

# Information Systems Analysis & Design (M8748)

## Tutorial 6 Answer

1. Read the following description of a requirement for FoodCo, and decide which parts of it are functional requirements and which are non-functional requirements.

*The allocation of staff to production lines should be mostly automated. A process will be run once a week to carry out the allocation based on the skills and experience of operatives. Details of holidays and sick leave will also be taken into account. A first draft Allocation List will be printed off by 72.00 noon on Friday for the following week. Only staff in Production Planning will be able to amend the automatic allocation to fine-tune the list. Once the amendments have been made, the final Allocation List must be printed out by 5.00 pm. The system must be able to handle allocation of 700 operatives at present, and should be capable of expansion to handle double that number:*

Examples of functional requirements are: the need for a process to be run that allocates staff to lines based on their skills and experience, holidays and sick leave; printing out an allocation list; amending the allocation list. Examples of non-functional requirements include: printing the allocation list by 12.00 noon; the need to handle 200 operatives' details.

2. Name the five main fact finding techniques and list one advantage and one disadvantage of each.

### Background reading:

- Advantage: helps to understand the organization before meeting the people and starting to work on site.
- Disadvantage: written documents may be out of date or not match up to the reality of the organization.

### Interviewing:

- Advantage – the interviewer can respond to what the interviewee says and direct the interview appropriately.
- Disadvantage: – interviews are time-consuming and thus a costly way of fact-gathering.

### Observation:

- Advantage – provides firsthand experience of the way the current system operates.
- Disadvantage – when being observed people may behave differently from how they normally do.

### Document sampling:

- Advantage – can be used to gather quantitative data on existing volumes of data.

- Disadvantage – if the system is going to change dramatically, existing documents may not be a good indication of what is required.

**Questionnaires:**

- Advantage – economical way of gathering information from a large number of people.
- Disadvantage – postal questionnaires can suffer from low response rates.

(See other examples on pages 100–107.)

3. Imagine that you will be interviewing one of the three staff in Production Planning at FoodCo. Draw up ten questions that you would want to ask him or her.

1. Am I right in thinking that you are responsible to the Chief Planner?
2. There are three of you. Do you all do the same work or do you have different responsibilities?
3. Do you work with any of the other people in this department, for example the Production Control staff?
4. What other parts of the company do you get information from?
5. What other parts of the company do you provide with information?
6. What happens when you begin planning the next week's allocation?
7. Where do you get the information about what factory operatives are available?
8. Where do you get information about what needs to be manufactured?
9. How much of what is manufactured is the same every week?
10. What paper forms do you use in your work?

4. What is the purpose of producing use cases?

Use cases are produced to model the functionality of the system from the users' point of view and to show which users will communicate with the system. They show the scope of the system.

(See page 135.)

5. Describe in your own words the difference between the «extend» and «include» relationships in use case diagrams.

The «include» relationship between use cases is used to separate out common behaviour that takes place in a number of use cases, and put it into a separate use case. All the use cases that require this behaviour then have an «include» relationship with the new use case that contains it. The included use case is always included in the including use case.

The «extend» relationship between use cases is used to model optional behaviour. Under certain circumstances, the base use case will be extended by the addition of the behaviour in the extending use case. This takes place at an extension point described in the use case description of the base use case and optionally shown in a compartment in

the use case on the diagram.

(See pages 138–139)

6. What is the difference between an ‘essential’ and a ‘real’ use case?

An essential use case documents the interaction between user and system in a way that is free of technological and implementation details, and a real use case describes the concrete detail of a use case in terms of its design.

(See page 137.)

7. Write a use case description in the extended form, used for the **Assign staff to work on a campaign** example in Section 6.6.2, for either **Create concept note** or **Browse concept notes**.

#### Create Concept Note

1. The member of staff requests a list of clients.
2. The system displays a list of clients.
3. The member of staff selects a particular client.
4. The system displays a list of campaigns for that client.
5. The member of staff selects a particular campaign.
6. The system displays details of the campaign.
7. The member of staff enters the title of the note.
8. The member of staff enters the full text of the note.
9. The system displays the date and time.
10. The member of staff enters their name.
11. The system checks that the member of staff is authorized to add notes to that campaign.
12. The member of staff instructs the system to save the concept note.
13. The system saves the concept note.

(This shows that it may be better to get the name of the member of staff before they enter the text of the note so that they do not waste their time if they are not authorized. The decision as to whether they are authorized or not could be based on their network login. However, that is more of a design decision and part of a ‘real’ use case, rather than this ‘essential’ use case. A ‘real’ use case might include details of how the lists of clients and campaigns will be displayed, as in the examples in Chapter 17, particularly Figure 17.5.)

#### Browse Concept Note

1. The member of staff requests a list of clients.
2. The system displays a list of clients.
3. The member of staff selects a particular client.
4. The system displays a list of campaigns for that client.

5. The member of staff selects a particular campaign.
6. The system displays details of the campaign.
7. The system displays the titles of all the notes for that campaign.
8. The member of staff selects a particular note.
9. The system displays the full text of the note, the date and time created and the name of the person who created it.

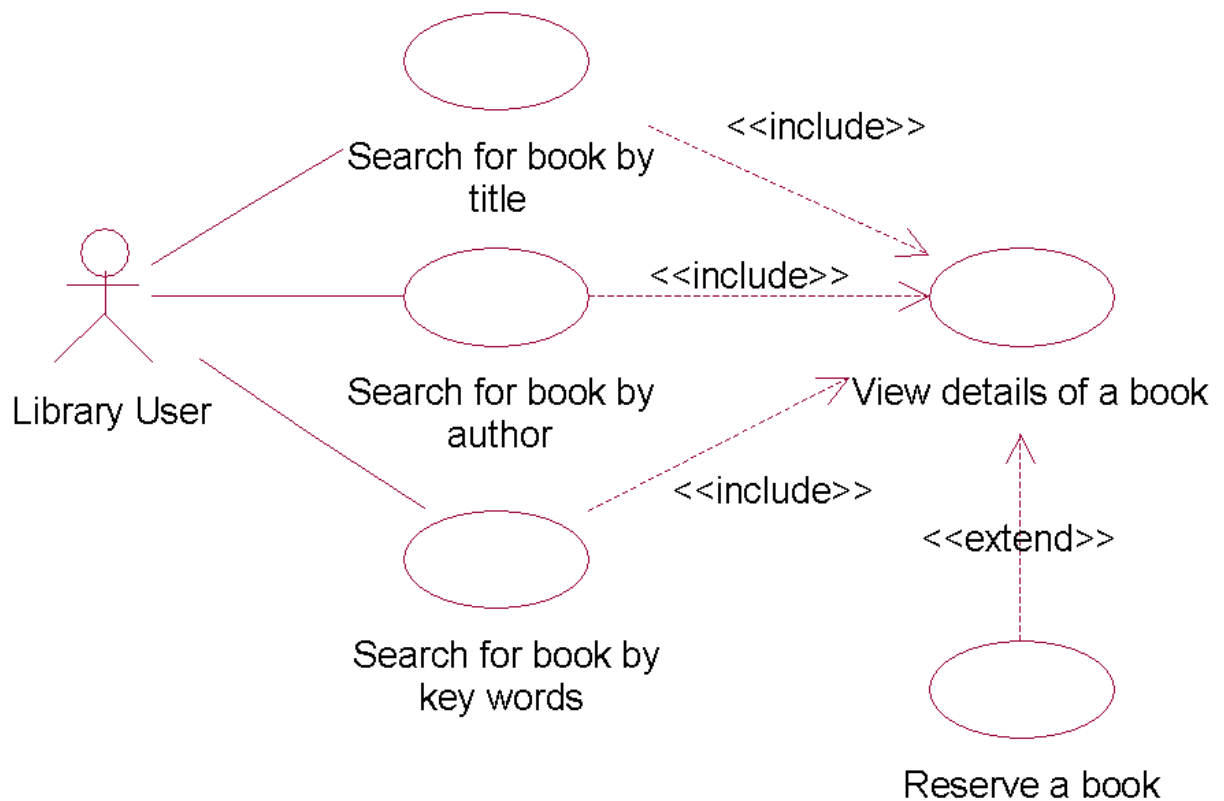
Steps 8 and 9 can be repeated for all notes in any order.

8. Think of the different possible uses you could make of a library computer system and draw a use case diagram to represent these use cases.

Typical use cases for a library system from the point of view of the user are:

- Search for a book by title.
- Search for a book by author.
- Search for a book by key words.
- View details of a book.
- Reserve a book.

(Other use cases could involve the Librarian as a user, for example Issue a book, Return a book, Cancel a fine etc. The five examples listed illustrate the use of «include» and «extend» relationships.



9. List some non-functional requirements a library computer system (as in Question 6.8) that you would not model using use cases.

The system must be capable of holding details of 20,000 users and 500,000 books (or whatever figures you think might be appropriate).

The system will begin to respond to all user search enquiries within 5 seconds.

Personal details of users will only be accessible to authorized staff and will be protected using a password system.

10. In what way are use case diagrams different when used for business modeling?

The main difference is that actors are the people, organizations and systems outside the organization that is being modeled. The use cases reflect the business processes of the organization rather than functionality delivered by a computerized information system.