

CIS 340 Project
Phase I: E-R Model (50 Points)
Due Wednesday, March 30, by 11 PM

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

You MUST sign up for your groups in class by 12:00 pm, Wednesday, Jan 29. Otherwise, you lose five points.

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 the following style to do Phase I of the project.

1. Identify entity types with brief description

Clinic : Refers patient to hospital

Patient : A person referred to the hospital

Staff : People that work at the hospital

Appointment : Details of when a patient is scheduled to come in

Ward : Where a patient is placed once in the hospital

Medication : Medicine prescribed to the patient

Suppliers : Medication and item suppliers

Pharmaceutical : Medication dosage and supply details

Ward Requisition : Form for ordering supplies

Items : Supply that's not medication/drugs

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

One patient can have multiple appointments

One appointment can include only one staff

One appointment can include only one patient

One staff can have multiple appointments

One medication can serve multiple patients

One patient can have several medications

One staff can have multiple requisitions

One requisition includes only one staff

One supplier can have multiple items

One item can have multiple suppliers

3. Describe each entity type in detail

Patient

Primary key - Patient_id

First name

Last name

Address – Multi Value

Phone no – Multi Value

Date of birth – Date

Gender – M ,F or other

Marital Status – Single, Married, divorced or widowed

Reg_date – Registration date

Next of kin – Optional

Relationship –

Kin_address- Multi value

Kin_Phone_no – Multi Value

Appointment

Primary key - app_id

Foreign key - Staff id

Foreign key – patient id

Foreign key – ward id

App_date – Appointment date

App_time – Appointment time

Room no – variable

Duration – Time in hospital

Ward

Primary Key - Ward no

Ward_name - Variable

Ward_location – 1-17

No of beds – Specific to each ward, Total 240

Phone-ext – 3 digit extension

Staff

Primary key – Staff id

First name

Last name

Address – Multi Value

Phone – Multi Value

DOB – Lists Date

Gender – M,F or other

Staff Inquiry

Primary Key – Inquiry number

Foreign key – Staff id

Position - Variable

Salary - Salary Amount

Salary_ scale – Between x1 and x2

Qualifications

Hours_worked – time in x hours xx minutes

Payment_type – Salary or hourly

CIS 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>Maira</u>	Last Name <u>Samuel</u>
Address <u>49 School Road</u> <u>Broxburn</u>	Sex <u>Female</u>
Tel. No. <u>01506-45633</u>	Date of Birth <u>30-May-61</u>
NIN <u>WB1234230</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	

Page <u>1</u>	Wellmeadows Hospital Ward Staff Allocation	Week beginning <u>9-Jan-04</u>
Ward Number <u>Ward 11</u>	Charge Nurse <u>Molra Samuel</u>	
Ward Name <u>Orthopaedic</u>	Staff Number <u>5011</u>	
Location <u>Block E</u>	Tel Extn <u>7711</u>	

Staff No.	Name	Address	Tel No.	Position	Shift
S098	Carol Cummings	15 High Street Edinburgh	0131-334-5677	Staff Nurse	Late
S123	Morgan Russell	23A George Street Broxburn	01506-67676	Nurse	Late
S167	Robin Plevin	7 Glen Terrace Edinburgh	0131-339-6123	Staff Nurse	Early
S234	Amy O'Donnell	234 Princes Street Edinburgh	0131-334-9099	Nurse	Night
S344	Laurence Burns	1 Apple Drive Edinburgh	0131-334-9100	Consultant	Early

Wellmeadows Hospital Patient Registration Form Patient Number: <u>P10234</u>
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Personal Details
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> First Name <u>Anne</u> Address <u>44 North Bridges</u> <u>Cannonmills</u> <u>Edinburgh, EH1 5GH</u> DOB <u>12-Dec-33</u> Date Registered <u>21-Feb-04</u> </div> <div style="width: 45%;"> Last Name <u>Phelps</u> Sex <u>Female</u> Tel No. <u>0131-332-4111</u> Marital Status <u>Single</u> </div> </div>

Next-of-Kin Details
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> Full Name <u>James Phelps</u> Address <u>145 Rowlands Street</u> <u>Paisley, PA2 5FE</u> Tel No. <u>0141-648-2211</u> </div> <div style="width: 45%;"> Relationship <u>Son</u> </div> </div>

Local Doctor Details
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> Full Name <u>Dr Helen Pearson</u> Address <u>22 Cannongate Way,</u> <u>Edinburgh, EH1 6TY</u> Tel No. <u>0131-332-0012</u> </div> <div style="width: 45%;"> Clinic No. <u>E102</u> </div> </div>

Page 1**Wellmeadows Hospital**
Patient AllocationWeek
beginning 16-Jan-04Ward Number Ward 11Charge Nurse Moira SamuelWard Name OrthopaedicStaff Number 5011Location Block ETel Extn 7711

Patient Number	Name	On Waiting List	Expected Stay (Days)	Date Placed	Date Leave	Actual Leave	Bed Number
P10451	Robert Drumtree	12-Jan-04	5	12-Jan-04	17-Jan-04	16-Jan-04	84
P10480	Steven Parks	12-Jan-04	4	14-Jan-04	18-Jan-04	18-Jan-04	79
P10563	David Black	13-Jan-04	14	13-Jan-04	27-Jan-04		80
P10604	Ian Thomson	14-Jan-04	10	15-Jan-04	25-Jan-04		87
P10787	Peter Smith	17-Jan-04	5	17-Jan-04	22-Jan-04		84

Wellmeadows Hospital
Patient Medication FormPatient Number: P10034Full Name Robert MacDonaldWard Number Ward 11Bed Number 84Ward Name Orthopaedic

Drug Number	Name	Description	Dosage	Method of Admin	Units per Day	Start Date	Finish Date
10223	Morphine	Pain killer	10mg/ml	Oral	50	24-Mar-04	24-Apr-04
10334	Tetracycline	Antibiotic	0.5mg/ml	IV	10	24-Mar-04	17-Apr-04
10223	Morphine	Pain killer	10mg/ml	Oral	10	25-Apr-04	2-May-04

Wellmeadows Hospital
Central Store
Requisition FormRequisition Number: 034567712Ward Number Ward 11Requisitioned By Moira SamuelWard Name OrthopaedicRequisition Date 15-Feb-04

Item/Drug Number	Name	Description	Dosage (Drugs Only)	Method of Admin	Cost per Unit	Quantity
10223	Morphine	Pain killer	10mg/ml	Oral	27.75	50

Received By: _____

Date Received: _____

