

IT 340 Assignment2
E-R Model (50 Points)
Due Wednesday, April 21, by 11:59 PM

Name1: Hg1024hr
Name2: Dc3465ee

You MUST do it in groups with both students in the same section.

Download the document from D2L and change the file name using your MNSU usernames.

Keep the following instructions and type your work below.

You must follow the given style. You could lose up to five points on the style.

Upload your document to D2L by the due time.

Everyone is required to create GitHub repository for this course, but I need only one GitHub submission for this project. Add the link of GitHub in the D2L Dropbox description box.

Each group is required to use Microsoft Teams for communication while working on the project.

You must use the following style to do Phase I of the project.

1. Identify entity types with brief description

- a. **Wards:** Wards of The Wellmeadows Hospital – 17 wards and 240 beds total
- b. **Staff:** Personnel at the Wellmeadows Hospital that each contribute responsibility in the management of the hospital. (Charge nurse)
- c. **Local Doctors:** Doctors that refer patients to hospital
- d. **Patients:** Persons who are referred or admitted to the hospital.
- e. **Patient's next of Kin:** Close people of the patient
- f. **Patient Appointments:** Appointment that is set up for the patient for examination
- g. **Outpatients:** Patients that leave the hospital
- h. **Inpatients:** Patients entering the hospital
- i. **Patient Medication:** The medication is prescribed to patients
- j. **Surgical and Non-Surgical Supplies:** Items needing to be on stock for surgical procedures
- k. **Pharmaceutical Supplies:** Drugs and treatments kept in store at the hospital
- l. **Ward Requisitions:** Forms required to fill out when ordering supplies
- m. **Suppliers:** The group(s) that deliver surgical, non-surgical, and pharmaceutical items to WellMeadows hospital

2. Identify relationship types with brief description. You must include the multiplicity and attributes if any.

Entities

Wards

WardNo (PK)

WardName

Location

Total number of beds

telephone extension number

Staff

Patients

UniquePatientNumber (PK) (NN)

FName (NN)

LName (NN)

Address

Phone number

DOB

Sex

Marital status

AdmitDate

PtnKinID (FK)

Patient's Next of Kin

PtnKinID (PK)

KinFname

KinLname

Relationship

Address

PNo

UniquePatientNumber (FK)

Local Doctors

DFname

DLname

ClinicNumber (PK)

clinic address

ClinicPhoneNumber

Patient Appointments

Outpatients

Inpatients

Patient Medication

Surgical and Nonsurgical Supplies

Pharmaceutical Supplies

Ward Requisitions

Supplies

.

3. Describe each entity type in detail

Ward

WardNumber : Unique

WardName

Location

NumOfBeds

PhoneExtension

Primary Key: WardNumber

Staff

StaffNumber

Name : Composite (firstName, lastName)

Address

PhoneNumber

DOB

Sex

NIN

Position

Salary

SalaryScale

LocalDoctors

Qualifications

- QualificationDate
- QualificationType
- NameOfInstitution

WorkExperience

- NameOfOrganization
- Position
- StartDate
- FinishDate

TypeOfEmpolymentContract

- NoOfHrsWorkd per wk
- TypeOfSalaryPayment
- contractType

Primary Key: StaffNumber

ForeignKey:NIN

Patients

PatientNumber : Unique

Name : Composite (firstName, lastName)

Address

PhoneNumber

DOB

Sex

MaritalStatus

DateRegistered

NextOfKin

Primary Key: PatientNumber

Foreign key:NextOfKin

PatientAppointment

ApptNumber : Unique

Name

StaffNumber

DateAndTime

ExaminationRoom

Primary Key: ApptNumber

PatientMedication

PatientNumber

PatientName

DrugNumber

DrugName

UnitsPerDay

Method

Date :Composite (StartDate, FinishDate)

Primary Key: PatientNumber

SurgicalAndNonsurgicalSupplies

ItemNo :Unique

Name

Description

Quantity

ReorderLevel

CostPerUnit

Primary Key: ItemNo
PharmaceuticalSupplies

DrugNumber

DrugName

Description

Dosage

Method

Quantity

ReorderLevel

CostPerUnit

Primary Key: DrugNumber

WardRequisitions

RequisitionNumber :Unique

Name

Place :Composite (WardNumber, WardName)

Primary Key: RequisitionNumber

Suppliers

SupplierNumber

SupplierName

Address

Phone

Fax

Primary Key: SupplierNumber

OutPatient

PatientNumber

Name : Composite (firstName, lastName)

Address

PhoneNumber

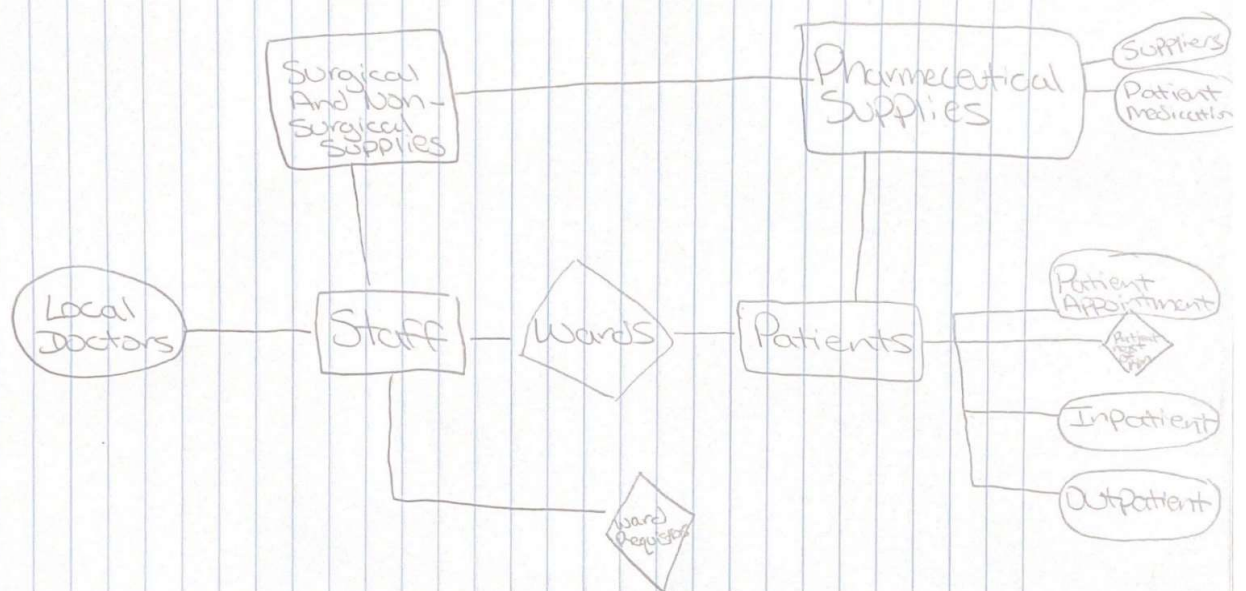
DOB

Sex

DateAndTimeOfOutpatient

Inpatient

4. Draw the E-R diagram



Show the primary key for each table.

You must specify the multiplicity on the E-R diagram.

IT 340 – Project

Consider the following case study, you are to build a relational database for Wellmeadows Hospital.

This case study describes a small hospital called Wellmeadows, which is located in Edinburgh. The Wellmeadows Hospital specializes in the provision of healthcare for elderly people. Listed below is a description of the data recorded, maintained, and accessed by the hospital staff to support the management and day to day operations of the hospital.

Wards

The Wellmeadows Hospital has 17 wards with a total of 240 beds available for short and long stay patients, and an outpatient clinic. Each ward is uniquely identified by a number (i.e. - ward 11) and also a ward name (i.e. - Orthopedic), location (i.e. - E block), total number of beds, and a telephone extension number (i.e. - Extn 7711).

Staff

The Wellmeadows Hospital has a Medical Director, who has overall responsibility for the management of the hospital. The Medical Director maintains control over the use of the hospital resources (including staff, beds, and supplies) in the provision of cost-effective treatment for all patients.

The Wellmeadows Hospital has a Personnel Officer who is responsible for ensuring that the appropriate number and type of staff are allocated to each ward and the outpatient clinic. The information stored on each staff member includes a staff number, name (first and last), full address, telephone number, date of birth, sex, National Insurance Number (NIN), position held, current salary, and salary scale. It also includes each member's qualifications (which includes date of qualification, type, and name of institution) and work experience details (which includes the name of the organization, position, and start and finish dates).

The type of employment contract for each member of staff is also recorded, including the number of hours worked per week, whether the staff member is on a temporary or permanent contract, and the type of salary payment (weekly/monthly).

Each ward and the outpatient clinic has a member of staff with the position of Charge Nurse. The Charge Nurse is responsible for overseeing the day to day operations of the ward/clinic. The Charge Nurse is allocated a budget to run the ward and must ensure that all resources are used effectively in the care of patients. The Medical Director works closely with the Charge Nurses to ensure the effective running of the hospital.

A Charge Nurse is responsible for setting up a weekly staff rotation, and must ensure that the ward/clinic has the correct number and type of staff on duty at any time during the day or night. In a given week, each staff member is assigned to work an early, late, or night shift.

As well as the Charge Nurse, each ward is allocated senior and junior nurses, doctors, and auxiliaries. Specialist staff (i.e. – consultants, physiotherapists) are allocated to several wards or the clinic.

Patients

When a patient is first referred to the hospital, he or she is allocated a unique patient number. At this time, additional details of the patient are also recorded including the name (first and last), address, phone number, date of birth, sex, marital status, date registered with the hospital, and the details of the patient's next of kin.

Patient's Next of Kin

The details of a patient's next of kin are recorded, which includes the next of kin's full name, relationship to the patient, address, and phone number.

Local Doctors

Patients are normally referred to the hospital by their local doctor. The details of local doctors are held, including their full name, clinic number, clinic address, and clinic phone number. The clinic number is unique throughout the U.K.

Patient Appointments

When a patient is referred to by his or her doctor, the patient is given an appointment for examination by a hospital consultant. Each appointment has a unique number. The details of each patient's appointment are recorded and include the name and staff number of the consultant undertaking the examination, the date and time of the appointment, and the examination room.

As a result of the examination, the patient is either recommended to attend the outpatient clinic or is placed on a waiting list until a bed can be found in an appropriate ward.

Outpatients

The details of outpatients are stored and include the patient number, name (first and last), address, phone number, date of birth, sex, and the date and time of the appointment at the outpatient clinic.

Inpatients

The Charge Nurse and other senior medical staff are responsible for the allocation of beds to patients on the waiting list. The details of patients currently placed in a ward and those on the waiting list for a place on a ward are recorded. This includes the patient number, name (first and last name), address, telephone number, date of birth, sex, marital status, the details of the patient's next-of-kin, the date placed on the waiting list, the ward required, expected duration of stay (in days), date placed in the ward, date expected to leave the ward, and the actual date the patient left the ward, when known. When a patient enters the ward, he or she is allocated a bed with a unique bed number.

Patient Medication

When a patient is prescribed medication, the details are recorded. This includes the patient's name and number, drug number and name, units per day, method of administration (for example, oral, intravenous (IV)), start and finish date. The medication (pharmaceutical supplies) given to each patient is monitored.

Surgical and Nonsurgical Supplies

The Wellmeadows Hospital maintains a central stock of surgical (for example, syringes, sterile dressings) and non-surgical (for example, plastic bags, and aprons) supplies. The details of surgical and non-surgical supplies include the item number and name, item description, quantity in stock, reorder level, and cost per unit. The item number uniquely identifies each type of surgical or non-surgical supply. The supplies used by each ward are monitored.

Pharmaceutical Supplies

The hospital also maintains a stock of pharmaceutical supplies (for example, antibiotics, and painkillers). The details of pharmaceutical supplies include drug number and name, description, dosage, method of administration, quantity in stock, reorder level, and cost per unit. The drug number uniquely identifies each type of pharmaceutical supply. The pharmaceutical supplies used by each ward are monitored.

Ward Requisitions

When required, the Charge Nurse may obtain surgical, non-surgical, and pharmaceutical supplies from the central stock of supplies held by the hospital. This is achieved by ordering supplies for the ward using a requisition form. The information detailed on a requisition form includes a unique requisition number, the name of the member of staff placing the requisition, and the number and name of the ward. Also included is the item or drug number, name, description, dosage and method of administration (for drugs only), cost per unit, quantity required, and date ordered. When the requisitioned supplies are delivered to the ward, the form must be signed and dated by the Charge Nurse who initiated the order.

Suppliers

The details of the suppliers of the surgical, non-surgical, and pharmaceutical items are stored. This information includes the supplier's name and number, address, telephone, and fax numbers. The supplier number is unique to each supplier.

Here are some helpful figures illustrating the tables:

Wellmeadows Hospital Staff Form Staff Number: <u>5011</u>	
Personal Details	
First Name <u>Moina</u>	Last Name <u>Samuel</u>
Address <u>49 School Road</u> <u>Broxburn</u>	Sex <u>Female</u>
	Date of Birth <u>30-May-61</u>
Tel. No. <u>01506-45633</u>	NIN <u>WB123423D</u>
Position <u>Charge Nurse</u>	Allocated <u>11</u> to ward
Current Salary <u>18,760</u>	Hours/Week <u>37.5</u>
Salary Scale <u>1C scale</u>	Permanent or Temporary (Enter P or T) <u>P</u>
Paid Weekly or Monthly (Enter W or M) <u>M</u>	
Qualification(s)	Work Experience
Type <u>BSc Nursing Studies</u>	Position <u>Staff Nurse</u>
Date <u>12-Jul-87</u>	Start Date <u>23-Jan-90</u>
Institution <u>Edinburgh University</u>	Finish Date <u>1-May-93</u>
	Organization <u>Western Hospital</u>
Note: Please enter additional qualifications/work experience overleaf	

Wellmeadows Hospital Ward Staff Allocation		Week beginning <u>9-Jan-04</u>																																				
Page <u>1</u>																																						
Ward Number <u>Ward 11</u>	Charge Nurse <u>Moina Samuel</u>																																					
Ward Name <u>Orthopaedic</u>	Staff Number <u>5011</u>																																					
Location <u>Block E</u>	Tel Extn <u>7711</u>																																					
<table border="1" style="width: 100%; border-collapse: collapse; text-align: left;"> <thead> <tr> <th>Staff No.</th> <th>Name</th> <th>Address</th> <th>Tel No.</th> <th>Position</th> <th>Shift</th> </tr> </thead> <tbody> <tr> <td>5098</td> <td>Carol Cummings</td> <td>15 High Street Edinburgh</td> <td>0131-334-5677</td> <td>Staff Nurse</td> <td>Late</td> </tr> <tr> <td>5123</td> <td>Morgan Russell</td> <td>23A George Street Broxburn</td> <td>01506-67676</td> <td>Nurse</td> <td>Late</td> </tr> <tr> <td>5167</td> <td>Robin Plevin</td> <td>7 Glen Terrace Edinburgh</td> <td>0131-339-6123</td> <td>Staff Nurse</td> <td>Early</td> </tr> <tr> <td>5234</td> <td>Amy O'Donnell</td> <td>234 Princes Street Edinburgh</td> <td>0131-334-9099</td> <td>Nurse</td> <td>Night</td> </tr> <tr> <td>5344</td> <td>Laurence Burns</td> <td>1 Apple Drive Edinburgh</td> <td>0131-334-9100</td> <td>Consultant</td> <td>Early</td> </tr> </tbody> </table>			Staff No.	Name	Address	Tel No.	Position	Shift	5098	Carol Cummings	15 High Street Edinburgh	0131-334-5677	Staff Nurse	Late	5123	Morgan Russell	23A George Street Broxburn	01506-67676	Nurse	Late	5167	Robin Plevin	7 Glen Terrace Edinburgh	0131-339-6123	Staff Nurse	Early	5234	Amy O'Donnell	234 Princes Street Edinburgh	0131-334-9099	Nurse	Night	5344	Laurence Burns	1 Apple Drive Edinburgh	0131-334-9100	Consultant	Early
Staff No.	Name	Address	Tel No.	Position	Shift																																	
5098	Carol Cummings	15 High Street Edinburgh	0131-334-5677	Staff Nurse	Late																																	
5123	Morgan Russell	23A George Street Broxburn	01506-67676	Nurse	Late																																	
5167	Robin Plevin	7 Glen Terrace Edinburgh	0131-339-6123	Staff Nurse	Early																																	
5234	Amy O'Donnell	234 Princes Street Edinburgh	0131-334-9099	Nurse	Night																																	
5344	Laurence Burns	1 Apple Drive Edinburgh	0131-334-9100	Consultant	Early																																	

Wei/meadows Hospital
Patient Registration Form
Patient Number: P10234

Personal Details

First Name _____ Last Name _____
Address 44" f"he!e!; Sex _____
North6rid es ftn'..11\e _____
_____ Tel No. 0131:332-4 111
Ca:111onmil
ls Mari tal Statu s S,-, !e
E.dirtbu h.
! :HI 5GH
DOB 12-0ec-33
Date Registered 21- -04

Next of
Kin Details

Full Name _____ Relationship So, _____
..k1mPhed!
Address 145
R:O'Al:110< SW
f.411,-e:i',.
PAZ5FE
Tel 0'141·&46·22
No. 11

Local Doctor Details

Full Name Or Clinic No. EI02
HelenPeJl (on
,;uy..1:11:1
Z2Cannon;1,1n,Yia*t,
:
EdinVu h,
EHi 61Y
Tel No. 013!·332-
0012

Page _1_

Wellmeadows Hospital
Patient Allocation
Jan-04

Week
termining 16-

Ward Number
Ws 11

Charge Nurse Mr. Molr
Stat Number 6-011
el Exlil 77"

Ward Name
Orthopedic

Location	510:KE	List	Stay (Days)	Placed	Leave	Leave	Turnover
10-161	Roer Q-U-11 re	12-111n-04	5	12-J,j -04	17-J,-tri-04	16-J,i -04	84
10-104-00	S f, f h,,,	12-J,h-04	4	14-J,i -04	18-J,i -04	18-J,i-04	79
10104:3	D,iYid t5lllt	On 12-04	14	1,-,-Jin-04	27-J,i,11-(l,(IBil d	80
10604	l.1nTh00100	14-J,-tn-04	,0	15-Jir-04	25-J.11'-0<*		87
f-10787	f rSmith	17-J,;,11-04	5	17-mt1-04	22-J,;,111-04		84

Wellmeadow
Hospital
Patient Medication
Form

Dug Number	Name	Description	Prescription Number	Units per Day	Start Date	End Date
10223	Dtpillne	Pain killer	Om,a/111	Ors	5,J	24-t,br-04
10223	Tracyllt	>Antibiotic	0-51114<1	Ors	10	24-t,br-04
10223	atflllne	Pain dller	Dmqim	Ors	10	25-Apr-04

Bed Number 84 Ward Name Orthw tilli;

Wellmeadows
Hospital
Central Stores
Requisition Form

Item/Qty Number	Name	Description	Quantity	Unit	Cost per Unit	Quantity
10223	Motphl	Willier	Om Im	Oril	27.75	50

Ward Number W,ml 1' Requisitioned By Mair
Samu !
Ward Name art,,(e IC;
Requisition Cl t• 15-F b-04

e,c lYe d By: _____ D te flei:el ve : _____