

IE6700 HW2  
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1a.

Job Date/Time + JobPickupAddress depend on JobID

ClientName depends on ClientID

DriverName depends on DriverID

1b.

Driver(DriverID, DriverName)

Client(ClientID, ClientName)

Job(JobID, JobDate/Time, *DriverID*, *ClientID*, TaxiID, JobPickupAddress)

2.

Assumptions:

1 StaffNo corresponds to 1 Dentist, 1 PatientNo corresponds to 1 Patient, SurgeryNo informs only the type of Surgery Performed, though no data is specified on what type that is.

Relations:

Operation(staffNo, patientNo, Appointment date and time, SurgeryNo)

Dentist(staffNo, dentistName)

Patient(patientNo, patientName)

3. 6.2E

Flight(Flightnumber, Flighttime, airlinename, pilotname, departure\_city, arrival\_city, planeID)

FlightPassenger(Flightnumber, passengername)

Passenger(passengername, gender, date of birth)

Pilot(pilotname, gender, date of birth)

Airplane(planeID, type, seats)

4. 6.4E

For example, there is no enforcement that a plane with x seats needs x amount of pilots.

Relational:

Airport(3 Letter Abbreviation, Name, Location)

Plane(ID, *3 Letter Abbreviation*, Number of Seats, Type, Year of Production, *FlightID*)

Flight(ID, Destination, Departure)

FlightAssigned(*FlightID*, *EmployeeID*)

Employee(ID, *3 Letter Abbreviation*, Home Address, Date of Birth)

Pilot(*Employee-ID*)

Steward[ess](*Employee-ID*)

FlightPlanner(*Employee-ID*)

Ticket(ID, Destination, Departure, Price, *CustomerID*)

TicketValid(*TicketID*, *FlightID*)

Customer(ID, Name, Number of AirMiles)

Relational Model cannot describe unique relation constraints like 1..3.

5. 6.5E

See answer in 6.4E

Examiner(EmployeeID, *ExaminationCenter-Location*) FK Not Null

ExaminationCenter(Location)

ExamDrivingRoute(RouteID, *ExaminationCenter-Location*, PossibleInWinter) FK Not Null

ExamOpportunity(ID, Date, *Examiner-EmployeeID*, *ExamDrivingRoute-RouteID*, *DrivingLicenseExamApplicant-SSN*, Duration) FK Not Null

ApplicantInstructor(*DrivingLicenseExamApplicant-SSN*, *DrivingInstructor-SSN*) FK Not Null

DrivingInstructor(SSN, Name)

FamilyMember(*DrivingInstructor-SSN*) FK Not Null

TrainedOfficialDrivingInstructor(*DrivingInstructor-SSN*, *DrivingSchoolCompany-VatNumber*) FK Not Null

DrivingSchoolCompany(VatNumber, Name)

Car(ID, *DrivingSchoolCompany-VatNumber*, Year of Purchase, Brand) FK Not Null

The 1..2 Constraint is lost in the relational model