

Baza te Infomatikes

Leksioni 4

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Struktura e C++

```
// Ky eshte nje koment
#include <cstdlib>
#include <iostream>
using namespace std;
int main()
{
cout<<"Pershendetje! Ky eshte seminari i pare ne STDH " << endl;
system("PAUSE");
return 0;
}
```

Struktura e C++

- `//` ---tregojne komente
- `#include`--- i tregon precompiler te perfshije nje file
- `<cstdlib>` --- skedari koke Standart General Utilities Library: perfshin qellimet kryesore si administrimi i memories,gjenerimi i nr random, integer arithmetics, sorting, konvertimet etj.
- `<iostream>` ---skedari koke per standart input-output streams
- `using namespace` --- ndarja e struktures se programit ne “njesi logjike”.
- `std` ---Kjo i jep akses te gjitha namespace-ve std qe perfshijne objektet I/O te C++ (si prsh cout, cin etj)
- `Main ()` --- pika nga ku nis ekzekutimi
- `{ }` --- instuksionet e funksionit
- `Cout <<` --- afishime (output)
- `Cin >>` ---lexime (input)
- `endl` --- mbarimi i nje rreshti e kalimi tek rreshti tjetër (end-of-line)
- `System("PAUSE")` --- dritarja e outputet qendron e hapur deri ne komanden tone
- `Return 0` --- mbarimi i ekzekutimit te funksionit main ()

Perdorimi i namespace

```
//Ky eshte nje koment
#include <cstdlib>
#include <iostream>
using namespace std;
namespace first
{
int x = 5;
int y = 10;
}
namespace second
{
double x = 3.1416;
double y = 2.7183;
}
```

```
int main () {
using namespace first;
cout << x << endl;
cout << y << endl;
cout << second::x << endl;
cout << second::y << endl;
system("PAUSE");
return 0;
}
```

Tipet e te dhenave

Name	Description	Size*	Range*
char	Character or small integer.	1byte	signed: -128 to 127 unsigned: 0 to 255
short int (short)	Short Integer.	2bytes	signed: -32768 to 32767 unsigned: 0 to 65535
int	Integer.	4bytes	signed: -2147483648 to 2147483647 unsigned: 0 to 4294967295
long int (long)	Long integer.	4bytes	signed: -2147483648 to 2147483647 unsigned: 0 to 4294967295
bool	Boolean value. It can take one of two values: true or false.	1byte	true or false
float	Floating point number.	4bytes	+/- 3.4e +/- 38 (~7 digits)
double	Double precision floating point number.	8bytes	+/- 1.7e +/- 308 (~15 digits)
long double	Long double precision floating point number.	8bytes	+/- 1.7e +/- 308 (~15 digits)
wchar_t	Wide character.	2 or 4 bytes	1 wide character

Deklarimi i variablave

Struktura

- `tipi_dhenes emer_variabli ;`
- Ose kur kemi disa variabla te te njejtit tip ath i ndajme me “,” prsh :
 - `tipi_dhenes emer_variabli1, emer_variabli2,... ;`
- Tipet integer : `char, short, long` dhe `int` mund ti vendoset shenja ose jo.
- Ato me shenje perfaqesojne vlerat negative dhe pozitive kurse ato pa shenje nenkuptojne vetem nr pozitive (dhe zero)
- Psh
 - `Unsigned short int nr ;`
 - `Signed int llogari ;`
- By default : konsiderohet nga kompilatori si signed pra
`Signed int llogari ~ int llogari ;`
- Perjashtim ben vetem `CHAR` ku duhet te deklarohet signed ose unsigned ne momentin qe doni te perdorni nr .

Shembull

```
// operating with variables
#include <iostream>
using namespace std;
int main () {
// declaring variables:
int a, b; int result;
// process:
a = 5;
b = 2;
a = a + 1;
result = a - b;
// print out the result:
cout << result;
// terminate the program:
R eturn 0; }
```

Qellimi i variablave

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

```
int Integer;
char aCharacter;
char string [20];
unsigned int NumberOfSons;
```

Global variables

```
int main ()
{
```

```
    unsigned short Age;
    float ANumber, AnotherOne;
```

Local variables

```
    cout << "Enter your age:";
    cin >> Age;
    ...
```

Instructions

```
}
```


Inizializimi

- `Int a = 5; ~ int a (5) ;`
- `String s = "Pershendetje" ; ~ String s ("Pershendetje");`
- Konstantet deklarohen:
- `Const tipi_dhene emri_konst = vlera ;`

Operatore

+	addition
-	subtraction
*	multiplication
/	division
%	modulo

expression	is equivalent to
<code>value += increase;</code>	<code>value = value + increase;</code>
<code>a -= 5;</code>	<code>a = a - 5;</code>
<code>a /= b;</code>	<code>a = a / b;</code>
<code>price *= units + 1;</code>	<code>price = price * (units + 1);</code>

==	Equal to
!=	Not equal to
>	Greater than
<	Less than
>=	Greater than or equal to
<=	Less than or equal to

Example 1	Example 2
<code>B=3;</code> <code>A=++B;</code> <code>// A contains 4, B contains 4</code>	<code>B=3;</code> <code>A=B++;</code> <code>// A contains 3, B contains</code>

a	b	a && b
true	true	true
true	false	false
false	true	false
false	false	false

a	b	a b
true	true	true
true	false	true
false	true	true
false	false	false

operator	asm equivalent	description
&	AND	Bitwise AND
	OR	Bitwise Inclusive OR
^	XOR	Bitwise Exclusive OR
~	NOT	Unary complement (bit inversion)
<<	SHL	Shift Left
>>	SHR	Shift Right

condition ? result1 : result2

Precedenza e operatori

Level	Operator	Description	Grouping
1	::	scope	Left-to-right
2	() [] . -> ++ -- dynamic_cast static_cast reinterpret_cast const_cast typeid	postfix	Left-to-right
3	++ -- ~ ! sizeof new delete	unary (prefix)	Right-to-left
	* &	indirection and reference (pointers)	
	+ -	unary sign operator	
4	(type)	type casting	Right-to-left
5	.* ->*	pointer-to-member	Left-to-right
6	* / %	multiplicative	Left-to-right
7	+ -	additive	Left-to-right
8	<< >>	shift	Left-to-right
9	< > <= >=	relational	Left-to-right
10	== !=	equality	Left-to-right
11	&	bitwise AND	Left-to-right
12	^	bitwise XOR	Left-to-right
13		bitwise OR	Left-to-right

Precedenza e operatori

14	&&	logical AND	Left-to-right
15		logical OR	Left-to-right
16	?:	conditional	Right-to-left
17	= *= /= %= += -= >>= <<= &= ^= =	assignment	Right-to-left
18	,	comma	Left-to-right

Instruksjonet kushtezuese

- if (condition) statement1 else statement2

```
if (x > 0)
    cout << "x is positive";
else if (x < 0)
    cout << "x is negative";
else
    cout << "x is 0";
```

- switch (expression)

```
{
```

```
case constant1:
```

```
group of statements 1;
```

```
break;
```

```
case constant2:
```

```
group of statements 2;
```

```
break;
```

```
default:
```

```
default group of statements
```

```
}
```

switch example	if-else equivalent
<pre>switch (x) { case 1: cout << "x is 1"; break; case 2: cout << "x is 2"; break; default: cout << "value of x unknown"; }</pre>	<pre>if (x == 1) { cout << "x is 1"; } else if (x == 2) { cout << "x is 2"; } else { cout << "value of x unknown"; }</pre>

Instruktionet ciklike

- while (expression)
statement

```
while (n>0) {  
    cout << n << ", ";  
    --n;  
}
```

- do statement while
(condition)

```
do {  
    cout << "Enter number (0 to end): ";  
    cin >> n;  
    cout << "You entered: " << n << "\n";  
} while (n != 0);
```

- for (initialization;
condition; increase)
statement

```
for (int n=10; n>0; n--) {  
    cout << n << ", ";  
}
```

Instruksjonet JUMP

- Break—del nga loop edhe nqs kushti eshte i vertete

```
for (n=10; n>0; n--)  
{  
    cout << n << ", ";  
    if (n==3)  
    {  
        cout << "countdown aborted!";  
        break;  
    }  
}
```

- Continue – ndalon ekzekutimin e nje hapi, kalon tek tjetri

```
for (int n=10; n>0; n--) {  
    if (n==5) continue;  
    cout << n << ", ";  
}
```

- GoTO – ben nje kercim ne nje pike tjeter te programit

```
int n=10;  
loop:  
cout << n << ", ";  
n--;  
if (n>0) goto loop;
```

Ushtrimi 1

- Te shkruhet nje program ne gjuhen C++ ku afishohet nje shprehje e tille :

- Pershendetje !

Une jam (Emrin e Mbiemrin tuaj)

Student i vitit te pare Master.

Ushtrimi 2

- Ndertoni nje program qe ka 2 variabla njeri mban emrin kurse tjetri mbiemrin pastaj i afishon ato.

Ushtrimi 3

- Ndertoni nje program qe merr 5 nr si input e per to llogarit
 - a) prodhimin e tyre
 - b) Shumen e nr te pare ne katror me nr e 3ne fuqi te 4
 - c) Pjestimin e nr te dyte ne fuqi te 4 me nr e dyte ne fuqi te 2

Ushtrimi 4

- Ndertoni nje program ne c++ qe nerr 3 numra dhe me afisho numrin me te madh ndermjet tyre

Ushtrimi 5

- Ndertoni nje program ku ne baze te moshes qe jep perdoruesi percakton nese keni te drejte te votoni apo jo. Nese nuk keni plotesuar moshen ath te afishoj edhe sa vite duhet te presi per te votuar.

Ushtrimi 6

- Ndertoni nje program ne C++ qe fillimisht percakton nr e shkronjave qe doni te jepni e pasi te keni dhene shkronjat ath afishon sa prej tyre jane zanore e sa bashketingellore.

Ushtrimi 7

- Te ndertohet programi qe llogarit siperfaqen dhe perimetrin e rrethit .

Ushtrimi 8

- Te ndertohet nje program qe merr piket per skuadren e Dinamos dhe te vllaznise e percakton kush ka fituar ose nqs jane ndare ne barazim.

