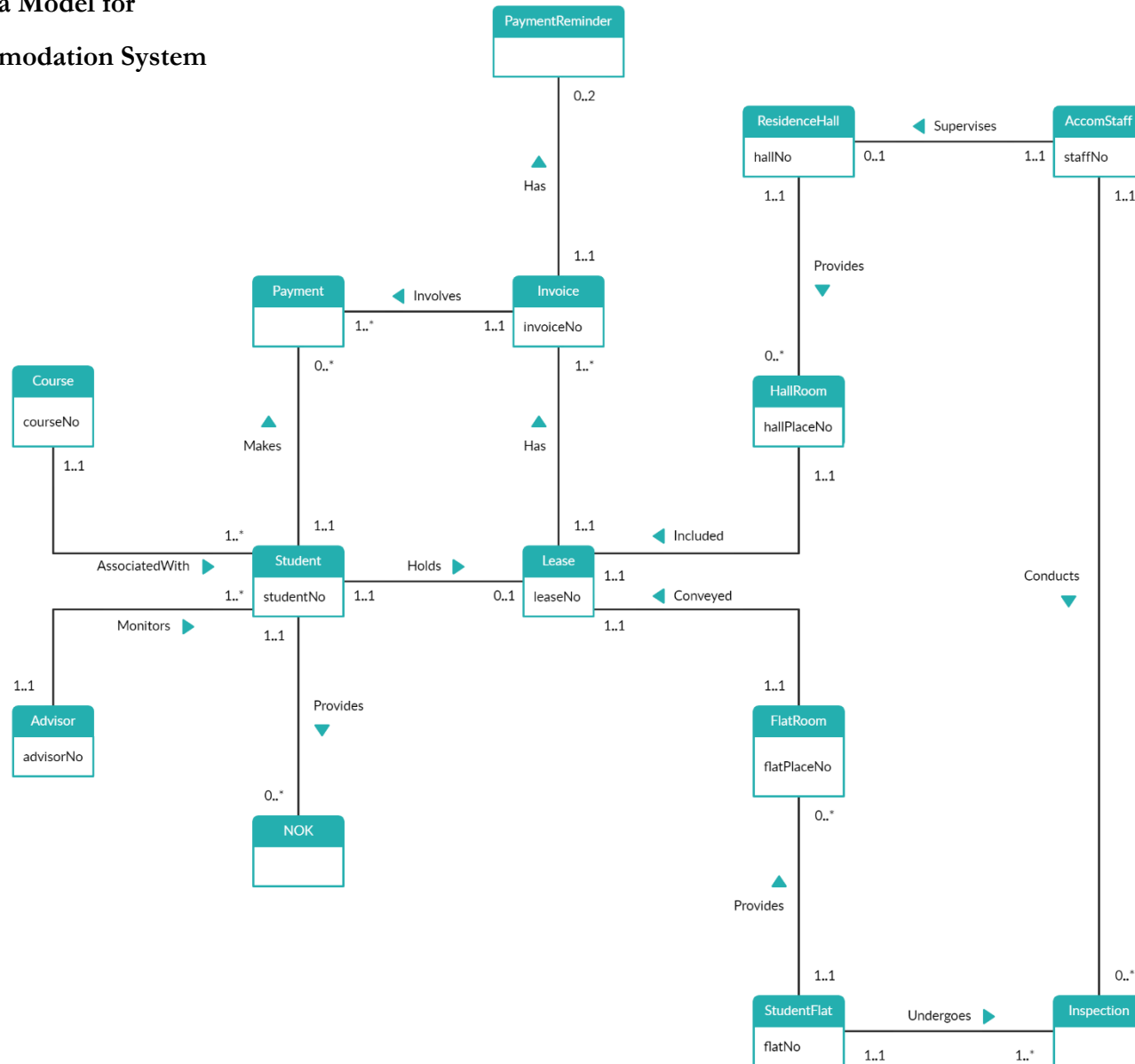


Conceptual Data Model for University Accomodation System



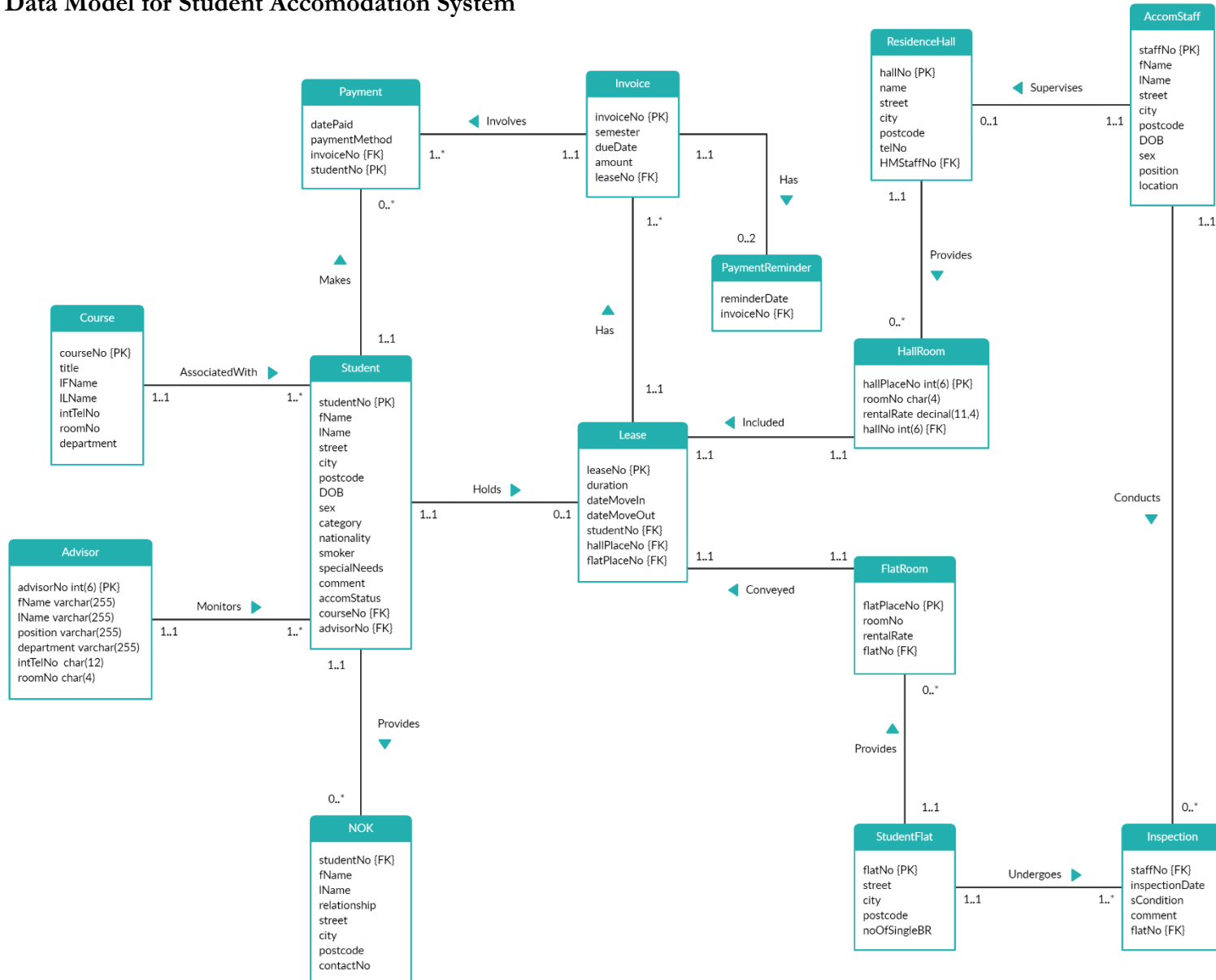
Entity Types Description

Entity Type	Description
AccomStaff	General term describing all staff in the accommodation office.
Advisor	General term describing all Advisor of Studies.
Course	General term describing the course.
FlatRoom	General term describing all rooms in a student flat.
HallRoom	General term for describing all rooms in residence hall.
Inspection	An inspection of the student flat room.
Invoice	General term for the invoice of the lease.
Lease	General term describing a contract of a particular property.
NOK	Next of Kin a general term describing the closest living relative of students.
Payment	General term describing the payment of the invoice made by students.
PaymentReminder	A reminder to pay an overdue invoice.
ResidenceHall	General term describing the Hall of Residence, also called dormitory. A building where students live, usually built by the university.
Student	General term describing all customer.
StudentFlat	General term describing another building where students live but usually built by private owners and is partnered by the university.

Relationship

Entity Type	Multiplicity	Relationship	Multiplicity	Entity Type
AccomStaff	1..1	conducts	0..*	Inspection
	1..1	supervises	0..1	ResidenceHall
Advisor	1..1	monitors	1..*	Student
Course	1..1	associatedwith	1..*	Student
FlatRoom	1..1	conveyed	1..1	Lease
HallRoom	1..1	included	1..1	Lease
Invoice	1..1	involves	1..*	Payment
	1..1	has	0..2	PaymentReminder
Lease	1..1	has	1..*	Invoice
ResidenceHall	0..1	provides	1..*	HallRoom
Student	1..1	makes	0..*	Payment
	1..1	holds	0..1	Lease
	1..1	provides	0..*	NOK
StudentFlat	1..1	provides	0..*	FlatRoom
	1..1	undergoes	1..*	Inspection

Logical Data Model for Student Accommodation System



Attributes

AccomStaff

Attribute	Description	Type	Size	Null	Unique	Part Of PK	FK	FK Relation
staffNo	Staff Unique No	Integer	6	No	Yes	Yes	No	
fName	First Name	Variable Character		No	No	No	No	
lName	Last Name	Var Char		No	No	No	No	
street	Street	Var Char		No	No	No	No	
city	City	Var Char		No	No	No	No	
postcode	Postcode	Char	4	No	No	No	No	
DOB	Date of Birth	Date		No	No	No	No	
sex	Sex	Enum		No	No	No	No	
position	Position	Enum		No	No	No	No	
location	Location	Enum		No	No	No	No	

Advisor

Attribute	Description	Type	Size	Null	Unique	Part Of PK	FK	FK Relation
advisorNo	Advisor Unique No	Int	6	No	Yes	Yes	No	
fName	First Name	Var Char		No	No	No	No	
lName	Last Name	Var Char		No	No	No	No	
position	Position	Var Char		No	No	No	No	
department	Department	Var Char		No	No	No	No	
intTelNo	Internal Telephone No	Char	12	No	No	No	No	
roomNo	Room No	Char	4	No	No	No	No	

Course

Attribute	Description	Type	Size	Null	Unique	Part Of PK	FK	FK Relation
courseNo	Course Unique No	Int	6	No	Yes	Yes	No	
title	Course Title	Var Char		No	No	No	No	
lFName	Leader First Name	Var Char		No	No	No	No	
lLName	Leader Last Name	Var Char		No	No	No	No	
intTelNo	Internal Telephone No	Char	12	No	No	No	No	
roomNo	Room	Char	4	No	No	No	No	
department	Department	Var Char		No	No	No	No	

FlatRoom

Attribute	Description	Type	Size	Null	Unique	Part Of PK	FK	FK Relation
flatPlaceNo	Room Unique No	Int	6	No	Yes	Yes	No	
roomNo	Room Location	Char	4	No	No	No	No	
rentalRate	Monthly Rental Rate	Decimal	11,4	No	No	No	No	
flatNo	Student Flat Unique No	Int	6	No	Yes	No	Yes	StudentFlat

HallRoom

Attribute	Description	Type	Size	Null	Unique	Part Of PK	FK	FK Relation
hallPlaceNo	Room Unique No	Int	6	No	Yes	Yes	No	
roomNo	Room Location	Char	4	No	No	No	No	
rentalRate	Monthly Rental Rate	Decimal	11,4	No	No	No	No	
flatNo	Residence Hall Unique No	Int	6	No	Yes	No	Yes	HallResidence

Inspection

Attribute	Description	Type	Size	Null	Unique	Part Of PK	FK	FK Relation
staffNo	Staff Unique No	Int	6	No	No	No	Yes	AccomStaff
inspectionDate	Date of Inspection	Date		No	No	No	No	
sCondition	Satisfactory Condition	Enum		No	No	No	No	
comment	Comment	Var Char		Yes	No	No	No	
flatNo	Student Flat Unique No	Int	6	No	No	No	Yes	StudentFlat

Invoice

Attribute	Description	Type	Size	Null	Unique	Part Of PK	FK	FK Relation
invoiceNo	Invoice Unique No	Int	6	No	Yes	Yes	No	
semester	Current Semester	Enum		No	No	No	No	
dueDate	Due Date	Date		No	No	No	No	
amount	Amount	Decimal	11,4	No	No	No	No	
studentNo	Student Unique No	Int	6	No	Yes	No	Yes	Student

Lease

Attribute	Description	Type	Size	Null	Unique	Part Of PK	FK	FK Relation
leaseNo	Lease Unique No	Int	6	No	Yes	Yes	No	
duration	Duration As Semester	Enum		No	No	No	No	
dateMoveIn	Date Move In	Date		No	No	No	No	
dateMoveOut	Date Move Out	Date		Yes	No	No	No	
placeNo	Place Unique No	Int	6	No	Yes	No	Yes	Room
studentNo	Student Unique No	Int	6	No	Yes	No	Yes	Student

NOK

Attribute	Description	Type	Size	Null	Unique	Part Of PK	FK	FK Relation
studentNo	Student Unique No	Int	6	No	Yes	No	Yes	Student
fName	First Name	Var Char		No	No	No	No	
lName	Last Name	Var Char		No	No	No	No	
relationship	Relationship	Var Char		No	No	No	No	
street	Street	Var Char		No	No	No	No	
city	City	Var Char		No	No	No	No	
postcode	Postcode	Char	4	No	No	No	No	
contactNo	Contact No	Char	12	No	No	No	No	

Payment

Attribute	Description	Type	Size	Null	Unique	Part Of PK	FK	FK Relation
datePaid	Date Paid	Date		No	No	No	No	
paymentMethod	Payment Method	Enum		No	No	No	No	
invoiceNo	Invoice Unique No	Int	6	No	Yes	No	Yes	Invoice
studentNo	Student Unique No	Int	6	No	Yes	No	Yes	Student

PaymentReminder

Attribute	Description	Type	Size	Null	Unique	Part Of PK	FK	FK Relation
reminderDate	Reminder Date	Date		No	No	No	No	
invoiceNo	Invoice Unique No	Int	6	No	Yes	NO	Yes	Invoice

ResidenceHall

Attribute	Description	Type	Size	Null	Unique	Part Of PK	FK	FK Relation
hallNo	Residence Hall Unique No	Int	6	No	Yes	Yes	No	
name	Name	Var Char		No	No	No	No	
street	Street	Var Char		No	No	No	No	
city	City	Var Char		No	No	No	No	
postcode	Postcode	Char	4	No	No	No	No	
telNo	Telephone Number	Char	12	No	No	No	No	
HMStaffNo	Hall Manager	Int	6	No	Yes	No	Yes	AccomStaff

Stuent

Attribute	Description	Type	Size	Null	Unique	Part Of PK	FK	FK Relation
studentNo	Student Unique No	Int	6	No	Yes	Yes	No	
fName	First Name	Var Char		No	No	No	No	
lName	Last Name	Var Char		No	No	No	No	
street	Street	Var Char		No	No	No	No	
city	City	Var Char		No	No	No	No	
postcode	Postcode	Char	4	No	No	No	No	
DOB	Date of Birth	Date		No	No	No	No	
sex	Sex	Enum		No	No	No	No	
category	Category	Enum		No	No	No	No	
nationality	Nationality	Var Char		No	No	No	No	
smoker	Smoker	Enum		No	No	No	No	
specialNeeds	Special Needs	Var Char		Yes	No	No	No	
comment	Comment	Var Char		Yes	No	No	No	
accomStatus	Accommodation Status	Enum		No	No	No	No	
courseNo	Course Unique No	Int	6	No	Yes	No	Yes	Course
advisorNo	Advisor Unique No	Int	6	No	Yes	No	Yes	Advisor

StudentFlat

Attribute	Description	Type	Size	Null	Unique	Part Of PK	FK	FK Relation
flatNo	Flat Unique No	Int		No	Yes	Yes	No	
street	Street	Var Char		No	No	No	No	
city	City	Var Char		No	No	No	No	
postcode	Postcode	Char	4	No	No	No	No	
noOfSingleBR	No of Single Bedroom	Int	4	No	No	No	No	

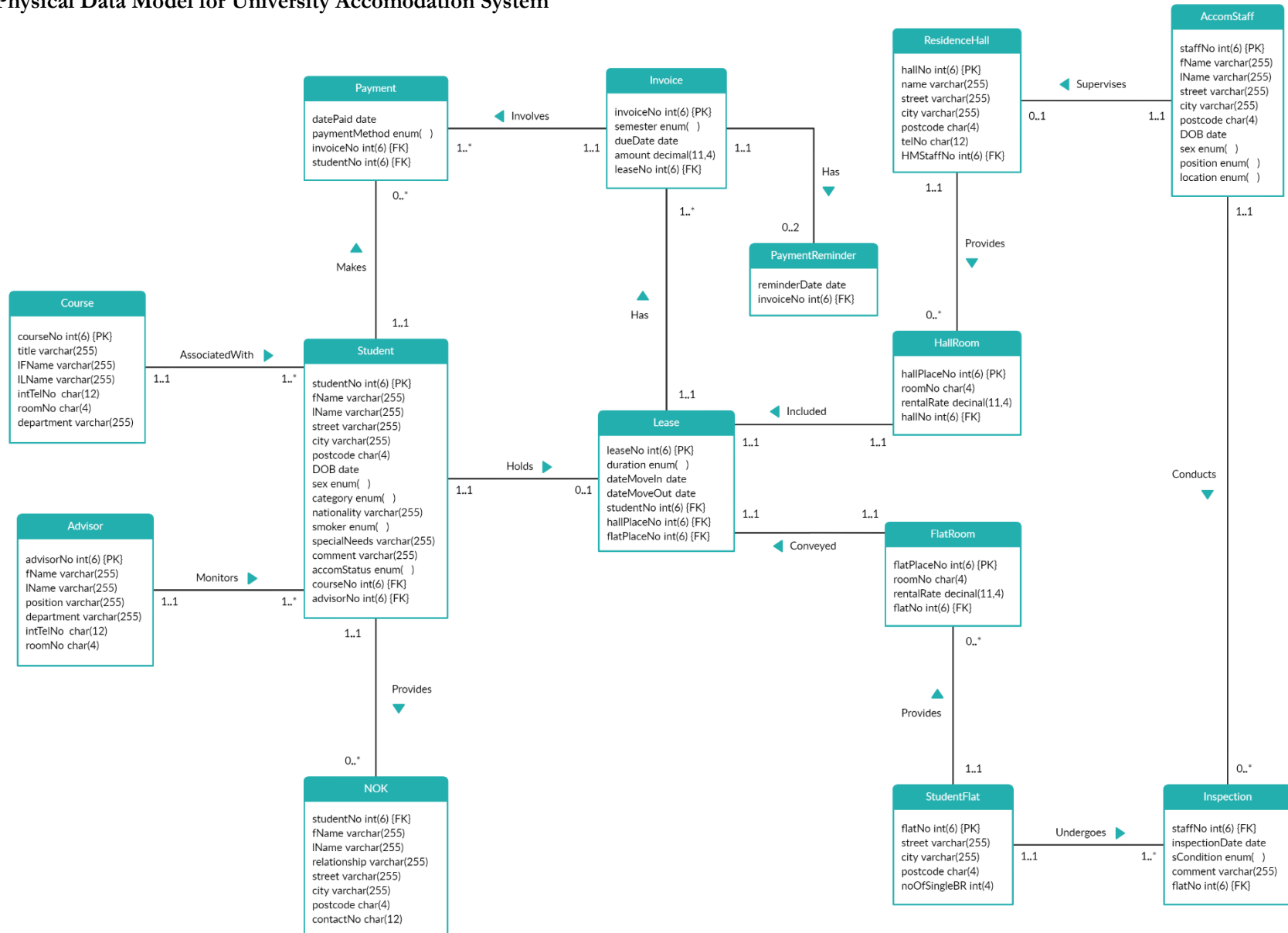
Domain of Attributes

Attribute	Domain
accomStatus	Placed, Waiting
advisorNo	1-999999
Amount	1.0000-9999999.9999
category	Undergraduate Student, Masters Student, PHD Student
courseNo	1-999999
duration	Up to First Semester, Up to Second Semester, Up to Summer Semester
flatNo	1-999999
flatPlaceNo	1-999999
hallNo	1-999999
hallPlaceNo	1-999999
HMStaffNo	1-999999
invoiceNo	1-999999
leaseNo	1-999999
location	Accommodation Office, Hall
noOfSingleBR	1-9999
paymentMethod	Cheque, Cash, Digital
placeNo	1-999999
position	Hall Manager, Administrative Assistant, Cleaner
rentalRate	1.0000-9999999.9999
sCondition	Yes, No
semester	First, Second, Summer
sex	Male, Female
smoker	Yes, No
staffNo	1-999999
studentNo	1-999999

Normalization of Attributes

- All attributes are already normalized.

Physical Data Model for University Accommodation System



Transaction/Relation Cross-Reference Matrix

Accommodation Office

- A. Enter the details of new lease.
- B. Identify the total number of students in particular student flat.
- C. Update the details of a room.
- D. Adds new rules in the lease.
- E. Identify the student who rents a particular room.
- F. Assign new hall manager in a residence hall.

Transaction / Relation	(A)				(B)				(C)				(D)				(E)				(F)			
	I	R	U	D	I	R	U	D	I	R	U	D	I	R	U	D	I	R	U	D	I	R	U	D
AccomStaff																								X
Advisor																								
Course																								
Inspection																								
Invoice																								
Lease		X												X										
NOK																								
ResidenceHall																						X		
Room										X								X						
Student						X												X						
StudentFlat						X																		

Chosen File Organization

- B+ Tree is chosen as file organization in this project as it supports referential integrity constraints and since file organizations depends on the storage engine, InnoDB is used, the default storage engine of the chosen Database Management System, MySQL.