Laboratory work №1
Description of the tested system and its environment
(4 hours)

Objective: To acquire skills of analysis, development of specification of software requirements.

Theoretical part

After approval of the "Business Requirements Document", it is necessary to submit business requirements in a way that is understandable to the development team. For this purpose "Specification of Software Requirements" or its simplified analogue is created - "Functional specification". The main task of these specifications is to present the requirements for the system in terms of the functionality that the system should realize. The "Technical Specification" is created on the basis of the "Functional Specification" and its main task is to define and document the architecture of the developed system. "Technical specification" specification serves basis for the start of direct development of the system.

The Business Requirements Document presents the system requirements in terms of business. On the basis of the "Business Requirements Document" the analyst must form "Specification of Software Requirements" or its simplified version "Functional Specification".

"Technical Specification of Software Requirements" describes the behavior of the system and its functional using functional requirements. In addition, the Specification contains non-functional requirements, or requirements for quality of service.

Functional requirements determine which functions a system must implement and provide to users or external systems. Functional requirements also called use cases. They can define requirements for both external functionality (apparently users and external systems) and to the internal functionality (internal system services, for example, change audit, event log, etc.).

Non-functional requirements, or service quality requirements, define the restrictions imposed on the functional requirements of the system, or the conditions in which system will have to function. Examples of non-functional requirements: network bandwidth, system performance, availability, conditions licensing, etc.

The structure of the specification can be as follows:

1. Name of the document and its version;
2. Project name and code;

3. History of the Document Change: date, author, brief description of the change, changed sections; content;

4. Reconciliation list: name, role in the project, signature, date (in case of using electronic document management system and electronic document management system signature the last two attributes can be omitted);

5. Content;

6. List of Drawings;

7. List of tables;

8. Introduction: a brief description of the purposes of creating a document and its content. It is necessary to provide a link to the "Business Requirements Document" and its version, which used when creating the specification;

9. Functional Requirements:

1) Code and name of the requirement;

2) Description;

3) Input / Output Data;

4) user interface: description of the requirements for the user interface with screen layouts;

5) System Interface: A description of the system interface requirements that will be used by external systems;

6) Dependencies: references to functional requirements that depend on this requirement. You can create a Functional Requirements Tracing Matrix, similar to the one described in the Requirements Management article. IN in this case, this section can be omitted;

10. Non-functional Requirements:

1) Code and name of the requirement;

2) Description;

11. Assumptions and Limitations: the results of clarifying the details of implementation requirements that for obvious reasons were not covered in the "Business Requirements Document", must be specified in this section;

12. Open Questions: All open questions that arise in the process of document formation should be listed in this section with indication sections where they are covered;

13. References to additional materials (functional models, data models, etc.).

The "Functional Specification" differs from the "Software Requirements Specification" in that it does not contain non-functional requirements. In force

In addition, the structure of the "Functional Specification" may be as follows:

1. Name of the document and its version;

2. Project name and code;

3. History of the Document Change: date, author, brief description of the change, changed sections;

4. Reconciliation list: name, role in the project, signature, date (in case of using electronic document management system and electronic document management system signature the last two attributes can be omitted);

5. Content;

6. List of Drawings;

7. List of tables;

8. Introduction: a brief description of the purposes of creating a document and its content.

It is necessary to provide a link to the "Business Requirements Document" and its version, which used when creating the specification;

9. Functional Requirements:

1) Code and name of the requirement;

2) Description;

3) Input / Output Data;

4) user interface: description of the requirements for the user interface with screen layouts;

5) System Interface: A description of the system interface requirements that will be used by external systems;

6) Dependencies: references to functional requirements that depend on this requirement. You can create a "Functional Requirements Tracing Matrix";

10. Assumptions and Limitations: the results of clarifying the details of implementation requirements that for obvious reasons were not covered in the "Business Requirements Document", must be specified in this section;

11. Open Questions: All open questions that arise in the process of document formation should be listed in this section with indication sections where they are covered;

12. References to additional materials (functional models, data models, etc.).

The "Technical specification" contains a description of the architecture being developed. This is a technical document created on the basis of the "Functional Specification" by the system architect. The "technical specification" is

the basis for starting the development of the system. The structure of the specification can be as follows:

1. Name of the document and its version;

2. Project name and code;

3. History of the Document Change: date, author, brief description of the change, changed sections;

4. Reconciliation list: name, role in the project, signature, date (in case of using electronic document management system and electronic document management system signature the last two attributes can be omitted);

5. Content;

6. List of Drawings;

7. List of tables;

8. Introduction: a brief description of the purposes of creating a document and its content. It is necessary to give a link to the "Functional Specification" and its version, which used in the creation of the "Technical Specification";

9. System architecture: technical description of system architecture;

10. System interfaces:

1) Used interfaces: description of interfaces with external systems used by the developed system;

2) Provided interfaces: description of interfaces provided to external systems;

11. Database Scheme;

12. Assumptions and Limitations: the results of clarifying the details of implementation requirements that for obvious reasons were not covered in the "Functional Specification" should be specified in this section;

13. Open Questions: All open questions that arise in the process of document formation should be listed in this section with sections where they are covered;

14. Links to additional materials (external model files, description of interfaces, etc.).

Requirements for the report on laboratory work

The report must contain:

1. Statement of the problem, according to the individual option.

2. Technical requirements (FS), designed according to the samples given in the laboratory work. Both samples contain errors, inaccuracies, etc. (It's done intentionally).

It is necessary to analyze the advantages and disadvantages of these two options and on based on the results of the analysis to create "their" version, which includes all the advantages and eliminates all the disadvantages.