

responsibility of the Instructor to ensure that the client is best prepared for all aspects of the test. The Instructor is not responsible for testing the client and is not in the car during the test, but should be available to drop off and pick up the client before and after the test at the Testing Center. If a client fails to pass, the Instructor must record the reasons for the failure.

B.2.2 Query Transactions (Sample)

The director has provided some examples of typical queries that the database system for the *EasyDrive School of Motoring* must support:

- (a) The names and the telephone numbers of the Managers of each office.
- (b) The full address of all offices in Glasgow.
- (c) The names of all female Instructors based in the Glasgow, Bearsden office.
- (d) The total number of staff at each office.
- (e) The total number of clients (past and present) in each city.
- (f) The timetable of appointments for a given Instructor next week.
- (g) The details of interviews conducted by a given Instructor.
- (h) The total number of female and male clients (past and present) in the Glasgow, Bearsden office.
- (i) The numbers and name of staff who are Instructors and over 55 years old.
- (j) The registration number of cars that have had no faults found.
- (k) The registration number of the cars used by Instructors at the Glasgow, Bearsden office.
- (l) The names of clients who passed the driving test in January 2008.
- (m) The names of clients who have sat the driving test more than three times and have still not passed.
- (n) The average number of miles driven during a one-hour lesson.
- (o) The number of administrative staff located at each office.

B.3 The Wellmeadows Hospital Case Study

This case study describes a small hospital called *Wellmeadows*, which is located in Edinburgh. The *Wellmeadows Hospital* specializes in the provision of health care for elderly people. Listed in these sections 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 *Wellmeadows Hospital*.

B.3.1 Data Requirements

Wards

The *Wellmeadows Hospital* has 17 wards with a total of 240 beds available for short- and long-term patients, and an outpatient clinic. Each ward is uniquely identified by a number (for example, ward 11) and also a ward name (for example,

Orthopedic), location (for example, E Block), total number of beds, and telephone extension number (for example, 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 for each member of staff includes a staff number, name (first and last), full address, telephone number, date of birth, gender, insurance number, 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 member of staff is on permanent basis or temporary contract, and the type of salary payment (weekly/monthly). An example of a *Wellmeadows Hospital* form used to record the details of a member of staff called Moira Samuel working in ward 11 is shown in Figure B.1.

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 operation of the ward/clinic. The Charge Nurse is allocated a budget to run the ward and must ensure that all resources (staff, beds, and supplies) are used effectively in the care of patients. The Medical Director works closely with the Charge Nurses to ensure the efficient 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 member of staff 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 (for example, consultants and physiotherapists) are allocated to several wards or the clinic. An example of a *Wellmeadows Hospital* report listing the details of the staff allocated to ward 11 is shown in Figure B.2.

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 name (first and last), address, telephone number, date of birth, gender, 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 telephone number.

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

Figure B.1
 Wellmeadows
 Hospital staff
 form.

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, address, and telephone number. The clinic number is unique throughout the United Kingdom. An example of a *Wellmeadows Hospital* patient registration form used to record the details of a patient called Anne Phelps is shown in Figure B.3.

Patient appointments

When a patient is referred by his or her doctor to attend the *Wellmeadows Hospital*, the patient is given an appointment for an examination by a hospital consultant.

Figure B.2
The first page of the *Wellmeadows Hospital* report listing ward staff.

Page 1

Wellmeadows Hospital
Ward Staff Allocation

Week beginning 12-Jan-09

Ward Number Ward 11

Charge Nurse Moira Samuel

Ward Name Orthopaedic

Staff Number 5011

Location Block E

Tel. Extn. 7711

| 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 |

Each appointment is given a unique appointment number. The details of each patient's appointment are recorded and include the name and staff number of the consultant performing the examination, the date and time of the appointment, and the examination room (for example, Room E252).

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, telephone number, date of birth, gender, 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), address, telephone number, date of birth, gender, 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. An example of a *Wellmeadows Hospital* report listing the details of patients allocated to ward 11 is shown in Figure B.4.

| | |
|--|--|
| Wellmeadows Hospital Patient Registration Form Patient Number: <u>P10234</u> | |
| Personal Details | |
| 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> | Last Name <u>Phelps</u> Gender <u>Female</u> Tel. No. <u>0131-332-4111</u> Marital Status <u>Single</u> |
| Next-of-Kin Details | |
| Full Name <u>James Phelps</u> Address <u>145 Rowlands Street</u> <u>Paisley, PA2 5FE</u> Tel. No. <u>0141-848-2211</u> | Relationship <u>Son</u> |
| Local Doctor Details | |
| 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> | Clinic No. <u>E102</u> |

Figure B.3

Wellmeadows
Hospital patient
registration form.

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. An example of a *Wellmeadows Hospital* report used to record the details of medication given to a patient called Robert MacDonald is shown in Figure B.5.

Surgical and nonsurgical supplies

The *Wellmeadows Hospital* maintains a central stock of surgical (for example, syringes and sterile dressings) and nonsurgical (for example, plastic bags and

Figure B.4

The first page of the *Wellmeadows Hospital* report listing ward patients.

| Wellmeadows Hospital | | | | Week beginning <u>12-Jan-09</u> | | | |
|-------------------------------------|--|-----------------------------------|--|--|--|--|--|
| Patient Allocation | | | | | | | |
| Page <u>1</u> | | Ward Number <u>Ward 11</u> | | Charge Nurse <u>Moirra Samuel</u> | | | |
| Ward Name <u>Orthopaedic</u> | | Staff Number <u>5011</u> | | | | | |
| Location <u>Block E</u> | | Tel. Extn. <u>7711</u> | | | | | |

| Patient Number | Name | On Waiting List | Expected Stay (Days) | Date Placed | Date Leave | Actual Leave | Bed Number |
|----------------|-----------------|-----------------|----------------------|-------------|------------|--------------|------------|
| P10451 | Robert Drumtree | 12-Jan-09 | 5 | 12-Jan-09 | 17-Jan-09 | 16-Jan-09 | 84 |
| P10480 | Steven Parks | 12-Jan-09 | 4 | 14-Jan-09 | 18-Jan-09 | 18-Jan-09 | 79 |
| P10563 | David Black | 13-Jan-09 | 14 | 13-Jan-09 | 27-Jan-09 | | 80 |
| P10604 | Ian Thomson | 14-Jan-09 | 10 | 15-Jan-09 | 25-Jan-09 | | 87 |
| P10787 | Peter Smith | 17-Jan-09 | 5 | 17-Jan-09 | 22-Jan-09 | | 84 |

aprons) supplies. The details of surgical and nonsurgical 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 nonsurgical 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

Figure B.5

Wellmeadows Hospital patient's medication report.

| Wellmeadows Hospital | | | | | | | |
|--|--|--|--|-------------------------------------|--|--|--|
| Patient Medication Form | | | | | | | |
| Patient Number: <u>P10034</u> | | | | | | | |
| Full Name <u>Robert MacDonald</u> | | | | Ward Number <u>Ward 11</u> | | | |
| Bed Number <u>84</u> | | | | Ward Name <u>Orthopaedic</u> | | | |

| 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-09 | 24-Apr-09 |
| 10334 | Tetracycline | Antibiotic | 0.5mg/ml | IV | 10 | 24-Mar-09 | 17-Apr-09 |
| 10223 | Morphine | Pain killer | 10mg/ml | Oral | 10 | 25-Apr-09 | 2-May-09 |

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, nonsurgical, 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. An example of a *Wellmeadows Hospital* requisition form used to order supplies of morphine for ward 11 is shown in Figure B.6.

Suppliers

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

| Wellmeadows Hospital Central Store Requisition Form | | | | | | |
|--|----------|-------------|---|--------------------|------------------|----------|
| Requisition Number: <u>034567712</u> | | | | | | |
| Ward Number <u>Ward 11</u> | | | Requisitioned By <u>Moira Samuel</u> | | | |
| Ward Name <u>Orthopaedic</u> | | | Requisition Date <u>15-Feb-09</u> | | | |
| 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: _____ | | | | | | |

Figure B.6
Wellmeadows
Hospital ward
requisition form.

B.3.2 Transaction Requirements (Sample)

The following transactions are undertaken to ensure that the appropriate information is available to enable the staff to manage and oversee the day-to-day running of the *Wellmeadows Hospital*. Each transaction is associated with a specific function within the hospital. These functions are the responsibility of members of staff with particular job titles (positions). The main user or group of users of each transaction is given in brackets at the end of the description of each transaction.

- (a) Create and maintain records recording the details of members of staff (Personnel Officer).
- (b) Search for staff who have particular qualifications or previous work experience (Personnel Officer).
- (c) Produce a report listing the details of staff allocated to each ward (Personnel Officer and Charge Nurse).
- (d) Create and maintain records recording the details of patients referred to the hospital (all staff).
- (e) Create and maintain records recording the details of patients referred to the outpatient clinic (Charge Nurse).
- (f) Produce a report listing the details of patients referred to the outpatient clinic (Charge Nurse and Medical Director).
- (g) Create and maintain records recording the details of patients referred to a particular ward (Charge Nurse).
- (h) Produce a report listing the details of patients currently located in a particular ward (Charge Nurse and Medical Director).
- (i) Produce a report listing the details of patients currently on the waiting list for a particular ward (Charge Nurse and Medical Director).
- (j) Create and maintain records recording the details of medication given to a particular patient (Charge Nurse).
- (k) Produce a report listing the details of medication for a particular patient (Charge Nurse).
- (l) Create and maintain records recording the details of suppliers for the hospital (Medical Director).
- (m) Create and maintain records detailing requisitions for supplies for particular wards (Charge Nurse).
- (n) Produce a report listing the details of supplies provided to specific wards (Charge Nurse and Medical Director).