Introducción a C++ y estrategias para resolver problemas

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Introducción a C++

Ventajas en programación competitiva

-STL, librería estándar que contiene clases, algoritmos, vectores, iteradores, etc.

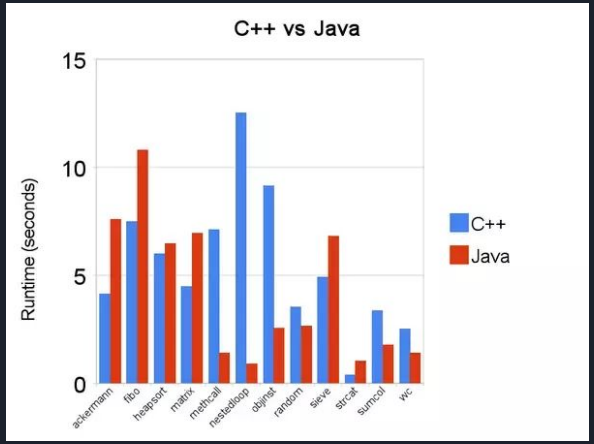
binary_search (startaddress, endaddress, valuetofind)

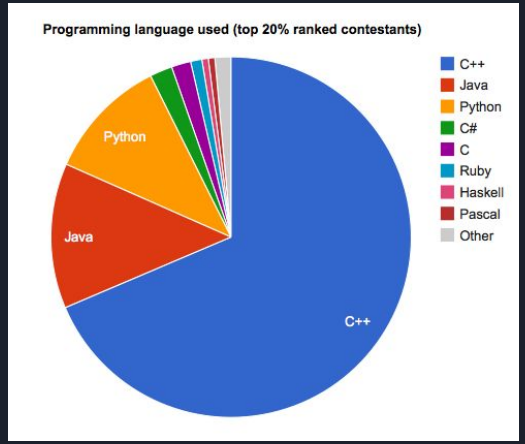
-Menor extensión en código a comparación con otros lenguajes (ejemm, Java)

-Mayor velocidad en compilación y ejecución de código

-Es el más popular entre los mejores programadores del mundo (William Lin, Gennady Korotkevich, etc.) y, el que más tutoriales tiene en internet.

Tablas comparativas





Repaso (tipos de datos)

Data Type	Size	Description
`int`	4 bytes	Stores whole numbers, without decimals
`float`	4 bytes	Stores fractional numbers, containing one or more decimals. Sufficient for storing 7 decimal digits
`double`	8 bytes	Stores fractional numbers, containing one or more decimals. Sufficient for storing 15 decimal digits
`boolean`	1 byte	Stores true or false values
`char`	1 byte	Stores a single character/letter/number, or ASCII values

Minimum value for a variable of type `int`.	-2147483647 - 1
Maximum value for a variable of type `int`.	2147483647

https://docs.microsoft.com/en-us/cpp/c-language/cpp-integer-limits?view=vs-2019
http://www.cplusplus.com/reference/limits/numeric_limits/

Repaso (operadores aritméticos y lógicos)

Operator	Name	Description	Example	Try it
+	Addition	Adds together two values	x + y	Try it »
-	Subtraction	Subtracts one value from another	x - y	Try it »
*	Multiplication	Multiplies two values	x * y	Try it »
/	Division	Divides one value by another	x / y	Try it »
%	Modulus	Returns the division remainder	x % y	Try it »
++	Increment	Increases the value of a variable by 1	++x	Try it »
--	Decrement	Decreases the value of a variable by 1	--x	Try it »

Operator	Name	Description	Example	Try it
&&	Logical and	Returns true if both statements are true	x < 5 && x < 10	Try it »
||	Logical or	Returns true if one of the statements is true	x < 5 || x < 4	Try it »
!	Logical not	Reverse the result, returns false if the result is true	!(x < 5 && x < 10)	Try it »

https://www.w3schools.com/cpp/cpp_operators.asp

Repaso (operadores de comparación)

Operator	Name	Example	Try it
==	Equal to	x == y	Try it »
!=	Not equal	x != y	Try it »
>	Greater than	x > y	Try it »
<	Less than	x < y	Try it »
>=	Greater than or equal to	x >= y	Try it »
<=	Less than or equal to	x <= y	Try it »

Repaso (arreglos)

- Enteros: int arr[5] ;
- Decimales: float arr[5];
- Strings:

```
string cars[4] = {"Volvo", "BMW", "Ford", "Mazda"};
cout << cars[0];

cars[0] = "Opel";
cout << cars[0];
// Now outputs Opel instead of Volvo

cout << cars[0][0];
// Outputs V, the first letter of the first element of
the array
```

Repaso (ciclos)

```while
int i = 0;
while (i < 5) {
  cout << i << "\n";
  i++;
}
```

```do while
int i = 0;
do {
  cout << i << "\n";
  i++;
}
while (i < 5);
```

```for
for (int i = 0; i < 5; i++) {
  cout << i << "\n";
}
```

Salida : 0 1 2 3 4 5