FUNCTIONAL AND NON-FUNCTIONAL REQUIREMENTS FOR MOBILE APP: WHAT'S THE DIFFERENCE?

DEVELOPMENT WORKFLOW

We can divide software product requirements into two large groups. Let us see the difference between functional and non-functional requirements for mobile apps and consider a few examples of each of these categories. We will start with definitions and try to briefly explain everything in simple words.

Functional requirements for mobile applications describe what specifically needs to be implemented in a particular system or product and what actions users have to take to interact with the software. They determine what the system should do.

And:

Non-functional requirements for mobile app show what properties and features a particular solution has, namely, how the system will work and why.

As a whole, these requirements describe the features the product has to have in order to meet the needs of all parties concerned, both business and end users.

What do Functional Requirements Include?

An example of a functional requirement:

The system is to send an email whenever a certain condition is met. For example, a user has

added merchandise to a cart in an online store but did not complete the order.
We can highlight three main groups of functional requirements:

1. **Business requirements**. These define the high-level goals set by the customer's company that is ordering the software development and stipulate what the system is to solve in terms of their business. Example: an application allowing potential customers to browse through the company's product catalog and to purchase products.
2. **User requirements**. These describe the system goals/objectives the users may reach when using the created system (UseCases). Simply put, this is what a user can do: sign up, view certain content, recalculate data using a specific algorithm, and other functions.
3. **Functional requirements**. These define a list of actions the system has to perform. In addition, they have to specify how the system responds to various input data, how it behaves in particular situations, and so on.

This group also includes system requirements describing hardware and software environment features necessary for correct operation. Example (by Research Gate):

№	Functional requirement of a mobile application for fishermen
1	Checking weather information which include water safety information
2	Giving information about track of storms and intensity of rains
3	Checking real time market price
4	Getting fishing tips which include receiving information about locations of fishing areas
5	Getting advertisement of catch availability to wider public of fisher folk.
6	Indicating fish procurement need based on species and quantity.
7	Facilitating contact information between interested parties for buying and selling.

Mobile app functional requirements are documented in a software requirements specification (SRS) describing the expected system behavior.

Each app is different and methodologies are always evolving, but there is a fairly standard process when developing mobile apps. We recommend you read this article.

Non-Functional Requirements in Simple Words

Based on the previous paragraph, here is an example of a non-functional requirement for the system described by us, which sends a letter when a certain condition is met:

Letters are to be sent 3 hours after the user leaves the website. If the purchase is not complete, a second letter is sent one day after the cart is abandoned.

As a rule, the non-functional requirements primarily include various product quality attributes determining system quality features, most often as examples below:

- **Availability** – requirements for app continuous running, for example, 24/7, minimum idle time, etc.

- **Reliability** – app behavior in case of alarm status, for example, automatic restart and operation recovery.

- **Scalability** – ways to expand the system and avoid adversely affected performance.

- **Performance** – how many simultaneous users or transactions the system is to service and its response time.

- **Security** – app operation and use of safety requirements related to access control, private data processing, and external attack risk reduction.

- **Usability** – ease of use and user-friendly interface, that allow users to seamlessly interact with the product.

- **Extensibility** – requirements for app extensibility in case there is a need to add new functional requirements.

FUNCTIONAL REQUIREMENTS

NON-FUNCTIONAL REQUIREMENTS

WHAT THE SYSTEM SHOULD DO

HOW THE SYSTEM SHOULD DO IT

PRODUCT FEATURES

PRODUCT PROPERTIES

USER REQUIREMENTS

USER EXPECTATIONS

Summary

Functional requirements describe the task that the company or user is to fulfill using the software product. For example, a mobile banking app is to be able to create a new account, add and remove bank cards, make payments, receive account statements, etc.

Non-functional requirements for such a product will be related more to product usability. In the case of the aforementioned banking app, it is the capability to receive data and carry out transactions online at any time of the day or night.

Software requirements' specifications are a valuable instrument used to optimize the development process. Software developers get all the data necessary to get started, and thus the customer is sure to receive the exact product they need.