Problem 11. **Programming Languages**

**1.10 most popular programming languages are:**

Аccording to <http://www.itworld.com/article/2951877/development/the-top-programming-languages-of-2015.html>

1. Java
2. C
3. C++
4. Python
5. C#
6. R
7. PHP
8. JavaScript
9. Ruby
10. Matlab

Аccording to <http://www.inc.com/larry-kim/10-most-popular-programming-languages-today.html>

1. Java
2. Python
3. C++
4. Ruby
5. JavaScript
6. C#
7. PHP
8. Objective-C
9. SQL
10. C

**2.Information about the programming languages**

**1. Java** is object-oriented programming language. Code written on Java don’t compiled to machine language, it is compiled to special for this language code, called bytecode. This bytecode can be started only on java virtual machine. Java is one of most popular programming languages in use  particularly for client-server web applications.

**2. C** is a general-purpose, imperative computer programming language, supporting structured programming, lexical variable scope and recursion, while a static type system prevents many unintended operations. By design, C provides constructs that map efficiently to typical machine instructions, and therefore it has found lasting use in applications that had formerly been coded in assembly language, including operating systems, as well as various application software for computers ranging from supercomputers to embedded systems. C++, Objective-C and C# are borrowed directly or indirectly from C.

**3. Python** is  a widely used general-purpose, high-level programming language. Python supports multiple programming paradigms, including object-oriented, imperative and functional programming or procedural styles. It features a dynamic type system and automatic memory management and has a large and comprehensive standard library

**4. JavaScript** is a high level, dynamic, untyped, and interpreted programming language. It has been standardized in the ECMAScript language specification. Alongside HTML and CSS, it is one of the three essential technologies of World Wide Web content production; the majority of websites employ it and it is supported by all modern web browsers without plug-ins. JavaScript is prototype-based with first-class functions, making it a multi-paradigm language, supporting object-oriented, imperative, and functional programming styles. It has an API for working with text, arrays, dates and regular expressions, but does not include any I/O, such as networking, storage or graphics facilities, relying for these upon the host environment in which it is embedded

**5. Ruby** is a dynamic, reflective, object-oriented, general-purpose programming language. It was designed and developed in the mid-1990s by Yukihiro "Matz" Matsumoto in Japan.

According to its authors, Ruby was influenced by Perl, Smalltalk, Eiffel, Ada, and Lisp. It supports multiple programming paradigms, including functional, object-oriented, and imperative. It also has a dynamic type system and automatic memory management.

**6. PHP** is a server-side scripting language designed for web development but also used as a general-purpose programming language. PHP code can be simply mixed with HTML code, or it can be used in combination with various templating engines and web frameworks. PHP code is usually processed by a PHP interpreter, which is usually implemented as a web server's native module or a Common Gateway Interface (CGI) executable. After the PHP code is interpreted and executed, the web server sends the resulting output to its client, usually in the form of a part of the generated web page; for example, PHP code can generate a web page's HTML code, an image, or some other data. PHP has also evolved to include a command-line interface (CLI) capability and can be used in standalone graphical applications

**7. SQL(Structured Query Language)** is a special-purpose programming language designed for managing data held in a relational database management system (RDBMS), or for stream processing in a relational data stream management system (RDSMS). Originally based upon relational algebra and relational calculus, SQL consists of a data definition language, data manipulation language, and a data control language. The scope of SQL includes data insert, query, update and delete, schema creation and modification, and data access control. Although SQL is often described as, and to a great extent is, a declarative language (4GL), it also includes procedural elements.

**8.Matlab** is a multi-paradigm numerical computing environment and fourth-generation programming language. A proprietary programming language developed by MathWorks, MATLAB allows matrix manipulations, plotting of functions and data, implementation of algorithms, creation of user interfaces, and interfacing with programs written in other languages, including C, C++, Java, Fortran and Python.

Although MATLAB is intended primarily for numerical computing, an optional toolbox uses the MuPAD symbolic engine, allowing access to symbolic computing capabilities. An additional package, Simulink, adds graphical multi-domain simulation and model-based design for dynamic and embedded systems.

**3. Difference between c# and other programming languages**

The main difference between C# and other programming languages is the area where they will be used.