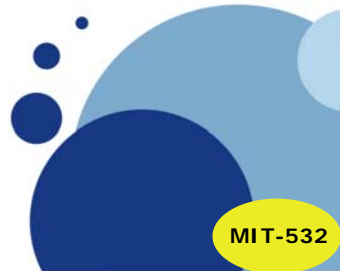




Fact-finding Techniques

Connolly, Thomas and Begg, Carolyn. 2010.
**Database Systems: A Practical Approach
to Design, Implementation, and
Management.** 5th Ed. Pearson Education.



เนื้อหา

- การรวบรวมความต้องการในการทำงาน
 - ทำการรวบรวมเมื่อไหร่
 - ทำการรวบรวมอะไร
 - เทคนิคที่ใช้ในการรวบรวมข้อมูล
- ตัวอย่างการใช้งาน



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- It is critical to capture the necessary facts to build the required database application.
- These facts are captured using fact-finding techniques.
- The formal process of using techniques such as interviews and questionnaires to collect facts about systems, requirements, and preferences.



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When Are Fact-Finding Techniques Used?

- Fact-finding used throughout the database application lifecycle. Crucial to the early stages including database planning, system definition, and requirements collection and analysis stages.
- Enables developer to learn about the terminology, problems, opportunities, constraints, requirements, and priorities of the organization and the users of the system.



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Stage of database system development lifecycle	Examples of data captured	Examples of documentation produced
Database planning	Aims and objectives of database project	Mission statement and objectives of database system
System definition	Description of major user views (includes job roles or business application areas)	Definition of scope and boundary of database application; definition of user views to be supported
Requirements collection and analysis	Requirements for user views; systems specifications, including performance and security requirements	Users' and system requirements specifications
Database design	Users' responses to checking the logical database design; functionality provided by target DBMS	Conceptual/logical database design (includes ER model(s), data dictionary, and relational schema); physical database design
Application design	Users' responses to checking interface design	Application design (includes description of programs and user interface)
DBMS selection	Functionality provided by target DBMS	DBMS evaluation and recommendations
Prototyping	Users' responses to prototype	Modified users' requirements and systems specifications
Implementation	Functionality provided by target DBMS	
Data conversion and loading	Format of current data; data import capabilities of target DBMS	
Testing	Test results	Testing strategies used; analysis of test results
Operational maintenance	Performance testing results; new or changing user and system requirements	User manual; analysis of performance results; modified users' requirements and systems specifications

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Fact-Finding Techniques

- A database developer normally uses several fact-finding techniques during a single database project including:
 - examining documentation
 - interviewing
 - observing the organization in operation
 - research
 - questionnaires

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Examining documentation

- Can be useful
 - to gain some insight as to how the need for a database arose.
 - to identify the part of the organization associated with the problem.
 - To understand the current system.

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Purpose of documentation	Examples of useful sources
Describes problem and need for database	Internal memos, e-mails, and minutes of meetings Employee/customer complaints, and documents that describe the problem Performance reviews/reports
Describes the part of the enterprise affected by problem	Organizational chart, mission statement, and strategic plan of the enterprise Objectives for the part of the enterprise being studied Task/job descriptions Samples of completed manual forms and reports Samples of completed computerized forms and reports
Describes current system	Various types of flowcharts and diagrams Data dictionary Database system design Program documentation User/training manuals

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Interviewing

- Most commonly used, and normally most useful, fact-finding technique. Enables collection of information from individuals face-to-face.
- Objectives include finding out facts, verifying facts, clarifying facts, generating enthusiasm, getting the end-user involved, identifying requirements, and gathering ideas and opinions.

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- There are two types of interviews unstructured and structured.
- Open-ended questions allow the interviewee to respond in any way that seems appropriate.
- Closed-ended questions restrict answers to either specific choices or short, direct responses.

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Advantages

Allows interviewee to respond freely and openly to questions
Allows interviewee to feel part of project

Allows interviewer to follow up on interesting comments made by interviewee
Allows interviewer to adapt or re-word questions during interview
Allows interviewer to observe interviewee's body language

Disadvantages

Very time-consuming and costly, and therefore may be impractical
Success is dependent on communication skills of interviewer
Success can be dependent on willingness of interviewees to participate in interviews

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Observing the Organization in Operation

- An effective technique for understanding a system.
- Possible to either participate in, or watch, a person perform activities to learn about the system.
- Useful when validity of data collected is in question or when the complexity of certain aspects of the system prevents a clear explanation by the end-users.

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Advantages

Allows the validity of facts and data to be checked
Observer can see exactly what is being done

Observer can also obtain data describing the physical environment of the task
Relatively inexpensive
Observer can do work measurements

Disadvantages

People may knowingly or unknowingly perform differently when being observed
May miss observing tasks involving different levels of difficulty or volume normally experienced during that time period
Some tasks may not always be performed in the manner in which they are observed
May be impractical

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Research

- Useful to research the application and problem.
- Use computer trade journals, reference books, and the Internet (including user groups and bulletin boards).
- Provide information on how others have solved similar problems, plus whether or not software packages exist to solve or even partially solve the problem.

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Advantages

Can save time if solution already exists
Researcher can see how others have solved similar problems or met similar requirements
Keeps researcher up to date with current developments

Disadvantages

Requires access to appropriate sources of information
May ultimately not help in solving problem because problem is not documented elsewhere

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Questionnaires

- Conduct surveys through questionnaires, which are special-purpose documents that allow facts to be gathered from a large number of people while maintaining some control over their responses.
- There are two types of questions, namely free-format and fixed-format.

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Advantages

People can complete and return questionnaires at their convenience

Relatively inexpensive way to gather data from a large number of people

People more likely to provide the real facts as responses can be kept confidential

Responses can be tabulated and analyzed quickly

Disadvantages

Number of respondents can be low, possibly only 5% to 10%

Questionnaires may be returned incomplete

May not provide an opportunity to adapt or re-word questions that have been misinterpreted

Cannot observe and analyze the respondent's body language

Using Fact-Finding Techniques – A Worked Example

DreamHome Staff Registration Form	
Staff Number <u>SG5</u>	Branch Number <u>B003</u>
Full Name <u>Susan Brand</u>	Branch Address <u>163 Main St, Glasgow</u>
Sex <u>F</u> DOB <u>3-Jun-40</u>	Telephone Number(s) <u>0141-339-2178 / 0141-339-4439</u>
Position <u>Manager</u>	
Salary <u>24000</u>	
Enter details where applicable	
Supervisor Name _____	Manager Start Date <u>01-Jun-90</u> Manager Bonus <u>2350</u>

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Using Fact-Finding Techniques – A Worked Example

DreamHome Staff Listing		
Branch Number <u>B003</u>	Branch Address <u>163 Main St, Glasgow</u>	
Telephone Number(s) <u>0141-339-2178 / 0141-339-4439</u>	<u>G11 9QX</u>	
Staff Number	Name	Position
SG5	Susan Brand	Manager
SG14	David Ford	Supervisor
SG37	Ann Beech	Assistant
SG112	Annet Longhorn	Supervisor
SG126	Chris Lawrence	Assistant
SG132	Sofie Walters	Assistant

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Using Fact-Finding Techniques – A Worked Example

DreamHome Property Registration Form	
Property Number <u>PG16</u>	Owner Number <u>C093</u> (If known)
Type <u>Flat</u> Rooms <u>4</u>	Person/Business Name <u>Tony Shaw</u>
Rent <u>450</u>	Address <u>12 Park Pl,</u> <u>Glasgow G4 0QR</u>
Address <u>5 Novar Drive,</u> <u>Glasgow, G12 9AX</u>	Tel No <u>0141-225-7025</u>
Enter details where applicable	
Type of business _____	Contact Name _____
Managed by staff <u>David Ford</u>	Registered at branch <u>163 Main St, Glasgow</u>

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Using Fact-Finding Techniques – A Worked Example

DreamHome Client Registration Form	
Client Number <u>CR74</u> (Enter if known)	Branch Number <u>B003</u>
Full Name <u>Mike Ritchie</u>	Branch Address <u>163 Main St, Glasgow</u>
Enter property requirements Type <u>Flat</u> Max Rent <u>750</u>	Registered By <u>Ann Beech</u> Date Registered <u>16-Nov-02</u>

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Using Fact-Finding Techniques – A Worked Example

DreamHome Property Listing for Week beginning 01/06/04																																				
If you are interested in viewing or renting any of the properties in this list please contact our branch office as soon as possible.																																				
Branch Address <u>163 Main St, Glasgow</u> <u>G11 9QX</u>	Telephone Number(s) <u>0141-339-2178 / 0141-339-4439</u>																																			
<table border="1"> <thead> <tr> <th>Property No</th> <th>Address</th> <th>Type</th> <th>Rooms</th> <th>Rent</th> </tr> </thead> <tbody> <tr> <td>PG4</td> <td>6 Lawrence St, Glasgow</td> <td>Flat</td> <td>3</td> <td>350</td> </tr> <tr> <td>PG36</td> <td>2 Manor Rd, Glasgow</td> <td>Flat</td> <td>3</td> <td>375</td> </tr> <tr> <td>PG21</td> <td>18 Dale Road, Glasgow</td> <td>House</td> <td>5</td> <td>600</td> </tr> <tr> <td>PG16</td> <td>5 Novar Drive, Glasgow</td> <td>Flat</td> <td>4</td> <td>450</td> </tr> <tr> <td>PG77</td> <td>100A Apple Lane, Glasgow</td> <td>House</td> <td>6</td> <td>560</td> </tr> <tr> <td>PG81</td> <td>781 Greentree Dr, Glasgow</td> <td>Flat</td> <td>4</td> <td>440</td> </tr> </tbody> </table>		Property No	Address	Type	Rooms	Rent	PG4	6 Lawrence St, Glasgow	Flat	3	350	PG36	2 Manor Rd, Glasgow	Flat	3	375	PG21	18 Dale Road, Glasgow	House	5	600	PG16	5 Novar Drive, Glasgow	Flat	4	450	PG77	100A Apple Lane, Glasgow	House	6	560	PG81	781 Greentree Dr, Glasgow	Flat	4	440
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Using Fact-Finding Techniques – A Worked Example

DreamHome Property Viewing Report																							
Property Number <u>PG4</u> Type <u>Flat</u> Rent <u>350</u>	Property Address <u>6 Lawrence St, Glasgow</u>																						
<table border="1"> <thead> <tr> <th>Client No</th> <th>Name</th> <th>Date</th> <th>Comments</th> </tr> </thead> <tbody> <tr> <td>CR76</td> <td>John Kay</td> <td>20/04/04</td> <td>Too remote.</td> </tr> <tr> <td>CR56</td> <td>Aline Stewart</td> <td>26/05/04</td> <td></td> </tr> <tr> <td>CR74</td> <td>Mike Ritchie</td> <td>11/11/04</td> <td></td> </tr> <tr> <td>CR62</td> <td>Mary Tregear</td> <td>11/11/04</td> <td>OK, but needs redecoration throughout.</td> </tr> </tbody> </table>	Client No	Name	Date	Comments	CR76	John Kay	20/04/04	Too remote.	CR56	Aline Stewart	26/05/04		CR74	Mike Ritchie	11/11/04		CR62	Mary Tregear	11/11/04	OK, but needs redecoration throughout.			
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Using Fact-Finding Techniques – A Worked Example

DreamHome Lease Number 00345810	
Client Number <u>CR74</u> (Enter if known) Full Name <u>Mike Ritchie</u> (Please print) Client Signature _____	Property Number <u>PG16</u> Property Address <u>5 Novar Dr, Glasgow</u>
Enter payment details Monthly Rent <u>450</u> Payment Method <u>Cheque</u> Deposit Paid (Y or N) <u>Yes</u>	Rent Start <u>01/06/04</u> Rent Finish <u>31/05/05</u> Duration <u>1 year</u>

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Mission Statement for *DreamHome* Database System

'The purpose of the *DreamHome* database system is to maintain the data that is used and generated to support the property rentals business for our clients and property owners and to facilitate the cooperation and sharing of information between branches.'

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Mission Objectives for *DreamHome* Database System

To maintain (enter, update, and delete) data on branches.
To maintain (enter, update, and delete) data on staff.
To maintain (enter, update, and delete) data on properties for rent.
To maintain (enter, update, and delete) data on property owners.
To maintain (enter, update, and delete) data on clients.
To maintain (enter, update, and delete) data on property viewings.
To maintain (enter, update, and delete) data on leases.
To maintain (enter, update, and delete) data on newspaper adverts.

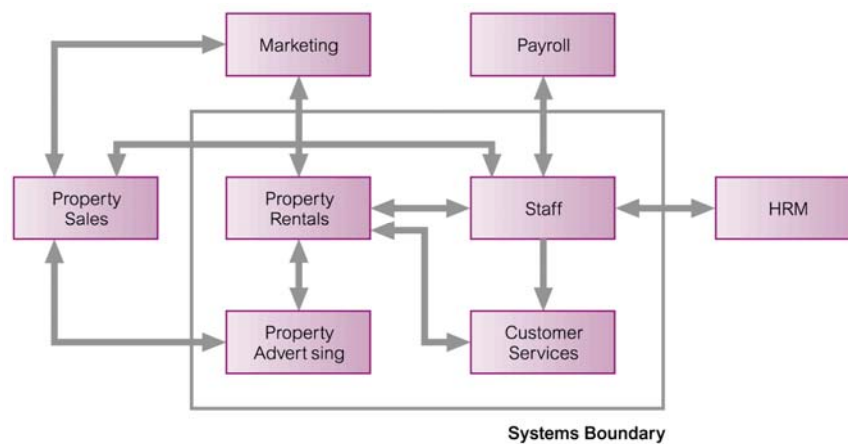
To perform searches on branches.
To perform searches on staff.
To perform searches on properties for rent.
To perform searches on property owners.
To perform searches on clients.
To perform searches on property viewings.
To perform searches on leases.
To perform searches on newspaper adverts.

To track the status of property for rent.
To track the status of clients wishing to rent.
To track the status of leases.

To report on branches.
To report on staff.
To report on properties for rent.
To report on property owners.
To report on clients.
To report on property viewings.
To report on leases.
To report on newspaper adverts.

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System Boundary for *DreamHome* Database System



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Major User Views for *DreamHome* Database System

Data	Access Type	Director	Manager	Supervisor	Assistant
All Branches	Maintain				
	Query	X	X		
	Report	X	X		
Single Branch	Maintain		X		
	Query		X		
	Report		X		
All Staff	Maintain				
	Query	X	X		
	Report	X	X		
Branch Staff	Maintain		X		
	Query		X	X	
	Report		X	X	
All Property	Maintain				
	Query	X			
	Report	X			
Branch Property	Maintain		X	X	
	Query		X	X	X
	Report		X	X	X
All Owners	Maintain		X		
	Query	X	X		
	Report	X	X		
Branch Owners	Maintain		X	X	
	Query		X	X	X
	Report		X	X	X
All Clients	Maintain				
	Query	X			
	Report	X			
Branch Clients	Maintain		X	X	
	Query		X	X	X
	Report		X	X	X
All Viewings	Maintain				
	Query				
	Report				
Branch Viewings	Maintain			X	X
	Query			X	X
	Report			X	X
All Leases	Maintain				
	Query	X			
	Report	X			
Branch Leases	Maintain		X		
	Query		X	X	X
	Report		X	X	X
All Newspapers	Maintain				
	Query	X			
	Report	X			
Branch Newspapers	Maintain		X		
	Query		X		
	Report		X		

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Cross-reference of user views with main types of data used by each

	Director	Manager	Supervisor	Assistant
branch	X	X		
staff	X	X	X	
property for rent	X	X	X	X
owner	X	X	X	X
client	X	X	X	X
property viewing			X	X
lease	X	X	X	X
newspaper	X	X		

