

Hospital Database

The following table is an example of an appointments sheet that a Hospital Trust keeps for consultant sessions for all sessions run in the 3 Hospitals that together make up the trust.

Hospital Clinic Appointments							
Date of Clinic		Consultant			Hospital		
29/10/2001		No.	05	Name	Mr Hartley	Name	Eastern
		Phone	802649		Phone	7622123	
Appointments							
Time	Patient NHS no.	Patient Name	Patient GP no.	Patient GP name	Patient GP address		
1400	82-4561F	Scott Ford	3163	Dr Morning	Pembrose, PA2 5OJ		
1415	55-8277H	Paul Whyte	4200	Dr Phipps	Monkton, M11 A3GA		
1430	42-8433W	Malcolm Ainsley	3131	Dr Pollock	Dollar, D21 6TY		
1445	77-5098I	Dyanne Arshad	2090	Dr MacKenzie	Pembrose, PA2 6TR		
1500	62-8231H	Gary Campbell	5298	Dr Phipps	Ambley, AM1 4RT		
1515	34-9126P	Aileen Ford	3742	Dr MacDonald	Pembrose, PA2 5OJ		
1545	24-2187L	Adeel Kelly	3598	Dr Darge	Ambley, AM1 4RT		

Appointment sheets are kept together in a folder in the Trust's Central Hospital, City Hospital, and are sent to the relevant consultant prior to the session.

The rules for appointments are stated below, along with other relevant information:

- ❖ **Consultants work for the trust and can take sessions in any one of the 3 hospitals.**
- ❖ **Patients attend clinics taken by the consultants.**
- ❖ **A consultant can have only one clinic on a given day.**
- ❖ **Each patient can have only one clinic appointment on a given day.**
- ❖ **No two consultants have the same name.**
- ❖ **No two hospitals have the same name.**
- ❖ **Each patient has only one GP.**
- ❖ **GPs work in only one surgery.**
- ❖ **Patient NHS no and patient GP no are unique to patient and GP respectively.**

The tables below show parts of some of the appointment sheets in the folder. There are a series of mistakes in these sheets, which have occurred in part due to fact that people can easily make mistakes when completing a paper-based exercise such as this.

Hospital Clinic Appointments						1	
Date of Clinic		Consultant			Hospital		
27/10/2001		No.	05	Name	Mr Hartley	Name	St Luke's
		Phone	802649		Phone	969987	
Appointments							
Time	Patient NHS no.	Patient Name	Patient GP no.	Patient GP name	Patient GP address		
1400	82-4561F	Scott Ford	3163	Dr Morning	Pembrose, PA2 5OJ		
1415	55-8277H	Paul Whyte	4200	Dr Phipps	Monkton, M11 A3GA		
1430	42-8433W	Malcolm Ainsley	3131	Dr Pollock	Dollar, D21 6TY		

Hospital Clinic Appointments						2	
Date of Clinic		Consultant			Hospital		
27/10/2001		No.	03	Name	Mr Dyke	Name	
		Phone	200215		Phone		
Appointments							
Time	Patient NHS no.	Patient Name	Patient GP no.	Patient GP name	Patient GP address		
1000	46-8801L	Drew Nelson	3131	Dr Kelly	Pembrose, PA2 5OJ		
1030	42-8433W	Malcolm Ainsley	3131	Dr Pollock	Dollar, D21 6TY		
1000	42-6325D	Ruth Marshall	2189	Dr Seymour	Pentley, P99 7NB		

Hospital Clinic Appointments						3	
Date of Clinic		Consultant			Hospital		
27/10/2001		No.	05	Name	Mr Hartley	Name	City Hospital
		Phone	802649		Phone	524174	
Appointments							
Time	Patient NHS no.	Patient Name	Patient GP no.	Patient GP name	Patient GP address		
1400	82-4561F	Liam Boyle	4200	Dr Phipps	Dollar, D21 6TY		
1415	76-6654L	Paul Groves	6521	Dr McKenzie	Rosevale, D00 7YT		
1430	57-7876N	Peter Kerrigan	2145	Dr McDonald	Pembrose, PA2 5OJ		

Hospital Clinic Appointments						4	
Date of Clinic		Consultant			Hospital		
29/10/2001		No.		Name		Name	St Luke's
		Phone			Phone	969987	
Appointments							
Time	Patient NHS no.	Patient Name	Patient GP no.	Patient GP name	Patient GP address		
0900	74-0910M	Bill Weeks	5624	Dr Faulkes	Dollar, D21 6TY		
0915	53-8277P	Jane Hamilton	5624	Dr Faulkes	Dollar, D21 6TY		
0930	55-8277H	Paul Whyte	4200	Dr Phipps	Monkton, M11 A3GA		

Section A

Using the conditions from page 1, write down the mistakes that have occurred in the appointment sheets shown. **There are 8 mistakes in total.**

List the table number and the mistake in it. Check the data in all tables carefully and make sure that you have fully taken account of all the conditions laid out on page 1.

Section B

To reduce such errors and improve the efficiency of the system, it has been decided that the system is to be computerised.

The unnormalised system can be represented as shown below (note the unusual compound key in UNF):

Hospital (clinic date
Clinics consultant no
consultant name
consultant phone
hospital name
hospital phone
time
NHS no
patient name
patient GP no
patient GP name
patient GP address)

b. Normalise the above to 1NF, 2NF and then 3NF.

c. Draw an entity relationship diagram of the normalised system.

d. Create a detailed data dictionary ready for implementation in Filemaker Pro.

Section C

Implement the solution by importing the data in the text files in the **Hospital Database folder** (in Subjects/S5-6/Relational databases/Hospital databases).

Use the E/R diagram in here to help you to implement the solution and carry out the reports in section D. This will also tell you if your 3NF solution is correct.

Section D

a. The session scheduled for Mrs Gerard on 30/10/2001 in Eastern General has been cancelled. Remove this consultation from the system. Any patients who have an appointment on this date should have the appointment re-scheduled for the session at the Eastern General on the date closest to 30/10/2001.

b. Management require reports to ensure patients receive the best standards of care possible. Implement the reports shown below.

Report 1

Find all of the sessions scheduled for either the 27th or the 28th October 2001. Create a report that lists the date and underneath each date the hospital name and consultant name. The number of patients currently booked into each session should also be listed. A sample report is shown below.

Clinic Dates		
27/10/2001		
Hospital	Consultant	No. of Patients
City	Mr Hartley	4
St Luke's	Miss Ahmed	3
28/10/2001		
Hospital	Consultant	No. of Patients
Eastern General	Miss Ahmed	4
St Luke's	Mrs Gerard	4

Note

1. The number of patients should be generated automatically by the system.
2. You can create the layout of this report in any way you see fit. However, be aware that to produce a report such as the one above or any similar report, you will have to have a good understanding of how **sub-summaries** work.

Report 2

Produce a report listing those patients who have attended 3 or more clinics at any of the Trust's hospitals.

This report should list the patient name and below it the clinic date, consultant name and the hospital attended.

Below this, the total number of sessions attended should clearly be identified.

This process should be repeated for each patient.

Part of a sample report is provided (this sample does not use any data that you have been provided with).

Repeat Consultations		
83-4321M	Laura Myers	
Clinic Date	Consultant	Hospital
22/1/2001	Mr Hartley	St Luke's
14/3/2001	Miss Ahmed	St Luke's
7/6/2001	Mr Hartley	City
20/10/2001	Mrs Gerard	St Luke's
Number of sessions		4
77-3825L	Bernard Grant	
Clinic Date	Consultant	Hospital
19/3/2001	Mr Dyke	Eastern General
7/6/2001	Mr Hartley	City
17/10/2001	Mr Dyke	City
Number of sessions		3