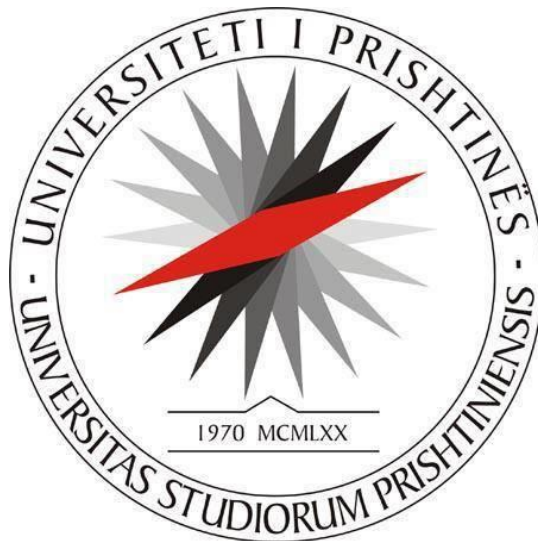


UNIVERSITETI I PRISHTINES

Fakulteti Inxhinierisë Elektrike dhe Kompjuterike



Lënda: Arkitektura e Kompjuterëve

Raporti: Detyra C

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Kodi ne C++

Opsioni C: Ky opsion ju ofron mundësinë që të notoheni maksimalisht 5%

Të shkruhet në MIPS assembly code kodi i mëposhtëm në C++:

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

int main() {

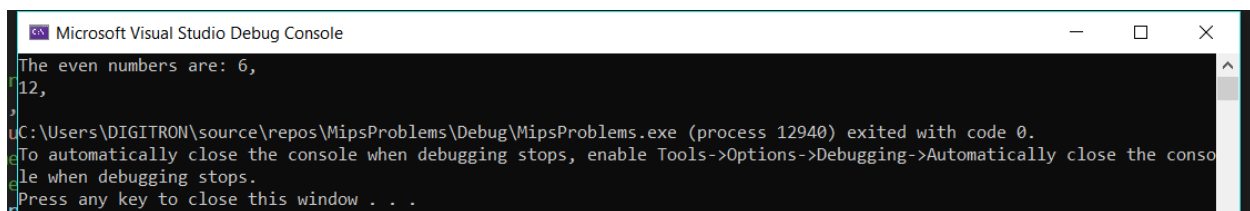
    // initialize an array without specifying size
    int numbers[] = {7, 5, 6, 12, 35, 27};

    cout << "The even numbers are: ";

    // print array elements
    // use of range-based for loop
    for (auto i : numbers) {
        if(numbers[i] % 2 == 0)
        {
            cout << numbers[i] << ", " << endl;
        }
    }

    return 0;
}
```

Kodi ne C++ shërben për të printuar numrat qiftë nga vargu i deklaruar në funksionin main, këtë e bëjm duke iteruar nëpër varg testojm qdo antarë në qoftë se plotëpjestohen me 2 ,në qoftë se po atëherë e printojm atë,në qoftë se jo atëherë vazhdojm tutje deri sa të përfundoj iterimet unaza.



```
Microsoft Visual Studio Debug Console
The even numbers are: 6,
12,
,
C:\Users\DIGITRON\source\repos\MipsProblems\Debug\MipsProblems.exe (process 12940) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debugging stops.
Press any key to close this window . . .
```

Realizimi i kodit ne Mips:

```
1  .data
2  comma: .asciiz ",",
3  newline: .asciiz "\n"
4  msg: .asciiz "The even numbers are: "
5  vektori: .word 7 5 6 12 35 27
6  .text
7  .globl main
8  main:
9      la $t9,vektori
10     li $t0,0 #int i=0
11     li $t1,6 #int i=6
12     li $t2,2 #per pjesen i%2
13     #print msg
14     li $v0,4
15     la $a0,msg
16     syscall
17 loop:
18     beq $t0,$t1,exit #testojme if(i==6) kce ne exit
19     lw $t3,0($t9) #marrim vleren e antarit te pare te vargut e vendosim ne t3 pra t3=vektori[0]
20     addi $t9,$t9,4 #inkrementojm antarin e vektorit meqense jane integer jan 4bajt dhe duhmi me rrit per 4
21     div $t3,$t2 # arr[i]%2
22     mfhi $s1 #ruajm mbetjen ne s1
23     beq $s1,$zero,printNum #testojm mbetjen if(mbetja==0) go to printNum
24     addi $t0,$t0,1 # i++
25     j loop
26
27 printNum:
28     #print integers
29     li $v0,1
30     move $a0,$t3
31     syscall
32     #print ","
33     li $v0,4
34     la $a0,comma
35     syscall
36     #print newline
37     li $v0,4
38     la $a0,newline
39     syscall
40     addi $t0,$t0,1
41     j loop
42 exit:
43     #perfundojm programin
44     li $v0,10
```

Testimet në QtSpim:

Console

The even numbers are: 6,
12,

Spim

Simulator Registers Text Segment Data Segment Window Help

Int Regs [16]

Text

Text

16

Text

ori \$t0, \$0, 2 ; 12: li \$t2, 2 #per pjesen i42

ori \$t2, \$0, 4 ; 14: li \$v0, 4

lui \$t1, 4097 [msg] ; 15: la \$a0, msg

ori \$t4, \$t1, 4 [msg]

syscall ; 16: syscall

beq \$t0, \$t2, 80 [exit-0x00400048]

lw \$t1, 0(\$t5) ; 19: lw \$t3, 0(\$t9) #marrim

vieren e antarit te pare te vargut e vendosim ne t3 pra t3=vektori[0]

addi \$t5, \$t5, 4 ; 20: addi \$t3, \$t3, 4

addi \$t5, \$t5, 4 ; 20: addi \$t3, \$t3, 4

div \$t1, \$t1, \$t0 ; 21: div \$t3, \$t3 # arr[i]t2

mfhi \$t7 ; 22: mfhi \$t1 #ruajm mbetjen

beq \$t7, \$0, 12 [printNum-0x0040005c]

addi \$t0, \$t0, 1 ; 24: addi \$t0, \$t0, 1 # i++

j 0x00400048 [loop] ; 25: j loop

ori \$t2, \$0, 1 ; 29: li \$v0, 1

addu \$t4, \$t0, \$t1 ; 30: move \$a0, \$t3

syscall ; 31: syscall

ori \$t2, \$0, 4 ; 33: li \$v0, 4

lui \$t4, 4097 [comma] ; 34: la \$a0, comma

syscall ; 35: syscall

ori \$t2, \$0, 4 ; 37: li \$v0, 4

lui \$t4, 4097 [newline] ; 38: la \$a0, newline

ori \$t4, \$t1, 2 [newline]

syscall ; 39: syscall

addi \$t0, \$t0, 1 ; 40: addi \$t0, \$t0, 1

j 0x00400048 [loop] ; 41: j loop

ori \$t2, \$0, 10 ; 44: li \$v0, 10

syscall ; 45: syscall

y and registers cleared

Version 5.1.21 of January 17, 2020

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y and registers cleared

Version 5.1.21 of January 17, 2020