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Realistic Education Among Digital Youth Project

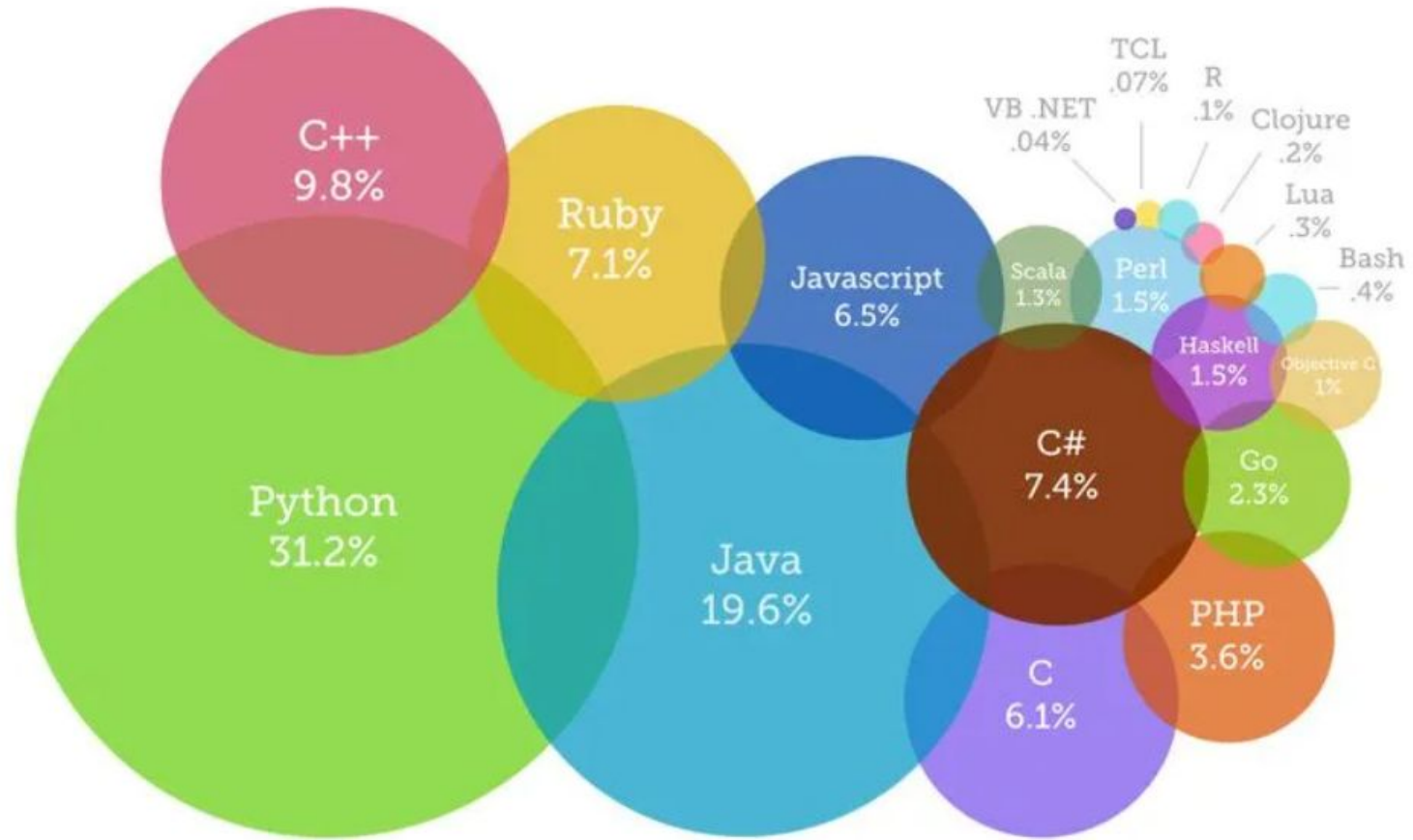
LTT in Bratislava, Slovakia

19.9. – 23.9.2022



PROGRAMMING LANGUAGES

Origin, development & future



THE MOST POPULAR PROGRAMMING LANGUAGES

LANGUAGE DIVISION ON USAGE

- Object-oriented
- Funkcional
- Procedural
- Logic programming

- HTML
- CSS
- PHP
- JavaScript



WEB SITES

HTML

```
<!DOCTYPE html>
<html>
<head>
<title>Page Title</title>
<link rel="stylesheet" href="styles.css">
</head>
<body>

<h1>This is a Heading</h1>
<p>This is a paragraph.</p>

</body>
</html>
```

- HyperText Markup Language
- Text and images formatting with marks, e. g. tags
- Commands are interpreted by web browser
- Reading and editing in text editor directly
- Specification is kept by World Wide Web Consortium (W3C)
- Several versions (the latest HTML5)

This is a Heading

This is a paragraph.

CSS

```
body {  
  background-color: lightblue;  
}  
  
h1 {  
  color: white;  
  text-align: center;  
}  
  
p {  
  font-family: verdana;  
  font-size: 20px;  
}
```

- Cascading Style Sheets
- Extension HTML with the possibility of describing the appearance of the text
- Could be as a part of HTML
- Enable divide/split structure HTML / XHTML from vision

My First CSS Example

This is a paragraph.

PHP

```
<!DOCTYPE html>
<html>
<body>

<?php
// Check if the type of a variable is integer
$x = 5985;
var_dump(is_int($x));

echo "<br>";

// Check again...
$x = 59.85;
var_dump(is_int($x));
?>

</body>
</html>
```

```
bool(true)
bool(false)
```

- Hypertext Preprocessor
- Popular script language
- Open-source application
- Easy to learn
- Usable on all main operating systems and web servers
- Provides modules and libraries that ensure dynamic software development
- Contains features that make it a more effective web development language

JAVASCRIPT

```
<!DOCTYPE html>
<html>
<body>

<p>Setting a default value to a function parameter (y=2).</p>
<p id="demo"></p>

<script>
function myFunction(x, y = 2) {
  return x * y;
}
document.getElementById("demo").innerHTML = myFunction(4);
</script>

</body>
</html>
```

Setting a default value to a function parameter (y=2).

8

- Language for creating dynamic websites
- Is not associated with Java
- Creating games and websites
- Universal use of programming language
- Basic functions are easy to learn
- Multiple frames
- JQuery: a comprehensive Javascript library
- Together with HTML and CSS, they form the pillars of web design

- C++ / C#

- Java

- Ruby

- Phyton



OBJECT-ORIENTED LANGUAGES

C++

```
#include <iostream>
#include <string>
using namespace std;

class MyClass { // The class
public: // Access specifier
    int myNum; // Attribute (int variable)
    string myString; // Attribute (string variable)
};

int main() {
    MyClass myObj; // Create an object of MyClass

    // Access attributes and set values
    myObj.myNum = 15;
    myObj.myString = "Some text";

    // Print values
    cout << myObj.myNum << "\n";
    cout << myObj.myString;
    return 0;
}
```

15
Some text

- Created in 1983
- Universal, object-oriented programming language
- Usage: creating computer programs, games, office applications, graphic and video editors ...
- Fast information processing
- Compilation mechanism
- Robust standard library (STL)
- A lot of online support for users
- It is used in information technology, engineering, professional services, design, quality control and management

C#

```
using System;

namespace MyApplication
{
    class Car
    {
        string color = "red";

        static void Main(string[] args)
        {
            Car myObj = new Car();
            Console.WriteLine(myObj.color);
        }
    }
}
```

red

- Created in 2000
- Based on C, C ++ and Java languages
- Used for game development
- In the past also for the development of Windows applications for mobile phones
- Ideal for beginners
- Declarative, functional object-oriented components
- Usage same as C ++

JAVA

```
public class Main {  
    String x = "Hallo people!";  
  
    public static void main(String[] args) {  
        Main myObj = new Main();  
        System.out.println(myObj.x);  
    }  
}
```

Hallo people!

- Created in 1995 to add new capabilities to the C++ programming language
- The second most popular language in large organizations
- Platform independence
- Application portability - managed on multiple platforms with instant access from the Internet, desktop and network
- Extensive network library
- Development of video games and Android mobile applications

PYTHON

```
import numpy as np

def myadd(x, y):
    return x+y

myadd = np.frompyfunc(myadd, 2, 1)

print(myadd([1, 2, 3, 4], [5, 6, 7, 8]))
```

[6 8 10 12]

- The most popular programming language on the labour market
- Flexible but robust semantics
- Easy to understand syntax
- Easy integration with web services
- Easy to read code

PYTHON

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import numpy as np

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```

[6 8 10 12]

- Standard library (available in source and binary language)
- Uses in data science and machine learning, and is also suitable for creating desktop GUI applications
- Organizations that use Python: Google, Pinterest, Instagram, YouTube, DropBox, NASA, ESRI.
- Python video games: World of Tanks, Civilization IV, Sims 4, Vega Strike and Toontown

RUBY

```
require "strscan"

# Example comments
class FieldFormatter

  attr_reader :field_pattern

  def initialize
    @field_pattern = /^.+?[\s:]\s+/

    # Examples of syntax coloring
    some_string = "Hello.\nThis is a test string. #{Time.now} is the time.\n"
    i = 100
    i += 50 unless i < 10
  end

  def format_field(unformatted_field)
    unformatted_field.gsub!(/(\s+[a-z\d])([A-Z])/, '\1\2')
  end
end

field_formatter = FieldFormatter.new
```

- Universal programming language used for web application development
- Web server development, simulation, 3D modeling
- Similar to the Python programming language
- Simple and dynamic scripting language
- The language is extremely elegant and flexible
- One of the most popular languages on the labour market
- Companies: Google (SketchUp), Motorola, Basecamp, Amazon, Twitter and Groupon, Airbnb
- NASA uses Ruby to perform simulations



THANK YOU
FOR YOUR
ATTENTION