

Room		
id	INTEGER	PRIMARY KEY
name	STRING	NULL
number	STRING	
type	FOREIGN KEY (RoomType -> id)	
building	FOREIGN KEY (Building -> id)	
	UNIQUE (building, name)	
	UNIQUE (building, number)	

Building		
id	INTEGER	PRIMARY KEY
name	STRING	
address	STRING	

Feature		
id	INTEGER	PRIMARY KEY
name	STRING	UNIQUE

RoomType		
id	INTEGER	PRIMARY KEY
name	STRING	UNIQUE

providesFeature (Room, Feature)		
<i>room</i>	FOREIGN KEY (Room -> id)	
<i>feature</i>	FOREIGN KEY (Feature -> id)	
quantity	INTEGER	>= 0
	PRIMARY KEY (room, feature)	

Department		
id	INTEGER	PRIMARY KEY
name	STRING	UNIQUE

givesCourse (Lecturer, Course)		
<i>lecturer</i>	FOREIGN KEY (Lecturer -> id)	
<i>course</i>	FOREIGN KEY (Course -> id)	
priority	FLOAT	
	PRIMARY KEY (lecturer, course)	

Timeslot		
id	INTEGER	PRIMARY KEY
day	FOREIGN KEY (Day -> id)	

Day		
id	INTEGER	PRIMARY KEY
name	STRING	UNIQUE

roomNotAvailable (Room, Timeslot)		
<i>room</i>	FOREIGN KEY (Room -> id)	
<i>timeslot</i>	FOREIGN KEY (Timeslot -> id)	
	PRIMARY KEY (room, timeslot)	

lecturerPrefers (Lecturer, Timeslot)		
<i>lecturer</i>	FOREIGN KEY (Lecturer -> id)	
<i>timeslot</i>	FOREIGN KEY (Timeslot -> id)	
priority	FLOAT	0 ≤ priority ≤ 1
	PRIMARY KEY (lecturer, timeslot)	

lecturerNotAvailable (Lecturer, Timeslot)		
<i>lecturer</i>	FOREIGN KEY (Lecturer -> id)	
<i>timeslot</i>	FOREIGN KEY (Timeslot -> id)	
	PRIMARY KEY (lecturer, timeslot)	

roomPreferablyBookedAt (Room, Timeslot)		
<i>room</i>	FOREIGN KEY (Room -> id)	
<i>timeslot</i>	FOREIGN KEY (Timeslot -> id)	
priority	FLOAT	0 ≤ priority ≤ 1
	PRIMARY KEY (room, timeslot)	

belongsTo (Department, Department)		
<i>department</i>	FOREIGN KEY (Department -> id)	
<i>parent</i>	FOREIGN KEY (Department -> id)	
	PRIMARY KEY (department, parent)	

requiresFeatureAlways (CourseElement, Feature)		
<i>course_element</i>	FOREIGN KEY (CourseElement -> id)	
<i>feature</i>	FOREIGN KEY (Feature -> id)	
quantity	INTEGER	NULL
	PRIMARY KEY (course_element, feature)	

requiresFeature (CourseElementInstance, Feature)		
<i>element_instance</i>	FOREIGN KEY (CourseElementInstance)	
<i>feature</i>	FOREIGN KEY (Feature -> id)	
quantity_min	INTEGER	NULL
quantity_better	INTEGER	NULL
priority	FLOAT	0 ≤ priority ≤ 1
	PRIMARY KEY (element_instance, feature)	

Person		
id	INTEGER	PRIMARY KEY
first_name	STRING	
last_name	STRING	
mail_address	STRING	UNIQUE
login_name	STRING	
is_superuser	BOOLEAN	DEFAULT false
created	TIMESTAMP	
deleted	TIMESTAMP	NULL
deleted_by	FOREIGN KEY (Person -> id)	

Lecturer		
id	FOREIGN KEY (Person -> id)	
lecturer_id	STRING	UNIQUE
	PRIMARY KEY (id)	

Student		
id	FOREIGN KEY (Person -> id)	
student_id	STRING	UNIQUE
immatriculated	BOOLEAN	DEFAULT true
	PRIMARY KEY (id)	

Staff		
id	FOREIGN KEY (Person -> id)	
staff_id	STRING	UNIQUE
working_hours	INTEGER	>= 0
employed	BOOLEAN	DEFAULT true
	PRIMARY KEY (id)	

Group		
id	INTEGER	PRIMARY KEY
name	STRING	UNIQUE

Role		
id	INTEGER	PRIMARY KEY
name	STRING	UNIQUE

Permission		
id	INTEGER	PRIMARY KEY
name	STRING	UNIQUE

hasPermission (Person, Permission)		
<i>user</i>	FOREIGN KEY (Person -> id)	
<i>permission</i>	FOREIGN KEY (Permission -> id)	
target	STRING	NULL
<i>granted_by</i>	FOREIGN KEY (Person -> id)	
<i>since</i>	DATE	
because_of_role	BOOLEAN	DEFAULT false
	PRIMARY KEY (user, permission, target)	

hasRole (Person, Role)		
<i>user</i>	FOREIGN KEY (Person -> id)	
<i>role</i>	FOREIGN KEY (Role -> id)	
<i>set_by</i>	FOREIGN KEY (Person -> id)	
<i>since</i>	DATE	
	PRIMARY KEY (user, role)	

impliesPermission (Role, Permission)		
<i>role</i>	FOREIGN KEY (Role -> id)	
<i>permission</i>	FOREIGN KEY (Permission -> id)	
target	STRING	NULL
	PRIMARY KEY (role, permission, target)	

isInGroup (Person, Group)		
<i>user</i>	FOREIGN KEY (User -> id)	
<i>group</i>	FOREIGN KEY (Group -> id)	
<i>set_by</i>	FOREIGN KEY (Person -> id)	
<i>since</i>	DATE	
	PRIMARY KEY (user, group)	

takesPartIn (Lecturer, Room)		
<i>event</i>	FOREIGN KEY (Event -> id)	
<i>lecturer</i>	FOREIGN KEY (Lecturer -> id)	
timeslot	FOREIGN KEY (Timeslot -> id)	
	UNIQUE (lecturer, timeslot)	
	PRIMARY KEY (event, lecturer)	

hasPassedCourse (Student, Course)		
<i>student</i>	FOREIGN KEY (Student -> student_id)	
<i>course</i>	FOREIGN KEY (Course -> id)	
grade	STRING	NULL
notes	TEXT	NULL
<i>date</i>	DATE	
<i>set_by</i>	FOREIGN KEY (Person -> id)	
	PRIMARY KEY (student, course)	

Attribute		
id	INTEGER	PRIMARY KEY
name	STRING	UNIQUE
type	STRING	DEFAULT xsd:string

roleHasAttribute (Role, Attribute)		
<i>role</i>	FOREIGN KEY (Role -> id)	
<i>attribute</i>	FOREIGN KEY (Attribute -> id)	
default	STRING	NULL
required	BOOLEAN	DEFAULT false

hasAttribute (Person, Attribute)		
<i>user</i>	FOREIGN KEY (Person -> id)	
<i>attribute</i>	FOREIGN KEY (Attribute -> id)	
value	STRING	NULL

Course		
id	INTEGER	PRIMARY KEY
name	STRING	UNIQUE
description	TEXT	NULL

CourseElement		
id	INTEGER	PRIMARY KEY
name	STRING	NULL
part_of	FOREIGN KEY (Course -> id)	
duration	INTEGER	>= 1
type	FOREIGN KEY (CourseElementType -> id)	
required	BOOLEAN	DEFAULT true

CourseInstace		
id	INTEGER	PRIMARY KEY
program	FOREIGN KEY (Program -> id)	
start	DATE	
end	DATE	
main_lecturer	FOREIGN KEY (Lecturer -> lecturer_id)	

CourseElementInstance		
id	INTEGER	PRIMARY KEY
course_instance	FOREIGN KEY (CourseInstance -> id)	
course_element	FOREIGN KEY (CourseElement -> id)	
element_instance	FOREIGN KEY (CourseElementInstance)	
starting_timeslot	FOREIGN KEY (Timeslot -> id)	
duration	INTEGER	>= 1
locked	BOOLEAN	DEFAULT false
scheduled	BOOLEAN	DEFAULT false
<i>scheduler_score</i>	FLOAT	DEFAULT 0
schedulable_lesson	BOOLEAN	DEFAULT true

CourseElementType		
id	INTEGER	PRIMARY KEY
name	STRING	UNIQUE

Program		
id	INTEGER	PRIMARY KEY
period	FOREIGN KEY (Period -> id)	
department	FOREIGN KEY (Department -> id)	
freezed	BOOLEAN	DEFAULT false
published	BOOLEAN	DEFAULT false

requiresCourse (Course, Course)		
<i>course</i>	FOREIGN KEY (Course -> id)	
<i>dependency</i>	FOREIGN KEY (Course -> id)	
	PRIMARY KEY (course, dependency)	

Year		
id	INTEGER	PRIMARY KEY
name	STRING	UNIQUE

Period		
id	INTEGER	PRIMARY KEY
start	DATE	
end	DATE	
start_lessons	DATE	
end_lessons	DATE	
name	STRING	UNIQUE
	start ≤ start_lessons ≤ end_lessons ≤ end	

takesPlaceIn (Event, Room)		
<i>event</i>	FOREIGN KEY (Event -> id)	
<i>room</i>	FOREIGN KEY (Room -> id)	
timeslot	FOREIGN KEY (Timeslot -> id)	
	UNIQUE (room, timeslot)	
	PRIMARY KEY (event, room)	

enrolledInCourse (User, CourseInstance)		
<i>user</i>	FOREIGN KEY (User -> id)	
<i>course_instance</i>	FOREIGN KEY (CourseInstance -> id)	
<i>date</i>	DATE	
	PRIMARY KEY (user, course_instance)	

recommendedInYear (Course, Year)		
<i>course</i>	FOREIGN KEY (Course -> id)	
<i>year</i>	FOREIGN KEY (Year -> id)	
	PRIMARY KEY (course, year)	

courseHasAttribute (Course, CourseAttribute)		
<i>course</i>	FOREIGN KEY (Course -> id)	
<i>attribute</i>	FOREIGN KEY (CourseAttribute -> id)	
value	STRING	NULL

CourseAttribute		
id	INTEGER	PRIMARY KEY
name	STRING	UNIQUE
type	STRING	DEFAULT xsd:string
required	BOOLEAN	DEFAULT false