

Tools and Techniques for Collecting Requirements

You collect the requirement-related data, present it, analyze it, and make decisions about requirements or tools. You perform these tasks by using some techniques. If you need help with these techniques, you can always use tools of expert judgment.

Data-Gathering Techniques

The following are some examples of data-gathering techniques that can be used depending on the project need.

Observation and Conversation. Observation is a technique in which the requirements about a product or project process are gathered by directly observing the user using the product or performing the process. In other words, the process or product is observed in action in the real world with people on the job. For that reason, this technique is also called *job shadowing*. Depending on the situation, the observer can simply observe the user doing the job or can participate in it. Of course, conversation and articulation skills will matter here.

Interviews, Questionnaires, and Surveys. An interview is typically performed by asking pre-determined and on-the-spot questions and recording the responses. Depending on the situation, interviews may take several forms, such as one-on-one, multiple interviewees, or multiple interviewers. For example, by interviewing subject matter experts and individuals who ran similar projects before, you may identify and define some features and functions of the project deliverables.

When you want to cover a large number of respondents quickly, questionnaires and surveys will be more appropriate. These are based on a written set of questions.

Focus Groups and Facilitated Workshops. A focus group is a set of prequalified stakeholders and subject matter experts that are brought together with the purpose of learning about their opinions, expectations, and attitudes about a product, service, or result that will be the output of the project. Generally speaking, a moderator facilitates the interactive discussion to make this experience more conversational than one-on-one interviews.

A facilitated workshop is a session that brings together cross-functional stakeholders to focus on defining product requirements. It generally proves to be an effective technique for quickly defining cross-functional requirements and reconciling differences among the stakeholders regarding the requirements. These workshops also help in developing trust and improving communication among the stakeholders, therefore fostering relationships that could help the project to succeed.

Benchmarking. Benchmarking is comparing practices, products, or services of a project with those of some reference projects for the purpose of learning, improving, and creating the basis for measuring performance. We will learn more about it in an upcoming chapter on quality management.

Brainstorming. This is a creative technique generally used in a group environment to gather ideas as candidates for a solution to a problem or an issue without any immediate evaluation of these ideas. The evaluation and analysis of these ideas happens later. Obviously, this technique can also be used to collect requirements.

Data-Presentation and -Analysis Techniques

When you have requirement-related data, it needs to be presented for review and analysis. Various data-presentation techniques may be used, some of which will be discussed next.

Affinity Diagram. This is a technique in which a large number of ideas or data are classified into different groups using some criteria. Then, the relationships among these ideas are explored. This facilitates an effective and efficient review and analysis.

Idea/Mind Mapping. This is a visual technique in which various ideas, such as those collected through brainstorming, are mapped around a central or key concept in order to expose commonalities and differences among them. In this way, one can understand the existing ideas better, consolidate them, and generate new ideas. Mapping also helps when classifying ideas into groups by discovering relationships among them. In addition to project management, this technique is also used in other areas, such as personal, family, and education. It helps in summarizing, clarifying, and revising ideas.

Nominal Group Technique. This technique combines brainstorming with discussion and ranking ideas by voting or scoring. Here are the steps:

1. For a given problem, a group member creates her/his own ideas in private.
2. A moderator presents all ideas anonymously in one place to the group.
3. All presented ideas are discussed to better understand them.
4. Each member scores each idea privately on a scale, e.g.; from 1 to 5.

Higher-ranking ideas can be processed again through these steps. At the end, the best-ranked idea or ideas are selected.

These techniques can be used to prioritize the requirements.

Also, different data-analysis techniques can be used, such as document analysis, which involves accessing the relevant documents, studying them, and extracting the relevant information, in this case the requirements, from them. In this process, the relevant document is any document with requirement-related information, such as project product marketing material, agreements, business plan, and request for proposals.

Prototyping

A prototype is a working model of a product put together without developing the actual product, such as a small-scale or toy product, mock-ups, computer-generated models, and computer simulations, e.g.; Monte Carlo simulation. Organizations usually make prototypes when developing a proof of concept. Prototypes can also be used to collect requirements by experimenting with the prototype and letting stakeholders experiment with it and offer feedback. It's more tangible than the abstract idea of a product. Prototypes can be improved and modified based on the feedback from the stakeholders. In this way, prototypes support the progressive elaboration process of developing requirements.

Context Diagrams

A context diagram is a very useful tool for determining the requirements of a product, as it presents the product scope visually by showing how the business system is used. In other words, a typical context diagram shows two kinds of components: parts of the system that users can access, and users, also called actors. Actors play two kinds of roles: entering the input into the system and receiving the output from the system. One actor can play one or both roles. Figure 4-2 presents a very simple example of a context diagram of an online learning system, where arrow direction shows which way the information flows.

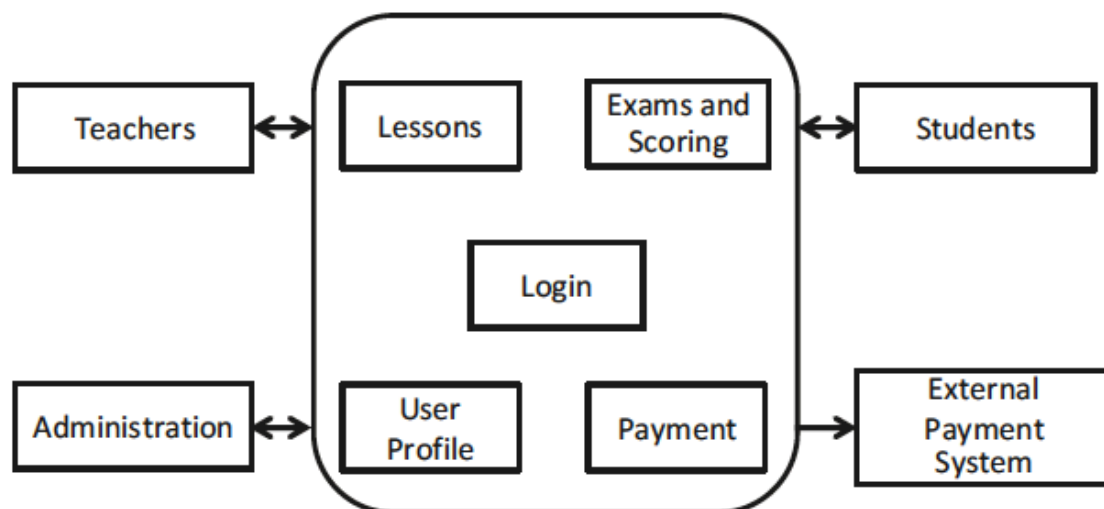


Figure 4-2. Context diagram of an online learning system