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TEACHING PROGRAMMING TECHNOLOGIES IN GENERAL SECONDARY SCHOOLS

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Annotatsiya - Maqolada quyidagi ma'lumotlar ta'kidlab o'tilgan, Dastur bu berilgan algoritmgaga asoslangan biror bir algoritmik tilda yozilgan ko'rsatmalar, ya'ni buyruqlar yoki operatorlar to'plamidir. Algoritmnlarni to'g'ridan-to'g'ri kompyuterga kiritib yechib bo'lmagani sabab ularni biror bir algoritmik tilga o'tkaziladi.

Kalit so'zlar: dastur, algoritmik til, operatorlar, kompyuter, dasturiy ta'minot, dastur kodlarini yozish, dasturchi, dasturlash texnologiyalari.

Аннотация - В статье освещается следующая информация, Программа написана на алгоритмическом языке на основе заданных инструкций алгоритма, то есть набора команд или операторов. Алгоритмы Одним из них является то, что они не могут быть загружены непосредственно на компьютерном алгоритмическом языке.

Ключевые слова: программа, алгоритмический язык, операторы, компьютер, программное обеспечение, написание программных кодов, программист, технологии программирования.

Abstract – The article highlights the following information, A program is written in an algorithmic language based on a given algorithm instructions, that is, a set of commands or operators. Algorithms One of them is that they can't be downloaded directly to a computer algorithmic language.

Key words: program, algorithmic language, operators, computer, software, writing program codes, programmer, Programming technologies.



Introduction: Programming is the process of creating a program, and the following steps are required to create it will be printed:

- Check if the problem can be programmed;
- Select or process the algorithm of the problem;
- Writing commands;
- Check software errors;
- Testing [22].

Programming is the process of creating a program, which consists of the following steps consists of [12]:

- program requirements;
- selection or development of a problem algorithm;
- writing program codes (texts, commands);
- Software editing and testing.

The word program is also a separate block of commands (given code) a descriptive word that identifies both the executable software product as a whole used as a word. This diversity can be confusing for the reader. So clarity to him we enter. That is, commands written by a program or programmer a set, or a computer product that performs actions[1].

Literature review: Programming technologies in response to software crises are emerging programming technologies [2]. This is the cause of the crisis that is, the degree of complexity of structural programming methods unable to create software for growing issues remained. As a result, plans for various projects have been disrupted the costs exceeded the established budget, the functionality of the software broken, errors increased[13].

One of the most important aspects of software is its complexity degree. A programmer should take into account all the features of the system can not. Therefore, the programmer and others in its development a large team of experts will participate. So that's the problem to the complexities that are directly related to the work of this team purposeful management is also included[3].

Developers have studied a particular area and its specific objects separated. It can be used to solve problems for objects features have been identified. Perform on each



feature as needed possible actions have been identified. Then there are the realities of the industry under study developed a software object that is compatible with the object[4].

Analysis: As you know, for every problem that can be solved with the help of a computer special software development is required. Such a class of issues expansion will inevitably lead to the creation of new programs, new "old" programming languages do not have the ability to create programs or new to improve the application creation process programming language is needed[14]. This issue is definitely qualified and experienced solved by programmers or groups of programmers. That's the programmers Cultivation is one of the most important issues for computer science teachers today calculated[5].

What do you need to focus on to become a good programmer?

Over time, the challenges facing programmers change. Twenty years ago, programs processed large amounts of data were salts for. In this case, both the author of the program and its user required to be a computer professional. And now a lot has changed. More with his computer people who have no understanding of hardware and software working. The computer is not a tool for people to study it in depth, more concerned with their own affairs has become a problem-solving tool[6].

Let this new generation of users work with applications simplification increases the complexity of these programs themselves. Modern applications - a high level of user-friendliness a large number of windows, menus, dialogs, and visuals must have an interface consisting of graphical environments[7]. Changing the demand for programming is not just about changing languages, it's about changing it technology has also changed. This begs the question: what does it take to be a good programmer?

Here are some things to look for when selecting yours:

1. Must have a thorough knowledge of mathematics;
2. Must be able to work as a team;
3. Must be fluent in English;
4. Must be able to sit still and be patient[8].



What resources should be used to learn programming?

We need to use the following resources to learn programming:

1. Textbook or lecture notes on programming;
2. A set of programming problems[24];
3. Video course on the basics of programming;
4. The person or source who answers your questions;
5. Applications that check the correctness or incorrectness of the created program.

Discussion: *Object-oriented programming technologies.* Object-oriented programming is so new that is, the software system as a set of interconnected objects and each object belongs to a specific class and each class is thought to form some kind of tree. Separate class as a set of data and a set of actions to be performed on them considered[23]. To the elements of this class only through the actions defined in that class can apply. The information in the program and what to do with it the interrelationships between operations relative to traditional programming languages ensures the reliability of software systems. Object-oriented the most basic concept of programming is object and class[25].

Object. In terms of apricot programming terminology in front of us let's see, in traditional programming, we have studied it in parts: S-apricot the surface of the skin, J is the volume of apricot juice, F is the fruit between the skins weight, D-grain weight, etc. Now to that apricot through the eyes of an artist let's see. The picture of the apricot is not a fruit, but a flat apricot is an image in the plane. It is something that is separate and unrelated consisted of several pieces of data located in the data segment cannot be abstracted in appearance[9]. Apricot components are always together and while maintaining the interactions between these components considered. An object is everything that belongs to an element in the apricot tree in which we live information and behaviors that could be performed on that element represents actions and consists of complete abstraction of data will be This information and behavior is object-oriented programming in terminology, respectively, is called a property and a method. Feature also called the area of the object. [18] Of objects structure represents their relationship.



Class. Each object belongs to some class. Class - this is a complex structure that includes data, procedures, and functions in addition to expressions, execution on objects that represent classes also takes possible actions. Class information, fields, procedures and functions are called methods[22]. The structure of the class, The concept is also important. It demonstrates the richness of tools within the system does. As you know, this is to study the process of photosynthesis in a leaf it is enough to see one cell in a leaf, because the rest of the cells are the same behaves like this studied cell. We also belong to a class, type or department when we look at an object that belongs to us, we can assume that it is its behavior will be the same as for other objects of the same type [21].

Object-oriented programming is similar to our behavior represents the programming method. He is in the development of programming languages is a natural evolution of innovation. It's all previous programming trying to abstract data in a more structured way than languages is more abstract and modular.

Object-oriented programming has three main features characterized by [21]:

1. Encapsulation - operations on records on the fields of these records together with the functions and procedures to be performed goes Encapsulation also has the principle of concealment. This means that is, to perform actions that can be performed on the object tools are hidden from the eyes of programmers who use this object. The programmer can only work with certain methods and fields of this object[10]. In other words, all fields and techniques are divided into internal and external groups will be divided. The internal members of an object are "invisible" to the programmer, and the behavior of the object and identifies capabilities, and external members are "visible" to the programmer, and object management. Appears to the object programmer, methods and fields (properties) to help manage the object is called the interface of the object. The programmer has to work with the object it is enough to know the interface. For example, learning to drive a car for the principle of operation of its engine, turning the wheels, brakes no need to study the mechanism, turn the steering wheel, pedal or gearbox it is enough to know how to press the lever[12].



2. Inheritance - in advance when there is a need to identify a new object use of known objects. Participate in the creation of objects themselves can inherit the characteristics and behaviors of adult objects. The OYD concept introduces new fields into existing classes, new fields, also allow you to create by adding features and techniques. New such a method of organizing classes is called generating. In this case the resulting new class is a feature of its base parent class and inherits techniques. For example, you can take the class of insects. It is divided into two groups: winged and wingless. To winged insects butterflies, flies, butterflies, etc. are included. Therefore, flies needless to say, it was a winged class inherits from the class of winged insects[13].

3. Polymorphism is the naming of an action and its associated objects use in the lower and upper parts of the tree. In this case, each of the trees the object performs this action in a way that is unique to it. Polymorphism is this is the ability to use the same names for methods that fall into different classes[20]. This is when the concept of polymorphism is applied to an object provides the use of a method that corresponds to the class of the object. The Object Pascal programming language is specific to object-oriented programming can provide all the tools[17]: structuralism, modularity, great abstraction. This all the features are very simple and easy to maintain had a stronger structure that could be adapted to other situations is reflected in the codes[14].

Object-oriented programming has been traditional for many years aside from the typical assumptions of standardized programming requires As a result, object-oriented programming is much simpler, high visibility and many software development issues becomes a very great tool for solving[15].

Given the above points, it is object-oriented programming technologies can solve the following problems:

- Troubleshoot traditional programming languages;
- Cannot be solved using traditional programming languages or is too large solve problems that may be difficult to solve[16];



- The range of data that can be processed and their types is traditional much broader than programming languages;
- Create a user-friendly communication interface;
- different types of input and output data[19];
- Easily organize new types of data, classes and modules, and data control;
- Different levels of sound and using multimedia and animation tools generation and processing of motion effects;
- Perform operations on the database and its contents, SQL[10,11]

Conclusion There are a lot of issues like searching for information using surveys
Easy to solve;

- Designed for the WINDOWS environment using the work with objects in applications;
- To use user-generated software creation of auxiliary reference system;
- Software installer to transfer software to other computers creates disks;
- Possible errors in the organization of the program text performance problem solving, etc.

Apparently, traditional programming languages solve problems to the object a large gap that can occur when solving using complemented by state-of-the-art programming technologies and modern meets many programming requirements.

So, higher education abandoned traditional programming languages in their home countries and focused on the object it is recommended to switch to training in programming technologies.

References:

- [1]. Akhmedova Mehrinigor B. Typological Aspects of Adequate Translation Methods of “Spirituality” Nominative Units into English. - Psychosocial Rehabilitation journal. Volume 24, Issue 3, UK, 2020.-P. 386-393



- [2]. N.Alimova. (2020) THE ROLE AND IMPORTANCE OF INDIVIDUAL EDUCATION IN THE SYSTEM OF ORGANIZATION Theoretical and Applied Science 84 (4), 401-404
- [3]. Akhmedova, M. B. (2015). Effectiveness of teaching vocabulary through short stories. In International Scientific and Practical Conference World science (Vol. 1, No. 1, pp. 55-57).
- [4].SafarovaKh.S, Karimova Sh.K, Nazarova G.H. Main Characteristic Features of Oscar Wilde and OmonMukhtor's Literary- Aesthetic Works. International Journal of Psychosocial Rehabilitation. Volume 27. January 2020. ISSN: 1475-7192. P-397-403.
- [5]. Khodjaeva Dilafruz Izatilloevna. LEXICOGRAPHIC ANALYSIS OF LINGUISTIC TERMS (ON THE BASIS OF MATERIALS OF EXPLANATORY DICTIONARIES OF THE ENGLISH, RUSSIAN AND UZBEK LANGUAGES) // International Journal of Psychosocial Rehabilitation. Vol. 24, Issue 06, 2020, ISSN: 1475-7192. P. 603-612
- [6]. Dilafruz Izzatullayevna Khodjayeva, Khusenova Mehriniso Uktamovna. LEXICOGRAPHIZ ANALYSIS OF PURE PHONETIC TERMS IN THE UZBEK AND ENGLISH LANGUAGES // ISJ Theoretical and Applied Science. Volume 81, Issue 01, 2020. p-ISSN: 2308-4944; e-ISSN: 2409-0085. P. 426-434 Philadelphia
- [7]. Barotova M.B. Differences in Transference of Proverbs in Prosaic Works by E.A'zam // The Philosophical Quest. Volume 16, ISSN: 23194-634, India, 2019. P. 57-66.
- [8]. Barotova M.B. The Problems of Recreating Writer's Style in Translation // International Scientific Journal: Theoretical and Applied Science. Volume 82, Issue 02, USA, 2020. P. 189-192.
- [9]. Safarova X.S. VosiyevaSh.I. A book of protection Hoja Ahmad Yassawi's "DevoniHikmat" // International Journal on Integrated Education. Volume 3 ISSN : 2620 3502 ISSN :2615 3785, America, 2020. P.156-160
- [10]. AlimovaNozima R. Individualization in Education and Methods of Improving Teaching the English Language. -Psychosocial Rehabilitation journal. Volume 24, Issue 1, UK, 2020.-P. 91-96
- [11]. Khodjaeva Dilafruz Izatilloevna, Mustafoyeva Parvina Ulugbekqizi. Positiuon and combination of sounds in speech// International Journal on Integrated Education. Volume 3. Issue 1. 2020. P. 182-185. e-ISSN: 2620 3502; p-ISSN 2515 3785



- [12]. Norova.M.B. VosiyevaSh.I. Various Approaches to Terminology // International Journal of Psychosocial Rehabilitation. Volume 24 Issue 09, 2020. ISSN : 1475-7192, America, 2020. P.394-397
- [13]. Mamedova M. A. "Homonyms their types and sources",- Modern problems of philology and linguistics. Vol.1, Issue 1, February, 2020.
- [14]. Mamedova M.A. "Classification of homonyms of the English language",- UK, Vol. 7, No 12. 2019.
- [15]. Mamedova M.A. "COMPARATIVE ANALYSIS OF HOMONYMS OF ENGLISH AND UZBEK LANGUAGES FOR METHODOLOGICAL PURPOSES",- USA, International scientific journal theoretical & applied science, Vol.83, Issue 03, 2020
- [16]. Aripov M. "Introduction to programming". Study guide. Toshkent 2008 y.
- [17]. Nazirov Sh., Musayev MM, Ne`matov A., Qobulov R.V. "In Delphi basics of programming ". Study guide. Toshkent 2006 y.
- [18]. Aripov MM, Otakhanov NA DELPHI programming language. / Textbook. -N .: Namangan, 2007. -544 p.
- [19]. Nazirov Sh.A., Divald G. Fundamentals of programming. Information and communication of professional colleges in the field of technologies "Information and communication Textbook for students majoring in systems Tashkent - 2007.
- [20]. Nazirov Sh.A., Qobulov R.V. Object-oriented programming. Profession a textbook for colleges. Ghafur Ghulam Publishing House creative house Tashkent -2007
- [21]. Azamatov A.R. Fundamentals of algorithms and programming. Vocational colleges tutorial for Tashkent - 2010.
- [22]. Nematov A., Kulmuradov M., Tangirov A., Akbarova N. Basics of programming. Toshkent-2011y.
- [23]. Ahmedov A., Tayloqov N. Informatics. Tashkent, Uzbekistan. 2008 y.
- [24]. Kulakov A.G., Lando S.K., Semyonov A.L., Shen A.X. Algorithmics. V – VII classes. Moscow: Drofa, 1997.
- [25]. B.J. Boltayev, A.R. Azamatov, A.D. Askarov, M.Q. Sodiqov, G.A. Azamatova. Basics of computer science and computer engineering. For 9th grade textbook.Tashkent 2011y.
- [26]. Otakhanov NA Teaching object-oriented programming technologies in particular. // Problems of education. -Tashkent, 2008. -№ 3. –P. 168-172.
- [27]. Roziyev R.A. , Yodgorov G.R., Mirsanov U.M. Delphi programming language study.Guidebook. Navoi 2012