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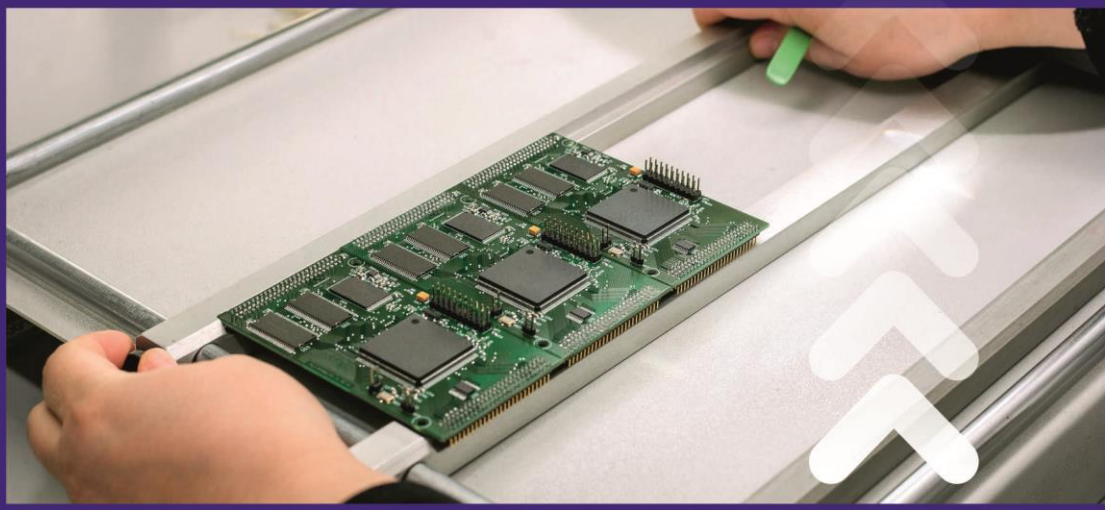
СБОРНИК СТАТЕЙ ПО МАТЕРИАЛАМ
XXXIX МЕЖДУНАРОДНОЙ
НАУЧНО- ПРАКТИЧЕСКОЙ КОНФЕРЕНЦИИ

ТЕХНИЧЕСКИЕ НАУКИ: ПРОБЛЕМЫ И РЕШЕНИЯ



№8(36)

ISSN 2587-862X

Москва, 2020

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Сборник статей по материалам XXXIX международной научно-практической конференции

№ 8 (36)
Август 2020 г.

Издается с июля 2017 года

Москва
2020

CONFERENCE PAPERS IN ENGLISH

SECTION 1.

INFORMATION TECHNOLOGY

IMPLEMENTATION OF THE DECISION-MAKING MODULE THROUGH OBJECT-ORIENTED PROGRAMMING OF THE FRAME KNOWLEDGE BASE

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ABSTRACT

In the process of designing and developing a decision-making module, it is important to implement knowledge modeling models for the subject area. Through the models of knowledge representation, it becomes possible to express knowledge in a formal way, and the knowledge base is simplified. The decision-making module makes decisions based on the rules in the knowledge base based on the $Y_i = \{y_1, y_2, ..., y_{n1}\} \in Y$ information received from the information monitoring module.

Keywords: information monitoring**;** software complex**;** software module; decision making; frame; if-needed.

MAIN PART

It can consist of a standard demon and developed procedures attached to the frame slots. Linked procedures are triggered when knowledge is added to the slot. A frame model was developed to build the knowledge base of the decision-making module in continuous production stages (Table 1).

Table 1.

Frame structure

Frame name: Sample				
Slot name	**Slot type**	**Data type**	**Accepting values**	**Linked procedures**
s_1	P^k, P^m, P^l	*Integer, real, datetime, date, string pointer, list, text*	Y_i	*If-added,if-needed, if-removed, procedure*
s_2	P^k, P^m, P^l	*Integer, real, datetime, date, pointer, list, text*	Y_i	*If-added,if-needed, if-removed, procedure*
…	P^k, P^m, P^l	*Integer, real, datetime, date, pointer, list, text*	Y_i	*If-added,if-needed, if-removed, procedure*
s_n	P^k, P^m, P^l	*Integer, real, datetime, date, pointer, list, text*	Y_i	*If-added,if-needed, if-removed, procedure*

Formally, the frame can be expressed as follows:

$$B = \{s_1 v_1 p_1, s_2 v_2 p_2 ..., s_n v_n p_n\}, \quad (1)$$

Where, $s_1, s_2, \ldots, s_n \in S$ is a set of slots, $v_1, v_2, \ldots, v_n \in V$ is a set of values. To represent frame slots, $p_i \in \{P^k, P^m, P^l\}, i \in \{1, ..., n\}$ slot types have been developed. the slot types of the frame that represent the relationships between the elements of the decision module perform the following functions:

1) P^k - parametric slot stores object knowledge in parameter values;

2) P^m - the corresponding slot represents the pointer to the other frame slot. In this case, the relationship between the $m_q \in M$ elements;

3) P^f - procedure slot, the $f_g \in F$ procedure is performed based on the parameters, F is a set of procedures.

The knowledge base is represented by an object-oriented Entity Framework technology-based object model. The Entity Framework allows you to express a high level of abstraction and work with data independently, regardless of the type of data retrieval and storage from the database.

Abstract classes were built in the c # programming language for the developed variety, processing, warehouse abstract frames (Fig. 1).

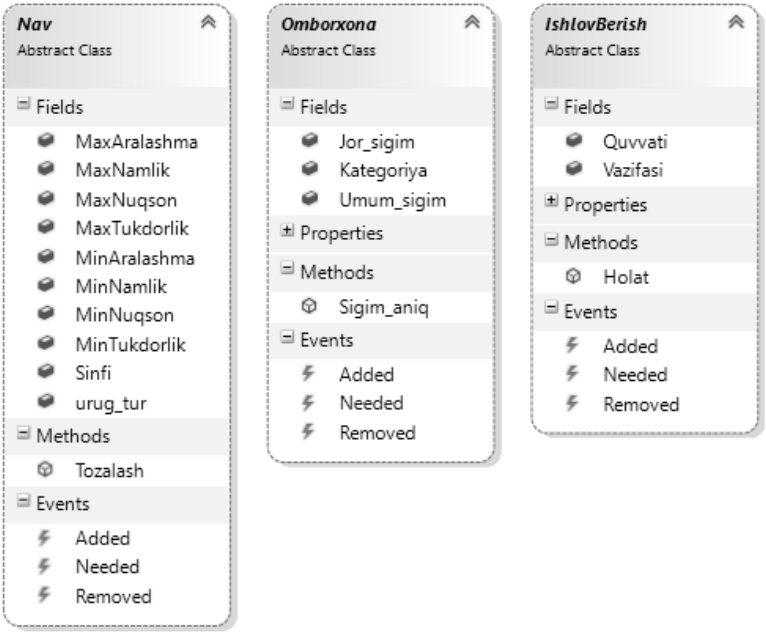

Figure 1. Abstract classes

Classes store fields, events, and techniques. Subclasses formed from abstract classes have all the properties and methods of abstract classes. A knowledge base was built through the developed abstract classes and subclasses (Fig.2). For example, 1st grade, 2nd grade, 3rd grade, 4th grade, permanent storage warehouse, temporary storage warehouse, oil seed drying, oil seed cleaning, oil seed drying device, oil seed cleaning device frames can be specified.

Decisions are made in the process of receiving and storing oilseeds in objects formed on the basis of abstract class and subclasses. The objects to be created will have all the events and properties of the class to which they belong. It is possible to manage the knowledge base using objects.

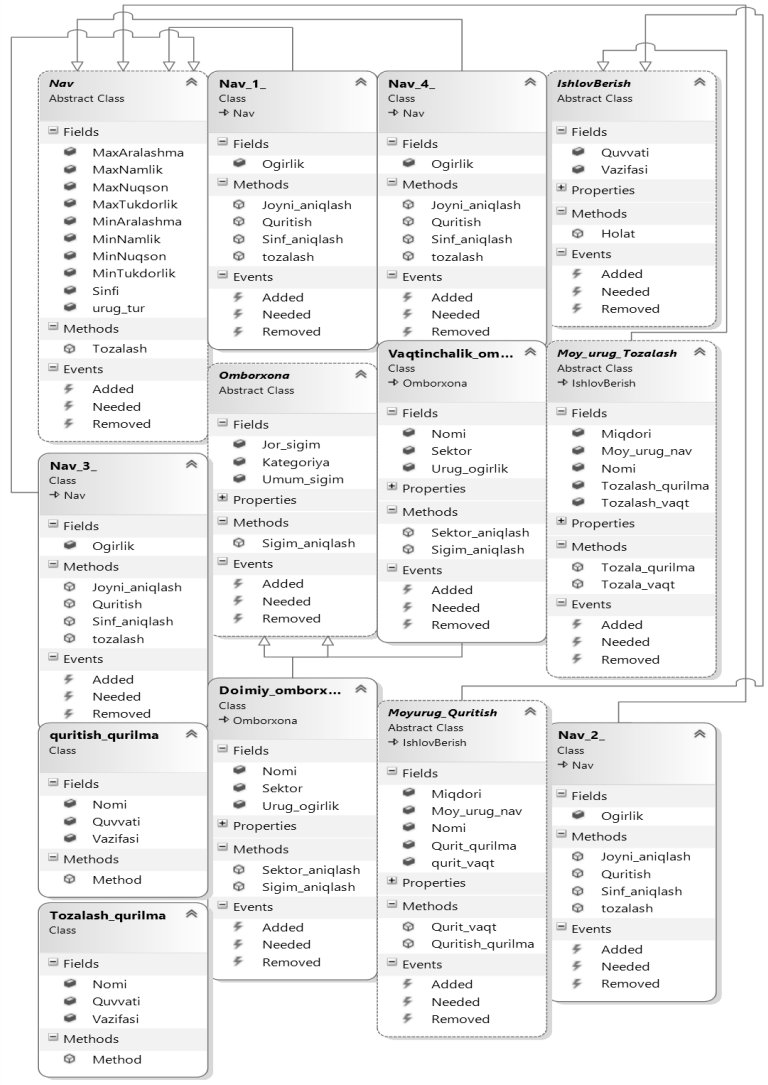

Figure 2. Frame knowledge base through classes

At the stage of acceptance of oilseeds in the enterprise, a type 1 oilseed field is formed and the knowledge is described as follows (Fig. 3).

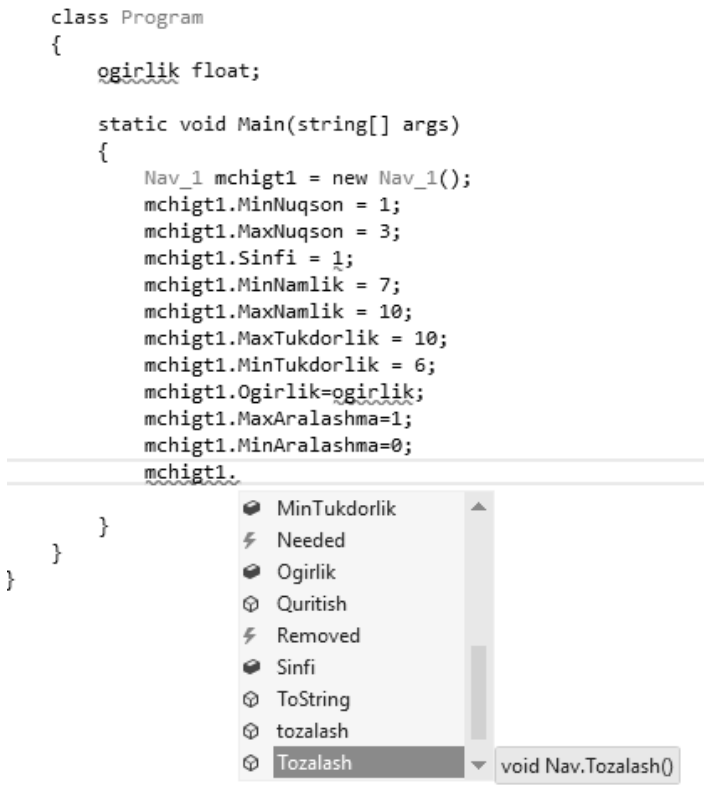

Figure 3. Describe 1st grade oilseed knowledge using object

Output

In this paper, the frame knowledge base is implemented through classes and objects in the c # programming language.

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