USING UML IN THE MODELING OF AN INFORMATION SYSTEM OF RECRUITMENT

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Abstract

The objective of this paper is to model an IT system by using the Unified Modeling Language - UML, with the purpose of creating a personnel selection program within an organization.

The usage of UML in the development of an IT support meant to be used in the personnel selection process aims to move from the conceptual level of the general presentation of an IT system to the concrete, applicative level, of an IT system.

1. Introduction

Although some specialist believe that an information system does not necessary entail an information support as well [1], it is hard to imagine an operating informational system which does not benefit from IT help for data storage, processing and communication.

The UML (Unified Modeling Language) is an information system modeling language and not a means of design. The advantage of the UML is the possibility of to be used in any design method, because in what regards the field of the object-oriented approach, the UML has grouped and correlated the best sollutions.

The modeling of the selection system with the help of the UML is considered the result of several successive iterations, the system definition being only partial, since the system is modified and completed with each iteration.

The usage cases of the system are one of the basic elements from which its construction starts, and which we employ throughout the design and execution of the set of tests through which we verify the system.

The development of the system is foreseen to have four stages, also referred to as cycles: the preliminary study, preparation, construction and transition. This approach corresponds more to the managerial perspective on the process. The technical aspects are mainly related to the structuring of the system in activities and iterations.

An activity entails several steps and uses various input elements which it then modifies and creates new elements.

The UML defines 5 basic activities: defining the requirements, analysis, design, implementation and testing.

Defining the requirements

During this stage we identify the functional and non-functional requirements of the system, but their ascertainment is done in a presentation of the system's operating from the perspective of the system user (outside the system).

The analysis aims at an inside delineation of what the system must do. Without referring to the technical aspects, this stage emphasizes the identification of objects and field classes, of their specific relations and behaviors.

The design stage entails the completion of the analysis results with the technical requirements necessary for the system operation.

The implementation entails the transposition of the project defined during the previous stage into a programming language.

The testing is meant to identify and correct programming errors, that is to verify the programs executed in the previous stages.

From the point of view of the activities it entails, the UML based modeling of an information system needs the collaboration of two specialists:
- a specialist in the activity field that the IT system is destined to be used in, who is able to build the exterior image of the system from the point of view of its users;
- a specialist in the IT field who will design and implement the system.

2. Modeling an informational system of recruitment

We will now present the activities of the informational system of recruitment which entail an outside presentation of the system, of its functionality, of the identification of objects and application field classes, of their specific relations and behaviors, from the point of view of the information system user.

All these aspects shall be underlined within the usage of the UML in the modeling of an information program meant to be the support of the information personnel selection system.

2.1. When **defining the requirements** follow the steps listed below:
- identify the actors;
- identify the usage cases;
- describe the usage cases;
- complete the usage cases model.

Identify the actors

The actors are the persons with the initiative or the equipment who play a role or hold a position in the system functioning.

In this case, the persons benefitting from the system functioning, who supply data to the system or who use the personnel selection information system are:
- the personnel of the human resources department;
- the human resources manager;
- the manager of the enterprise;
- the candidates taking part to the selection;
- the personnel of the enterprise;

Identify the usage cases

A usage case is a sequence of action when the actor interacts with the system in order to fulfill a specific purpose.

In the case of the selection system presented we have identified 3 usage cases:
1. the case of the candidate and the recruiter, when we aim to sort candidateships based on biographical data;
2. the case of the person assessed and the assessor – when we aim to assess the capacities and knowledge of the candidates;

3. the case of the interviewed and the decision-maker – when we decide to employ or reject candidates.

Describe the usage cases

The description of the usage cases entails a detailed description of the cases identified, so that all possible variants of events train are presented, from expressing the requirements to obtaining an answer from the system.

This stage also specifies the alternative scenarios for the deployment of the usage case, when, in parallel with the main sequence of event deployment, the alternative and exceptional sequences are also described.

Below you have one of the three cases identified in the personnel selection.

USAGE CASE "B": Evaluating candidates

PURPOSE: To evaluate the capacities and the professional knowledge of the candidates

ACTORS: The company assessors

INITIAL POINT: The candidate is tested

FINAL POINT: Predictions related to the professional performance of the candidate

PROGRESS DESCRIPTION:

The candidate, who has passed the initial pre-selection stage based on his/her biographical data, is assessed by specialists in human resources and in the field of profession for which the personnel selection is organized.

The human resources specialist shall consult scholarly literature to obtain the information necessary for identifying the predictor tests and the weight that can be attributed to them according to their psychometric qualities.

During the assessment, the candidate shall write the answers either directly on paper, in the case of a pen-paper examination, and the answers shall be transposed by another person, or directly on the computer, if the testing is performed by means of an electronic method.

By referring the results of the testing to the standards of the tests used, predictions will be made regarding the performance levels, and then they will be communicated to the persons interested.

2.2 Package structuring

This stage aims to execute a first structuring into packages, in order to ease up the division of work into subthemes. The block approach of the usage cases is difficult and that is why we want to divide them into smaller units called packages.

For the personnel selection system we have identified the following packages:
1. Entering the data;
2. Recording the data;
3. Accessing knowledge;
4. Implementing knowledge (processes);
5. Processing data;
6. Analyzing and deciding;
7. Communicating the results

All three usage cases presented can be approached from the perspective of the packages listed above. For example, data are entered in each of them: in the first case data regarding the biographical aspects of the candidates, in the second case data regarding the results of the candidate's testing, and in the third case, data regarding the answers to the interview.

2.3 Defining iterations

The above-set packages help define the iterations through which the product program is to be designed and executed.

The existing iterations for the three usage cases (sorting biographical data, assessing/testing and deciding to employ a person) are listed below:

2.4 Analysis

The analysis is the stage that must lead to a model of the problem, illustrated through a diagram of the classes to which we add the behavior diagrams on which they are based and with which they are associated.

Drawing up these diagrams is the first step in the analysis process.

The analysis and the designing are part of the first iteration (Sabău, I)

The activity and sequence diagrams

The activity and sequence diagrams entail the successive presentation of the activities and sequences of activities which must be carried out within the product-program.

Class model

The class model tries to offer an image of the classes and the relations between them. The examination of each usage case underlines certain object classes and their relations, and they have to be integrated into a unique structure.

3. Conclusion

In this article I proposed a theoretical model of a conception of an informational system for the recruitment of the staff. The functioning of the system is planned to have on the base a computing support.

The passage of the information system in the computer system is facilitated by the application of UML. The modelling presented this above is made by a manager perspective, a perspective suited for one specialist in resources human. As a consequence, the modelling is made until phase or the problem enters in the sphere of action of one specialist in computing.

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