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Modern Programming Languages

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At the core of every technology there is a programming language. Thousands of programming languages exist, but there are some trusty ones that software developers turn to again and again. In this paper we are analyzing four popular programming languages, their advantages and disadvantages, and also comparing their relevance in the world and in Belarus. The rating is based on GitHub report of the top programming languages of 2018 and on the Belarussian web resources [1].

The first language is Python. Python was developed by the Netherlandish programmer Guido Van Rossum in 1991. Now Python is a high-level programming language and one of the world's fastest-growing language [2].

It is located on the 5th position in the Belarusian rating. Python has already been at the top of user growth for several years. Python is a multi-paradigm programming language. Python uses dynamic typing, and a combination of reference counting and a cycle-detecting garbage collector for memory management. The syntax of this language is very simple. However, the most important direction for Python is machine learning. Machine learning technologies are used in recommendatory services, for example, YouTube, Amazon and Netflix, in face and voice recognition systems. EPAM, IBA group and Belhard use this language in our country. Python has some advantages: a large user community, easy to code and read, free and open-source and etc. [2, 6].

The second programming language under analysis is C#. It was developed by Microsoft. Anders Hejlsberg created the language in 1999. If we consider the rating from GitHub, we will see that C# is located on the 8th place. It is a multiparadigm programming language encompassing strong typing, imperative, declarative, functional, generic, object-oriented, and component-oriented programming disciplines. C# is used to build enterprise applications and software used by corporate clients. C# is one of the most popular programming languages in many Belarussian IT companies, such as EPAM, Itransition, ISsoft, SaM Solutions. This language has some advantages: you don't need to write destructors in C#, the .net class library will allow rapid prototype development [3].

The third language in our research is Ruby. Ruby was created by the Japanese developer Yukihiro Matsumoto in 1995. Ruby takes the 7th position in the Belarusian rating of top programming languages. Ruby is a dynamic, open source platform that focuses on simplicity [6]. Ruby is object-oriented: every value is an object, including classes and instances of types. Ruby has been described as a multi-paradigm programming language with dynamic typing, and supports parametric polymorphism. Ruby was influenced by Perl, Smalltalk, Eiffel, Ada and Python. Ruby is used by NASA, NOAA (National Oceanic and Atmospheric Administration), Oxagile, EPAM, Itransition and other companies. This language also has some advantages: it has options for test automation, it is a full-stack framework that covers both front and back-end design [4].

The fourth programming language under discussion is PHP. It was created by Rasmus Lerdorf in 1994. PHP is located on the 5th position in GitHub rating and on the 4th position in the Belarusian rating of top programming languages. PHP is a server-side scripting language. Basically, PHP is used in web development. In particular, it is widely

used to make dynamic and interactive web pages. Large sites like Facebook and Yahoo are made using PHP. Such well-known IT companies of Belarus as IBA, Itransition, BelHard, Oxagile, SaM Solutions write programs with the help of PHP. PHP has some advantages for example: speed, open source, powerful library and ease of use [5, 6].

References:

1. The state of the Octoverse: top programming languages of 2018 [Electronic resource]. – Mode of access: https:// www.github.blog/2018-11-15-state-of-the-octoverse-top-programming-languages/ – Date of access: 24.04.2019.
2. Advantages and disadvantages of Python programming langue [Electronic resource]. – Mode of access: https://www.medium.com/@mindfiresolutions.usa/advantages-and-disadvantages-of-python-programming-language-fd0b394f2121– Date of access: 24.04.2019.
3. C# programming language [Electronic resource]. – Mode of access: https://www.education-ecosystem.com/guides/programming/csharp/-donet/history/ – Date of access: 24.04.2019.
4. Ruby programming language [Electronic resource]. – Mode of access: https://www.en.wikipedia.org/wiki/Ruby_(programming_language) – Date of access: 24.04.2019.
5. Advantages and disadvantages of PHP framework [Electronic resource]. – Mode of access: https://www.omkarsoft.com/blog/top-5-advantages-disadvantages-php-framework/– Date of access: 24.04.2019.
6. Самые востребованные языки программирования в Беларуси [Electronic resource]. – Mode of access: https://dev.by/news/samye-vostrebovannye-yazyki-programmirovaniya-v-belarusi/– Date of access: 24.04.2019.