Representation of the Programming Languages in IT Sector in Zrenjanin

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Abstract:

As IT companies follow the latest trends do to clients requirements, companies need to make sure that they use the appropriate programming languages. So choosing a programming language is important for a successful business. The companies operating in Zrenjanin city, which included in this research, consider that it is necessary to focus on a programming language that will be able to fulfill the client's requirements while creating an appropriate application or website. Employees in company have indicated which programming languages they use and why. When students want to decide which programming language to learn, they usually decide for programming language which the most used in companies.

Keywords: representation, programming languages, IT, sector, research, webiste, application, C#.

1. INTRODUCTION

The first programming language was Fortran, which was created in 1954. From that period until the 1990s, it was usually the first programming language taught in schools and colleges in Serbia. Beside him were studied Basic and Pascal. Object-oriented programming languages are increasingly used in the 21st century. Object-oriented programming languages such as C ++, Java and C# are programming languages that are most commonly taught in school and college [1]. If a programming language is learned, different types of applications can be developed. Programming languages such as C #, Java, Python, C ++, C, PHP, JavaScript are used to create a special application such as system programming, web application creation, desktop application, mobile application and client web application [2]. They were either mechanical or electromechanical. Programming languages are widely represented in the world today, there are many programming languages. The topic is interesting given that developers are constantly on the lookout for today, so it is important to know which programming languages are the most popular, as this gives a greater chance of student employment. This paper's structure consists of several sections. The Research methodology section explains the research problem, research goal, research questions, hypothesis, place and method of research and sample. The next section is The importance of programming languages. The Final sections are discussion and conclusions.
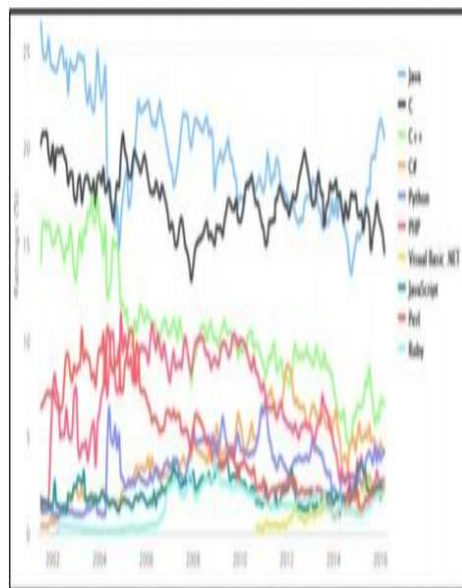
2. RESEARCH METHODOLOGY

Research is conducted upon the methodology presented as follows:

1. Research problem - Lack of research on this topic in the territory of Zrenjanin, which is considered to be of great importance for students to find a job
2. Research goal – to investigate what is the most widely used programming language in IT sector in Zrenjanin city and why so that future developers have in mind which languages are most used because they are also more likely to get a job if they are learning exactly the programming language required.
3. Research questions – RQ1: What is the most widely used programming language in IT sector in Zrenjanin city?
4. Hypothesis – There are positive view that programming language C# is the largest representation in creating a website or application.
5. Place and method of research - Research will be conducted as theoretical and empirical research. A survey was conducted and distributed to employees of companies in the IT sector in the Zrenjanin municipality, where the analysis shows which programming language is most represented in the IT sector in Zrenjanin.

6. Sample - The survey conducted on this occasion in the period from December 10th to December 17th, 2018 and from December 10th to December 17th, 2019, included respondents from Zrenjanin in 2018 and 2019, who are employed in the IT sector, in four different companies operating in Zrenjanin. So, the same research was done twice, in 2018 and in 2019. Respondents are from several companies (four companies: Vega IT, Lanaco, Consulteer, Levi 9) located in Zrenjanin, which are very successful and constantly employ people with relevant knowledge in IT.
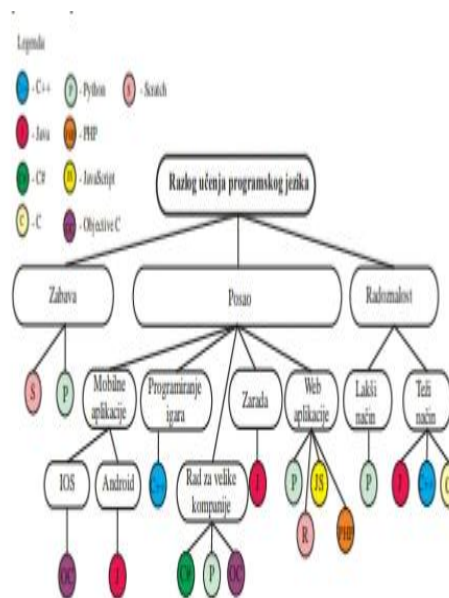
3. THE IMPORTANCE OF PROGRAMMING LANGUAGE

Company "Tiobe Software" [3] provides a monthly overwiev of the most commonly used programming languages in the world. The five most commonly used programming languages are Java, C, C++,C# and Python. TIOBE Programming Community index is an indicator of the most commonly used programming languages for the analyzed month. The estimation is made according to the data obtained by the use of well – known search engines such as Google, Bing, Yahoo, Wikipedia, Amazon and YouTube. The TIOBE index determines in which programming language most lines of code are written for the observed month. Picture number one shows the most commonly used programming languages in the 21st century and it can be concluded that the most commonly used programming languages are Java, C and C++. At the Faculty of Technical Sciences in Čačak, this was also the starting point for the recent years to study these programming languages in the direction of Information Technology [3].

Picture 1. The most commonly used programming languages in the 21st century [3]
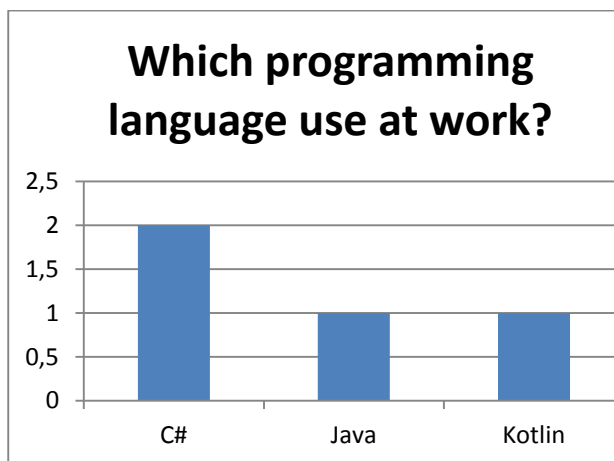
Picture number two shows an algorithm for determining the reason for learning programming languages. The most common reason to learn to program is to find a well-paid job. The salary of developers in Serbia is much higher than the average, so in recent years many high school students have opted to study [4].
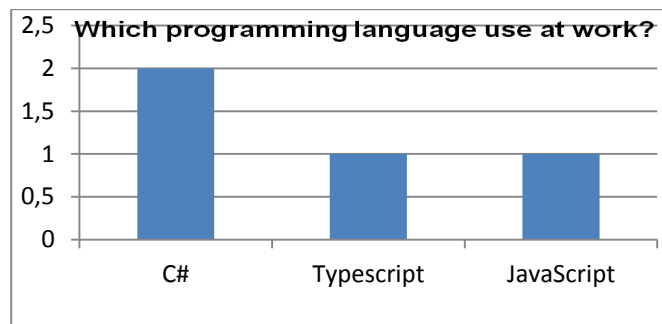

Picture 2. Algorithm for determining the reason for learning programming languages [4].

4. EMPIRICAL RESEARCH RESULTS

This section presents the results of empirical research regarding the representation of programming languages in the IT sector in Zrenjanin city. The same survey was conducted in 2018. and in 2019. Respondents are male, over 20 years of age, from four different companies: Vega IT, Consulteer doo, Lanaco company, Levi 9, where all respondents worked for one year, two years or more than two years. In 2018. Respondents stated that they were working in the following programming languages: Typescript, C#, Java, Kotlin and in 2019.: C#, Javascript and Typescript. In 2018, respondents stated that they use C# because they have the most lightweight object - oriented programming language and because the code is highly transparent because complicated things can be easily solved, Kotlin because project so require and Java because that is what clients demand. In 2019, respondents answered that they use JavaScript to quickly build software solutions and implement business logic. They use C# because the company has a collaboration with Microsoft and because the build websites using C# based CMS. A typescript is used because it is the easiest to use AWS service. In 2018, when asked "is it a programming language they like to work?", everyone escept one respondent are said 'YES'. In 2019 everyone stated that they like to work that programming language which use in firm.
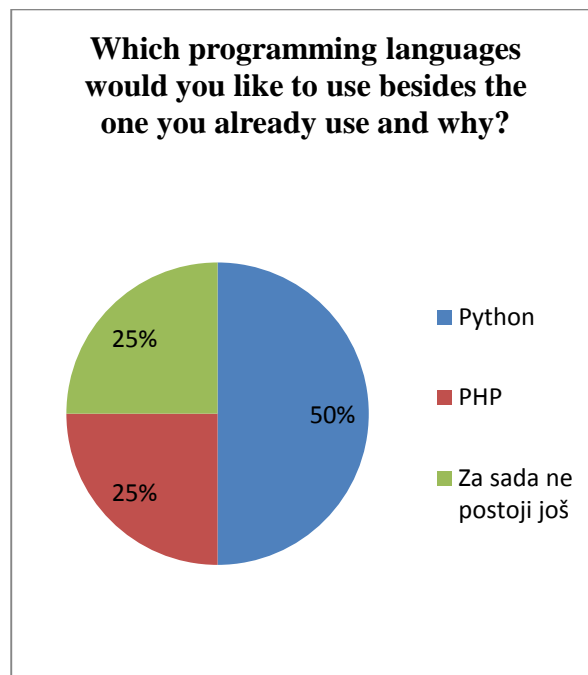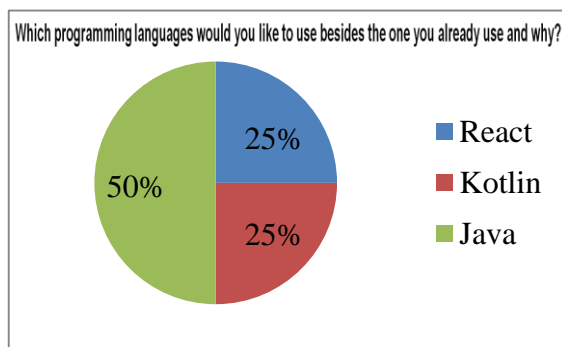

Picture 4. Chart who show the languages used by the respondents in their work in 2019

When asked "Which programming language would you like to use besides the one you already use and why", respondents in 2018 said that they would like to do Python because it is simple and easy to use because it offers many functions and PHP because of its performance. To the same question in 2019, respondents answered that they would like to react in order to improve the development of their mobile applications. After that, they said that Kotlin is the best language for creating an Android application, and some said that they would use Java because they never used an object-oriented programming language.
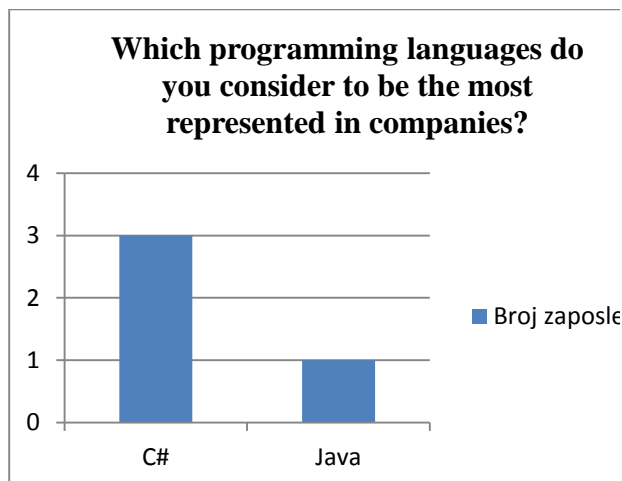

Picture 3. Chart who show the languages used by the respondents in their work in 2018 year

Picture 5. Chart show programming languages which employees would like to work in 2018

Picture 8. The most common programming language in 2019

Asked "Which programming languages are the most common in your company?", in 2018 they listed C#, Java, Typescript, PHP, JavaScript, while in 2019 they said: C#, Java, JavaScript, PHP, Typescript, React js, VUE js, Angular, Ruby, Python.

Picture 6. Chart show programming languages which employees would like to work in 2019

When asked "Which programming language is the most represented in the companies in Zrenjanin?", in 2018 most of them stated that it was C# with 50%.
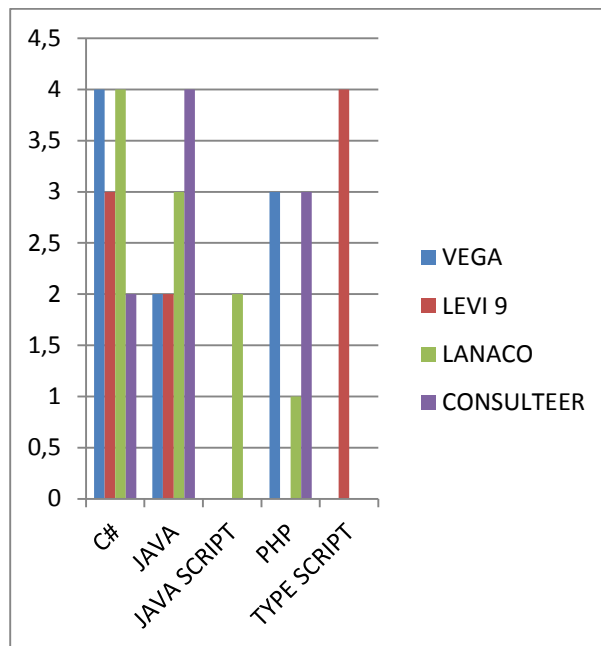

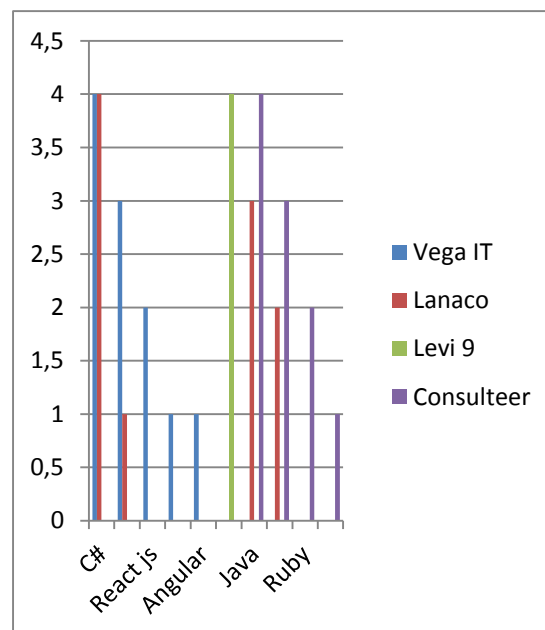Picture 7. The most common programming language in 2018

Picture 9. The most represented languages in companies in 2018

Picture 10. The most represented languages in companies in 2019

5. DISCUSSION

In future research, the representation of programming languages in the IT sector could be explored, but in a larger area, and could be explored in the same area in some five years, because changes in technology are constant.

6. CONCLUSION

The research conducted at Zrenjanin in four different companies, can conclude that C# is the most represented, in the sense that it is used in each of these companies and when ranked in order of representation in each of the companies, C# was ranked higher in relation to Java, although Java is also used in each firm. According to research from 2018, the following programming languages (excepted C#) were represented in these companies: Java, PHP, Javascript, Typescript, Kotlin. According to research from 2019, the following programming languages (excepted C#) were represented in these companies: Java, Javascript, Typescript, Python, Ruby, PHP, React js, Angular.

7. REFERENCES

[1] Ristić O., Milošević D., Urošević V., Značaj programskih jezika u obrazovanju., Čačak, 2016.

[2] Kruglyk, V. & Lvov, M. (2012). Choosing the First Educational Programming Language. Proceedings of the 8th International Conference on ICT in Education, Kherson, Ukraine, ISSN 1613-0073, 188-198.

[3] http://www.tiobe.com/tiobe_index Review date: 5 May 2016

[4] raf.edu.rs Review date: 5 April 2020.