

Chapter 5

Fact-finding Transparencies

Objectives

- When fact-finding techniques are used in the database system development lifecycle.
- The types of facts collected throughout the database system development lifecycle.
- The types of documentation produced throughout the database system development lifecycle.
- The most commonly used fact-finding techniques.
- How to use each fact-finding technique and the advantages and disadvantages of each.

Objectives

- About a Web-based DVD rental company called *StayHome Online Rentals*.
- How to use fact-finding techniques in the database planning, systems definition, and requirements collection and analysis stages of the database system development lifecycle.
- Examples of the types of documentation created in the database planning, systems definition, and requirements collection and analysis stages of the database system development lifecycle.

Fact-finding

- The formal process of using techniques such as interviews and questionnaires to collect facts about systems, requirements, and preferences.
- Many occasions for fact-finding during the database system development lifecycle.
- Particularly crucial to the early stages of the lifecycle, including the database planning, system definition, and requirements collection and analysis stages.

What facts are collected and when?

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 and/or business application areas)	Definition of scope and boundary of database system; definition of user views to be supported
Requirements collection and analysis	Data requirements for user views and general requirements for the database system, including performance and security requirements	Users' requirements specifications (includes data dictionary, use case diagrams and descriptions) and systems specification
Database design	Users' responses to checking the logical and physical database design; functionality provided by target DBMS	Logical database design (includes ER diagram(s), data dictionary, and description of tables) and physical database design (includes description of tables using target DBMS)
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 specifications and systems specification
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 specification

Fact-finding techniques

- A database developer normally uses several fact-finding techniques during a single database project, including:
 - Examining documentation,
 - Interviewing,
 - Observing the business in operation,
 - Research,
 - Questionnaires.

Examining documentation

- Examining documents, forms, reports, and files associated with the current system, is a good way to quickly gain some understanding of the system.

Examples of documentation to examine

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 organization (or part of organization) affected by problem	Organizational chart, mission statement, and company reports Objectives for the organization being studied Task/job descriptions Samples of manual forms and reports Samples of computerized forms and reports Completed forms/reports
Describes current system	Various types of flowcharts and diagrams Data dictionary Database system design Program documentation User/training manuals

Advantages / disadvantages of examining documentation

Advantages	Disadvantages
Provides background information on the company, problem area and current system(s)	Access to all useful company documents may not always be granted due to ethical, legal and/or business reasons
Allows a more focused approach to gathering requirements for new database system	Documents may be out dated, incomplete and/or inaccurate
	Amount of documentation to examine may be overwhelming
	Time-consuming and therefore may be impractical.

Interviewing

- Interviewing is the most commonly used, and normally most useful, fact-finding technique.
- Objectives include:
 - finding out and/or checking facts;
 - generating user interest and/or feelings of involvement;
 - identifying requirements and/or gathering ideas and opinions.

Advantages / disadvantages of interviewing

Advantages	Disadvantages
Allows interviewee to respond freely and openly to questions	Very time-consuming and costly, and therefore may be impractical
Allows interviewee to feel involvement in project	Success is dependent on communication skills of interviewer
Allows interviewer to follow up on interesting comments made by interviewee	May gather conflicting requirements that may be difficult to resolve
Allows interviewer to adapt or re-word questions during interview	
Allows interviewer to observe interviewee's body language	
Current technologies such as video conferencing allow interviewing of employees working at remote sites	

Interviewing

- Management activities that allow stages of database system development lifecycle to be realized as efficiently and effectively as possible.
- Should be integrated with overall IS strategy of the organization.
- Includes creation of the mission statement and mission objectives for the database system.

Interviewing

- There are two types of interviews: unstructured and structured.
 - Unstructured interviews are conducted with only a general objective in mind and with few, if any, specific questions.
 - In structured interviews, the interviewer has a specific set of questions to ask the interviewee.

Interviewing

- There are two types of questions: open-ended and closed.
 - 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.

Observing the business in operation

- One of the most effective techniques.
- Can either participate in, or watch a person perform activities to learn about the system.

Advantages / disadvantages of observation

Advantages	Disadvantages
Allows the validity of facts and data to be checked	People may knowingly or unknowingly perform differently when being observed
Observer can see exactly what is being done	May miss observing tasks involving different levels of difficulty or volume normally experienced during that time period
Observer can identify what data is required to complete tasks and how accessible are the sources of data	Some tasks may not always be performed in the manner in which they are observed
Observer can also obtain data describing the physical environment of the task	Maybe impractical
Relatively inexpensive	
Observer can do work measurements such as time taken to complete particular tasks	

Research

- Useful to research the application and problem.
- Computer trade journals, reference books, and the Internet are good sources of information.
- May find how others have solved similar problems, plus you can learn whether or not software packages exist to solve your problem.

Advantages / disadvantages of research

Advantages	Disadvantages
Can save time if solution already exists	Can be time-consuming
Researcher can see how others have solved similar problems or met similar requirements	Requires access to appropriate sources of information
Keeps researcher up to date with current developments	May ultimately not help in solving problem because problem is not documented elsewhere
Can provide useful background information to help inform the use of one or more of the other fact-finding techniques (such as questionnaires and interviews)	

Questionnaires

- Can conduct surveys through questionnaires.
- Questionnaires are special-purpose documents that allow you to gather facts from a large number of people while maintaining some control over their responses.

Questionnaires

- There are two formats for questionnaires: free-format and fixed-format.
- Free-format questionnaires offer the respondent greater freedom in providing answers.
- Fixed-format questionnaires contain questions that require specific responses from individuals.

Advantages / disadvantages of questionnaires

Advantages	Disadvantages
People can complete and return questionnaires at their convenience	Number of respondents can be low, possibly only 5-10 per cent (particularly if the postal service or e-mail is used to deliver the questionnaires)
Relatively inexpensive way to gather data from a large number of people	Questionnaires may be returned incomplete, particularly if the questionnaire is long or overly complex
People more likely to provide the real facts as responses can be kept confidential	No opportunity to adapt or re-word questions that may have been misinterpreted
Responses can be tabulated and analyzed quickly	No opportunity to observe and analyze the respondent's body language
Can be delivered using various modes including person-to-person, postal service, and e-mail	Can be time-consuming to prepare questionnaire

The *StayHome* case study

- This case study describes a on online DVD rental company called *StayHome*, which rents out DVDs to its members. The first warehouse and head offices of *StayHome* was established in 1982 in Seattle but the company has now grown and has three additional warehouses in different states of the United States.

Home page for the *StayHome Online Rentals* Web site



Web page of member of staff called Sally Adams



Web page (1) for new member of *StayHome Online Rentals*

StayHome DVD Rental - Try Free - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address <http://www.stayhome.com/stayhomesignup.htm> Go Links

Google Search 38 blocked ABC Check AutoLink AutoFill

StayHome DVD Rental

[Sign In](#) [Contact Us](#)

Signup: Step 1 of 3

Email Address and Password

Your email address: You will use this to sign in.

Password: 4 or more characters.

Confirm password: Enter it again just to be sure.

Delivery information

First name:

Last name:

Street:

City:

State: (Optional)
See applicable U.S. Territories

Zip Code:

[continue →](#)

[Welcome](#) | [How It Works](#) | [Browse Selection](#) | [FREE Trial](#)


Web page (2) for new member of *StayHome Online Rentals*

The screenshot shows a Microsoft Internet Explorer browser window displaying the StayHome DVD Rental website. The address bar shows the URL <http://www.stayhome.com/stayhomesignup2.htm>. The page title is "StayHome DVD Rental - Try Free". The main heading is "StayHome DVD Rental" with links for "Sign In" and "Contact Us". The page is titled "Signup: Step 2 of 3" and asks the user to "Please indicate which package you would like to select to start your FREE trial." Below this is a table of DVD rental packages. The "3 At A Time" package is selected. A "continue" button with a right arrow is visible. At the bottom, there are navigation links: "Welcome | How It Works | Browse Selection | FREE Trial", and a footer with "Use of the StayHome service and this Web site constitutes acceptance of our Terms of Use and Privacy Policy." and "© 1997-2006 StayHome, Inc. All rights reserved."

StayHome DVD Rental [Sign In](#) [Contact Us](#)

Signup: Step 2 of 3

Please indicate which package you would like to select to start your FREE trial.

DVD rental packages 				
Package	At a time	Max / month	Free Trial	Price
<input type="radio"/> 1 At A Time	1 disc	Unlimited rentals	14 Days	\$9.99
<input checked="" type="radio"/> 3 At A Time	3 discs	Unlimited rentals	14 Days	\$11.99
<input type="radio"/> 5 At A Time	5 discs	Unlimited rentals	14 Days	\$14.99

Note: You can change your package at any time.

continue →

[Welcome](#) | [How It Works](#) | [Browse Selection](#) | [FREE Trial](#)

Use of the StayHome service and this Web site constitutes acceptance of our [Terms of Use](#) and [Privacy Policy](#).
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Web page for browsing DVDs available at *StayHome Online Rentals*

StayHome DVD Rental - Browse Selection - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print Mail News RSS Feeds

Address <http://www.stayhome.com/stayhomebrowse.htm> Go Links >>

Google Search 38 blocked ABC Check AutoLink AutoFill

StayHome DVD Rental

Sign In Co

Welcome How It Works Browse Selection Start Your FREE Trial

Browse Selection

SEARCH (title or actor)

GO

Browse Our Selection

- [New Releases](#)
- [Action](#)
- [Children](#)
- [Sci-Fi](#)
- [Comedy](#)
- [Horror](#)
- [Romance](#)

Children ([see more](#))

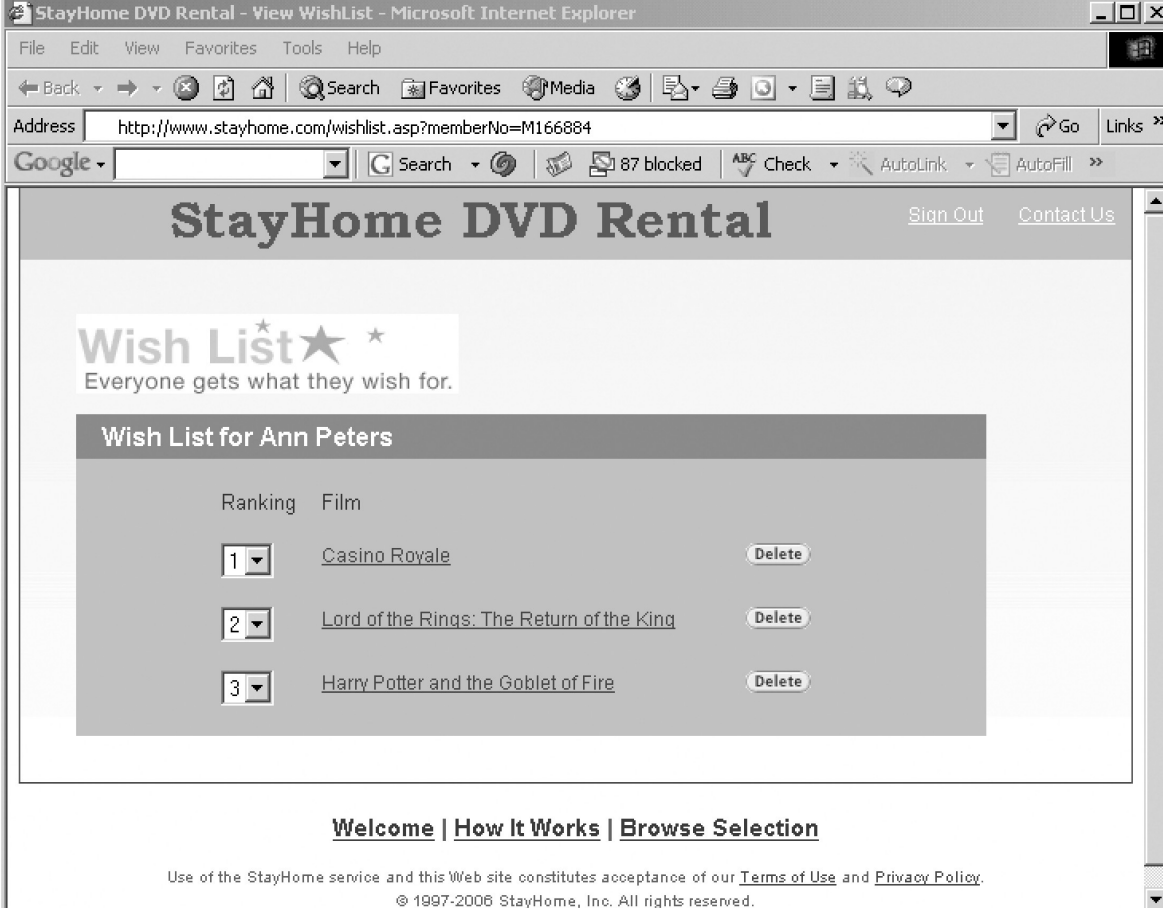
- [Lemony Snicket: A Series of Unfortunate Events](#)
- [Shrek 2](#)
- [Harry Potter and the Goblet of Fire](#)
- [Star Wars: Episode III](#)
- [The Incredibles](#)

Action ([see more](#))

- [Lord of the Rings: Return of the King](#)
- [Mission Impossible III](#)
- [Spider-Man 2](#)
- [Pirates of the Caribbean](#)
- [Die Another Day](#)

Welcome | [How It Works](#) | [Browse Selection](#) | [FREE Trial](#)

An example of the DVDs that Ann Peters wishes to view



The screenshot shows a Microsoft Internet Explorer browser window titled "StayHome DVD Rental - View WishList - Microsoft Internet Explorer". The address bar displays "http://www.stayhome.com/wishlist.asp?memberNo=M166884". The browser's search bar contains "Google". The main content area of the page features the "StayHome DVD Rental" logo and navigation links for "Sign Out" and "Contact Us". Below the logo is a "Wish List" section with the tagline "Everyone gets what they wish for." and a sub-header "Wish List for Ann Peters". This section contains a table with three rows, each representing a DVD in the wish list. Each row includes a ranking dropdown menu, the film title, and a "Delete" button.

Ranking	Film	Action
1	Casino Royale	Delete
2	Lord of the Rings: The Return of the King	Delete
3	Harry Potter and the Goblet of Fire	Delete

At the bottom of the page, there are links for "Welcome", "How It Works", and "Browse Selection". A footer contains the text: "Use of the StayHome service and this Web site constitutes acceptance of our [Terms of Use](#) and [Privacy Policy](#). © 1997-2006 StayHome, Inc. All rights reserved."

StayHome case study - database planning (mission statement)

'The StayHome Online Rentals database system will manage the data captured through the web site and created at the distribution centers to help the company provide members with a secure, efficient, and cost effective online DVD rentals service that allows the easy selection and viewing of DVDs in their own home.'

StayHome case study - database planning (mission objectives)

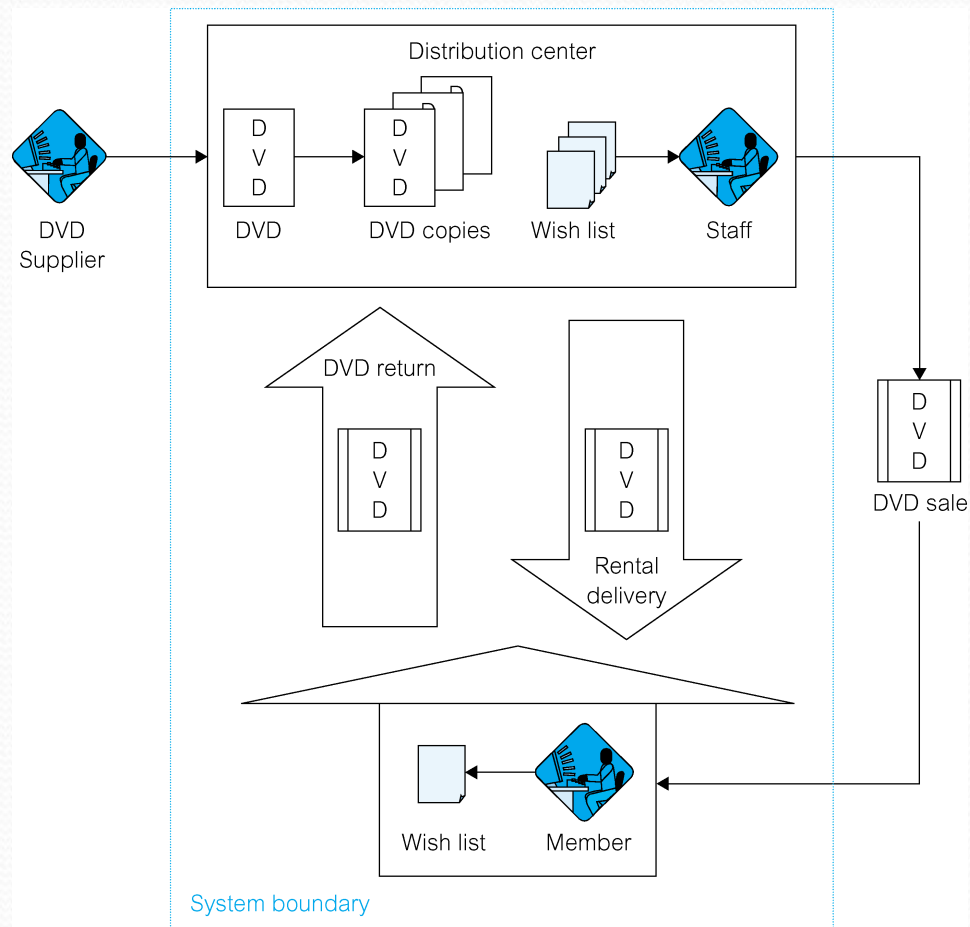
To maintain (enter, update, and delete) data on distribution centers
To maintain (enter, update, and delete) data on staff
To maintain (enter, update, and delete) data on DVDs
To maintain (enter, update, and delete) data on DVD copies
To maintain (enter, update, and delete) data on actors
To maintain (enter, update, and delete) data on member personal details
To maintain (enter, update, and delete) data on membership types
To maintain (enter, update, and delete) data on member wishes
To maintain (enter, update, and delete) data on rental deliveries

To perform searches on distribution centers
To perform searches on staff
To perform searches on DVDs
To perform searches on DVD copies
To perform searches on actors
To perform searches on member personal details
To perform searches on membership types
To perform searches on member wishes
To perform searches on rental deliveries

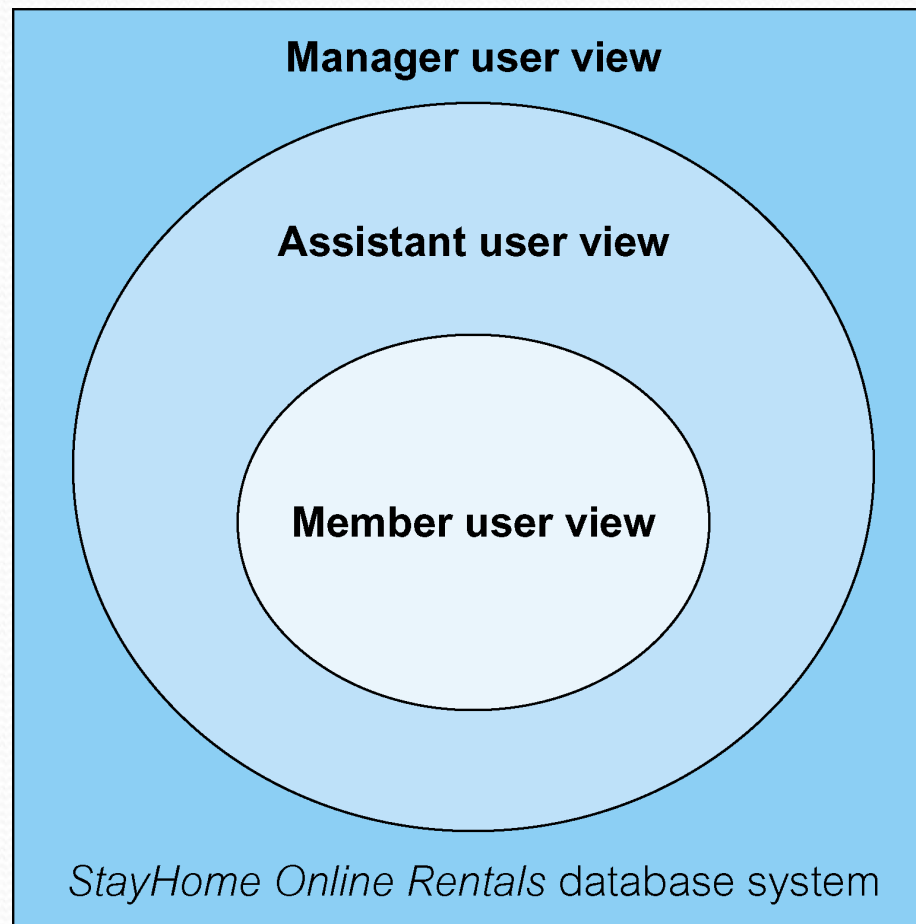
To track the status of DVD copies
To track the status of rental deliveries

To report on staff
To report on DVDs
To report on DVD copies
To report on actors
To report on member personal details
To report on member wishes
To report on rental deliveries

StayHome case study - system definition (system Boundary)



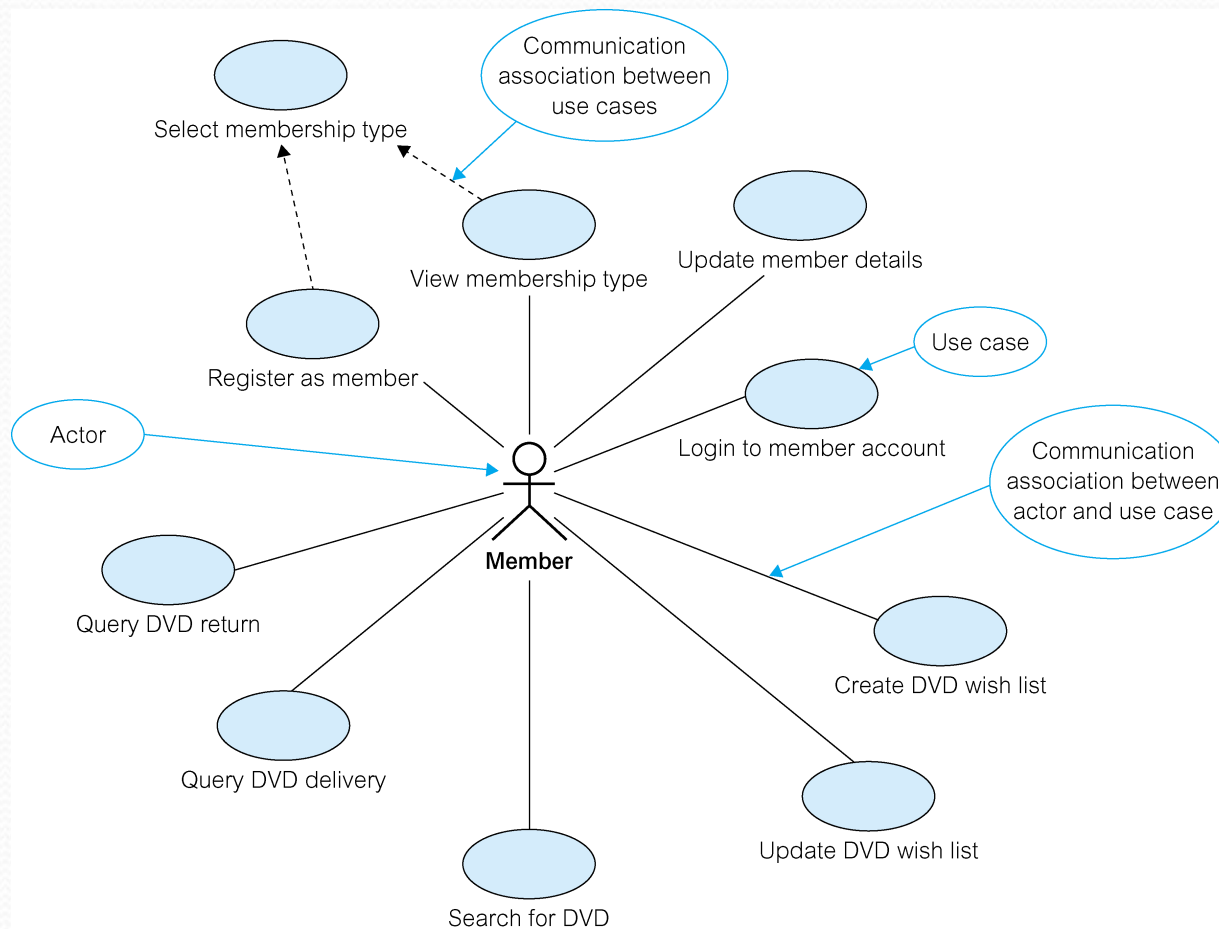
StayHome case study - system definition (user views)



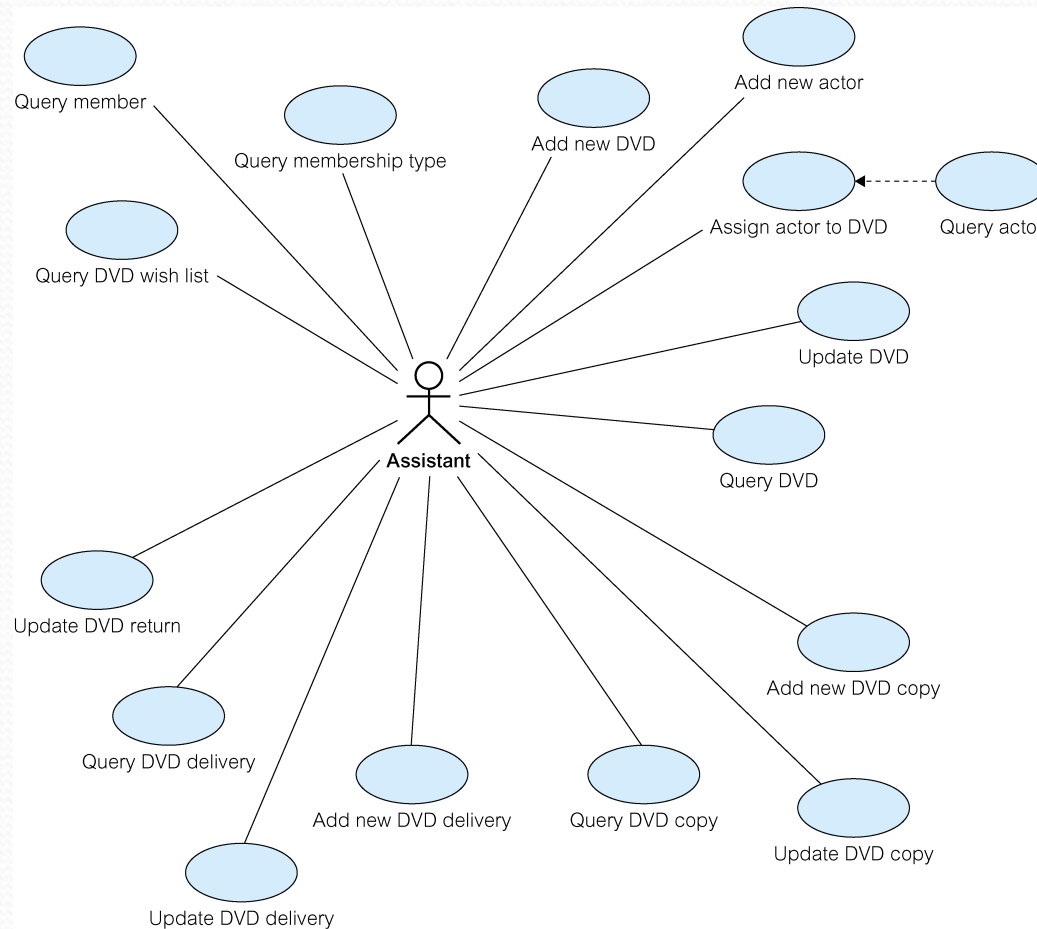
Cross-reference of user views with the main types of data

	Distribution Center	Staff	DVD	DVD Copy	Actor	Member Personal	Membership Type	Member Wish	Rental Delivery
Manager	X	X	X	X	X	X	X	X	X
Assistant			X	X	X	X	X	X	X
Member			X		X	X	X	X	X

Use case diagram for the Member user view



Use case diagram for the Assistant user view



Use case diagram for the Manager user view

