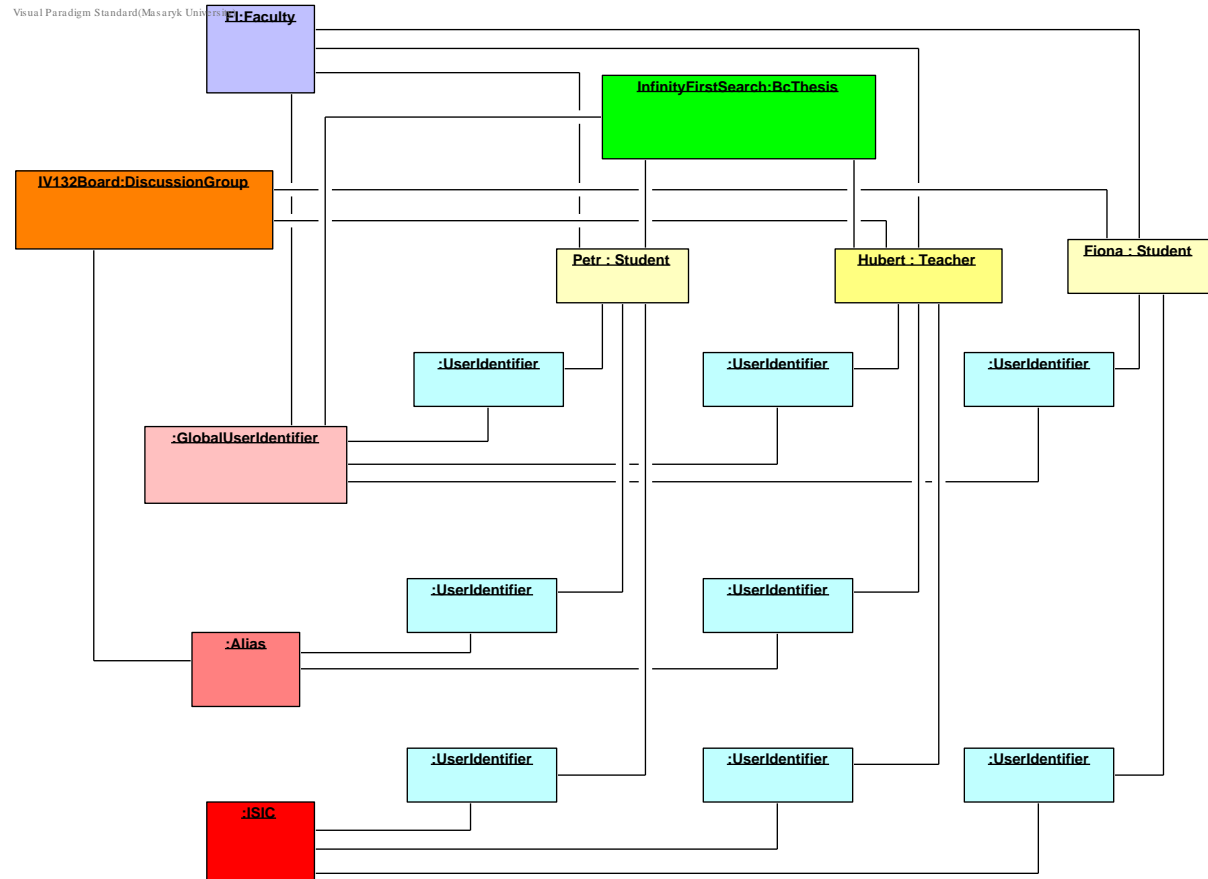
Name	Value
Name	IdentificationScheme - Course
Show Information Item Option	2

Summary

Name	Description
 :CourseCatalogue	
 :ShoppingCenter	
 IV132:WeeklyCourse	
 SP354_42a:SportCourse	
 :CourseIdentifier	
 :ShortCode	
 :CzechName	
 :EnglishName	











Object Diagram

IdentificationScheme - User



Name	Value
Name	IdentificationScheme - User
Show Information Item Option	2

Summary

















Name	Description
 FI:Faculty	
 InfinityFirstSearch:BcThesis	
 IV132Board:DiscussionGroup	
 Fiona	
 Petr	
 Hubert	
 :UserIdentifier	
 :GlobalUserIdentifier	
 :Alias	
 :ISIC	

Observation - Note

[illegible]

Name	Value
Name	Observation - Note
Show Information Item Option	2

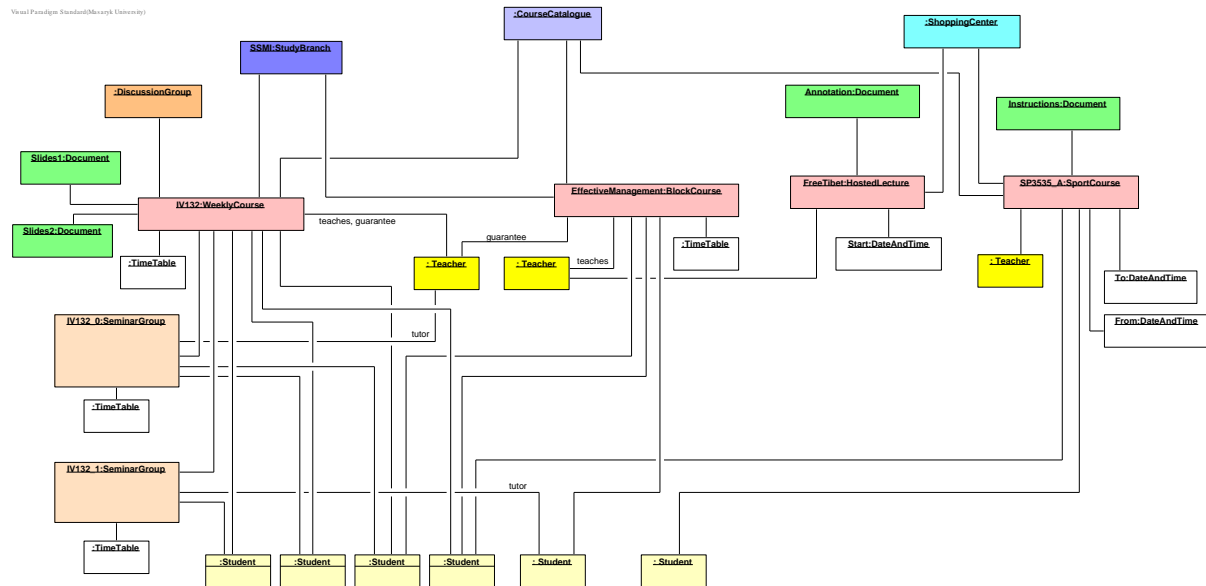
Summary

Name	Description
 Fiona	
 Petr	
 Pavel	
 SP_6354A:SportCourse	
 IV132:WeeklyCourse	
 PointsType:NoteType	
 AttendanceType:NoteType	
 1KmRunTimeType:NoteType	
 HW1_Points_1:NumericNote	
 :DateAndTime	
 :NumericNote	
 :EnumNote	
 HW1_Points_2:NumericNote	
 Presence:NoteDomain	
 BonusPoints:NumericNote	
 Absence:NoteDomain	

Object Diagram

Party - Course

Visual Paradigm Standard (Microsoft University)



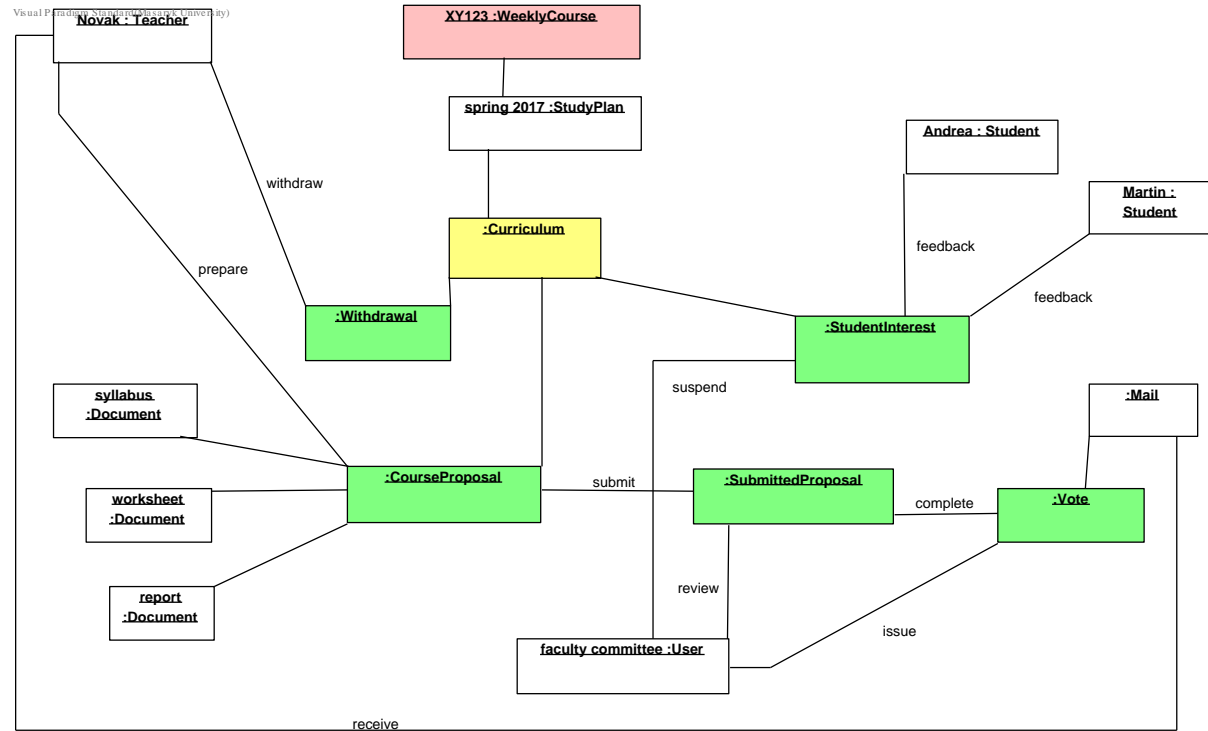
Name	Value
Name	Party - Course
Show Information Item Option	2

Summary

Name	Description
:CourseCatalogue	
:ShoppingCenter	
SSMI:StudyBranch	
:DiscussionGroup	
Annotation:Document	
Instructions:Document	
Slides1:Document	
FreeTibet:HostedLecture	
SP3535_A:SportCourse	
EffectiveManagement:BlockCourse	
IV132:WeeklyCourse	
Slides2:Document	
:TimeTable	
Start:DateTime	
To:DateTime	
IV132_0:SeminarGroup	
From:DateTime	
IV132_1:SeminarGroup	
:Student	

Object Diagram

Study Plan - Curriculum



Name	Value
Name	Study Plan - Curriculum
Show Information Item Option	2

Summary

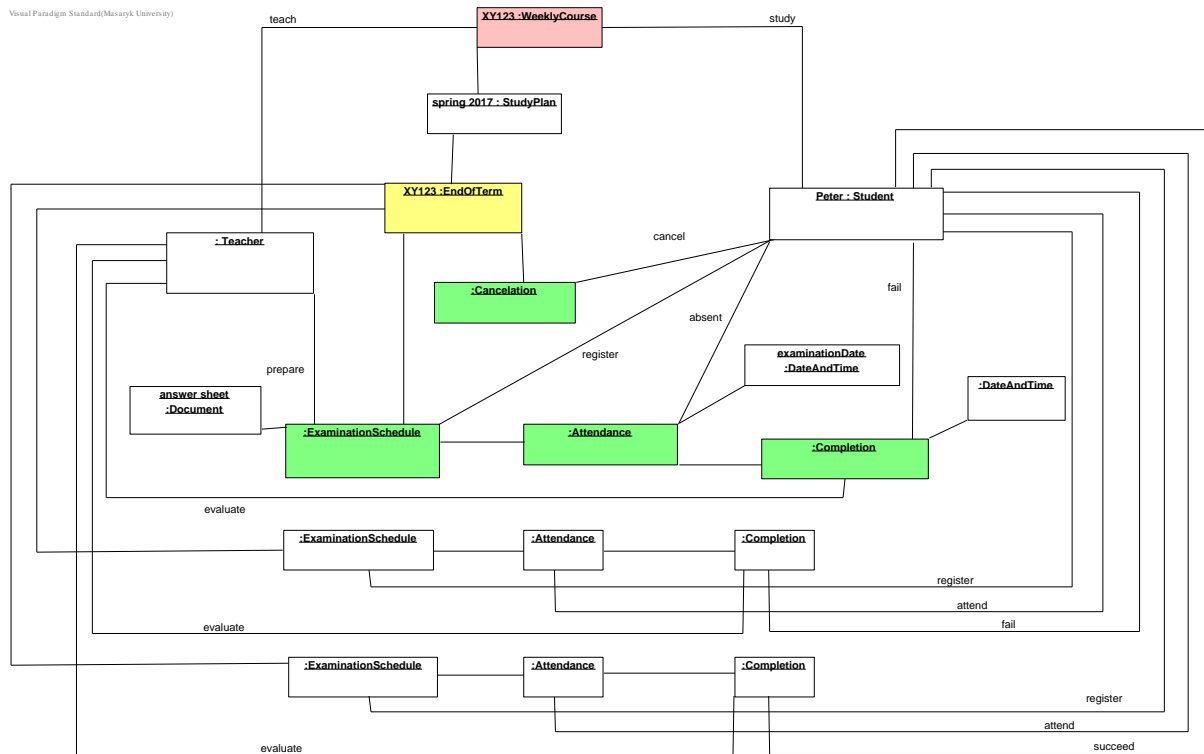
Name	Description
XY123 :WeeklyCourse	
Novak	
spring 2017 :StudyPlan	
Andrea	
Martin	
:Curriculum	
:Withdrawal	
:StudentInterest	
syllabus :Document	
:Mail	
:CourseProposal	
:SubmittedProposal	
worksheet :Document	
:Vote	
report :Document	

 faculty committee :User	
--	--

Object Diagram

Study Plan - End of term



Visual Paradigm Standard(Masaryk University)



Name	Value
Name	Study Plan - End of term
Show Information Item Option	2

Summary

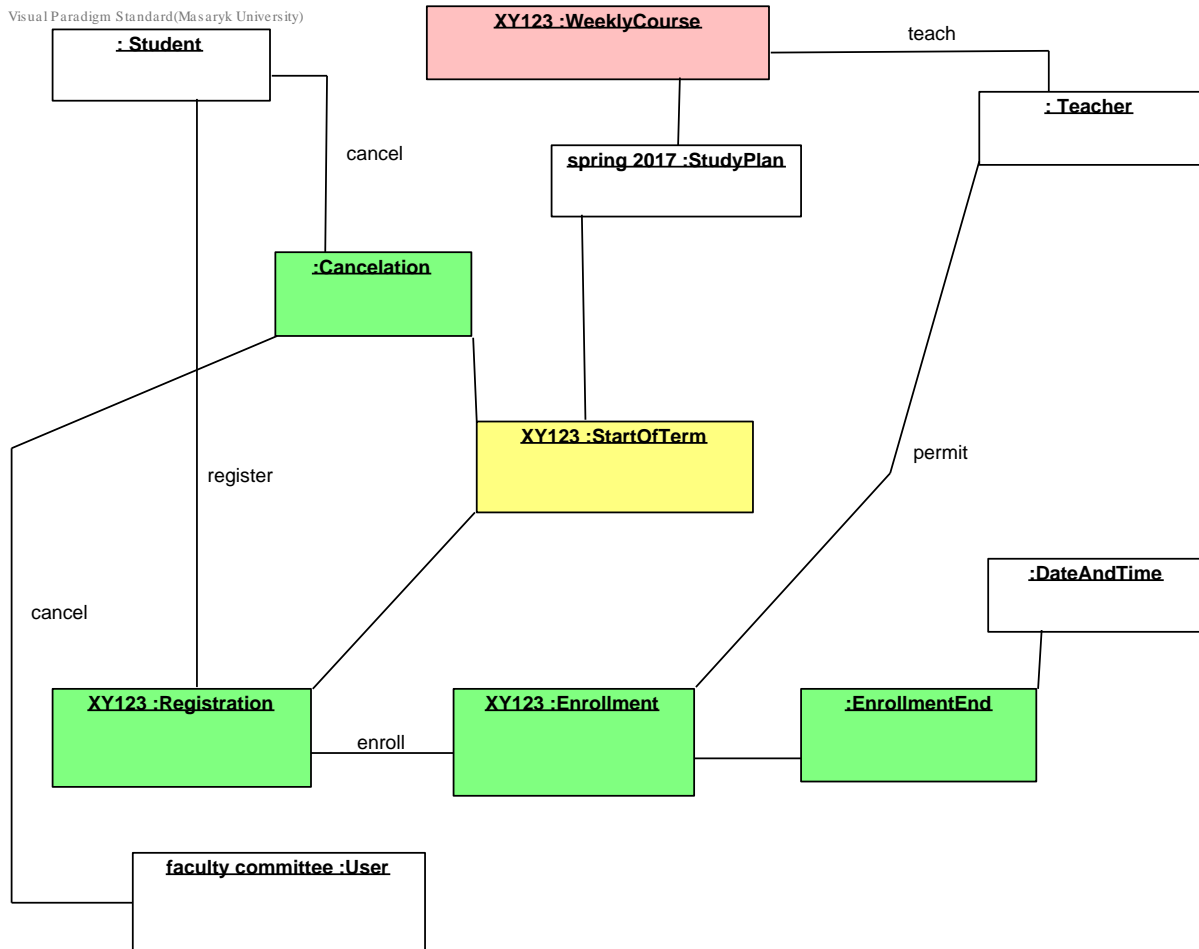
Name	Description
XY123 :WeeklyCourse	
spring 2017 : StudyPlan	
XY123 :EndOfTerm	
Peter	
:Cancellation	
examinationDate :DateAndTime	
:DateAndTime	
answer sheet :Document	
:ExaminationSchedule	
:Attendance	
:Completion	
:ExaminationSchedule	
:Attendance	
:Completion	
:ExaminationSchedule	

 :Attendance	
 :Completion	

Object Diagram

Study Plan - Start of term

Visual Paradigm Standard(Masaryk University)



Name	Value
Name	Study Plan - Start of term
Show Information Item Option	2

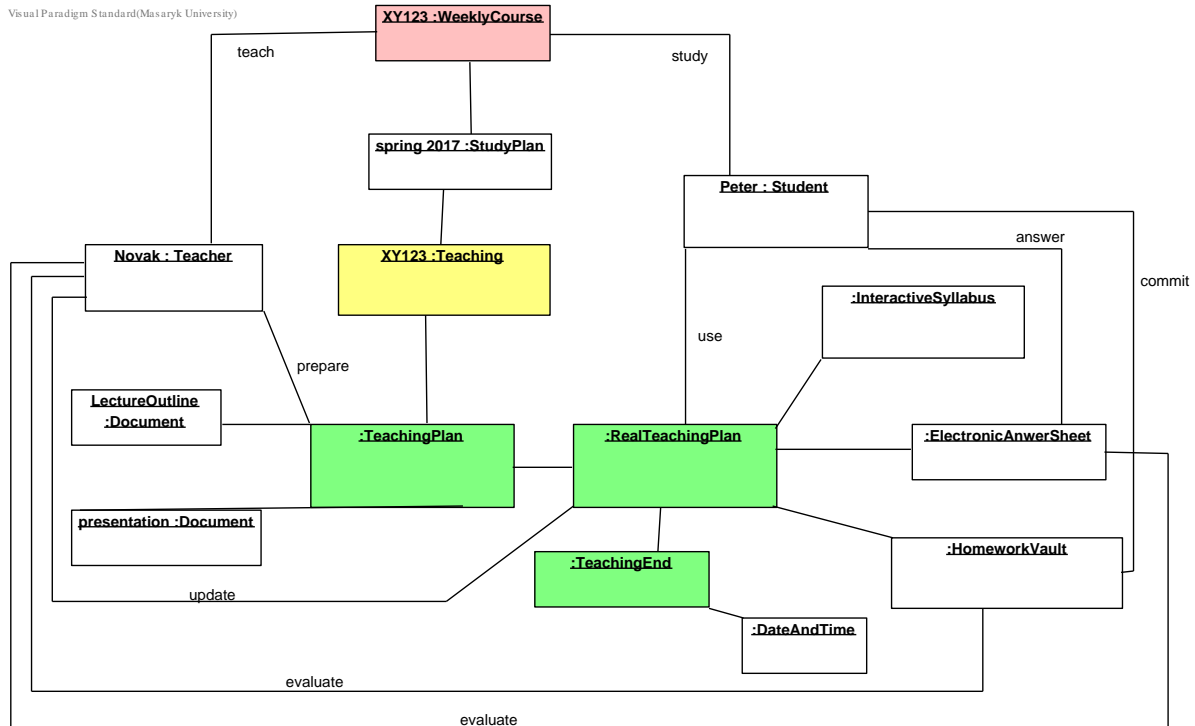
Summary

Name	Description
XY123 :WeeklyCourse	
spring 2017 :StudyPlan	
:Cancellation	
XY123 :StartOfTerm	
:DateAndTime	
XY123 :Registration	
XY123 :Enrollment	
:EnrollmentEnd	
faculty committee :User	

Object Diagram

Study Plan - Teaching

Visual Paradigm Standard(Masaryk University)



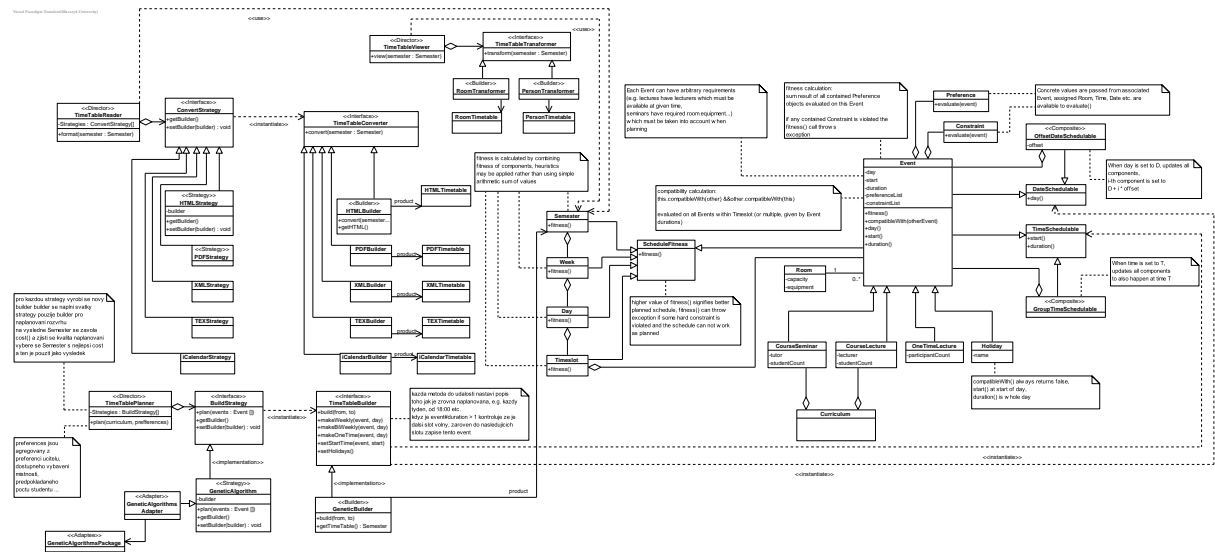
Name	Value
Name	Study Plan - Teaching
Show Information Item Option	2

Summary

Name	Description
XY123 :WeeklyCourse	
spring 2017 :StudyPlan	
Peter	
Novak	
XY123 :Teaching	
:InteractiveSyllabus	
LectureOutline :Document	
:TeachingPlan	
:RealTeachingPlan	
:ElectronicAnwerSheet	
presentation :Document	
:HomeworkVault	
:TeachingEnd	
:DateAndTime	





















Class Diagram


































Schedule











Name	Value
Name	Schedule
Show Information Item Option	2

Summary

Name	Description
 TimeTableTransformer	
 TimeTableView	
 RoomTransformer	
 PersonTransformer	
 Preference	
 ConvertStrategy	
 TimeTableReader	
 TimeTableConverter	
 RoomTimetable	
 PersonTimetable	
 Constraint	
 OffsetDateScheduleable	
 Event	
 DateScheduleable	
 HTMLTimetable	
 HTMLStrategy	
 HTMLBuilder	
 Semester	
 TimeScheduleable	
 ScheduleFitness	

 PDFStrategy	
 PDFBuilder	
 PDFTimetable	
 Week	
 Room	
 XMLStrategy	
 XMLBuilder	
 XMLTimetable	
 GroupTimeSchedulable	
 Day	
 TEXStrategy	
 TEXBuilder	
 TEXTimetable	
 CourseSeminar	
 CourseLecture	
 OneTimeLecture	
 Holiday	
 iCalendarStrategy	
 iCalendarBuilder	
 iCalendarTimetable	
 Timeslot	
 TimeTablePlanner	
 BuildStrategy	
 TimeTableBuilder	
 Curriculum	
 GeneticAlgorithm	
 GeneticAlgorithmsAdapter	
 GeneticBuilder	
 GeneticAlgorithmsPackage	
 N/A	<p>fitness calculation: sum result of all contained Preference objects evaluated on this Event</p> <p>if any contained Constraint is violated the fitness() call throws exception</p>
 N/A	<p>Each Event can have arbitrary requirements (e.g. lectures have lecturers which must be available at given time, seminars have required room equipment...) which must be taken into account when planning</p>
 N/A	<p>Concrete values are passed from associated Event, assigned Room, Time, Date etc. are available to evaluate()</p>
 N/A	<p>fitness is calculated by combining fitness of components, heuristics</p>

	may be applied rather than using simple arithmetic sum of values
 N/A	When day is set to D, updates all components, i-th component is set to $D + i * \text{offset}$
 N/A	compatibility calculation: <code>this.compatibleWith(other) && other.compatibleWith(this)</code> evaluated on all Events within Timeslot (or multiple, given by Event durations)
 N/A	When time is set to T, updates all components to also happen at time T
 N/A	pro kazdou strategy vyrobi se novy builder builder se naplni svatky strategy pouzije builder pro naplanovani rozvrhu na vysledne Semester se zavola <code>cost()</code> a zjistí se kvalita naplanovani vybere se Semester s nejlepsi cost a ten je pouzit jako vysledek
 N/A	higher value of <code>fitness()</code> signifies better planned schedule, <code>fitness()</code> can throw exception if some hard constraint is violated and the schedule can not work as planned
 N/A	<code>compatibleWith()</code> always returns false, <code>start()</code> at start of day, <code>duration()</code> is whole day
 N/A	kazda metoda do udalosti nastavi popis toho jak je zrovna naplanovana, e.g. kazdy tyden, od 18:00 etc. kdyz je <code>event#duration > 1</code> kontroluje ze je dalsi slot volny, zaroven do nasledujicich slotu zapise tento event
 N/A	preferences jsou agregovany z preferenci ucitelu, dostupneho vybaveni mistnosti, predpokladaneho poctu studentu ...