Numele si prenumele (cu MAJUSCULE): DONEA FERNANDO-EMANUEL Grupa: 143

Test: _____ Tema: _____ Colocviu: _____ FINAL: _____

# Test de laborator - Arhitectura Sistemelor de Calcul

16 ianuarie 2025

Seria 14, Varianta 1

3.70 → 5

- Nota maxima pe care o puteti obtine este 10.
- Nota obtinuta trebuie sa fie minim 5 pentru a promova, fara nicio rotunjire superioara.
- Orice tentativa de frauda este considerata o incalcare a Regulamentului de Etica!

2.45 + 0.25 + 1.00 = 3.70

## 1 Partea 0x00: x86 - maxim 6p

Presupunem ca aveti acces la un executabil exec, pe care il inspectati cu objdump -d exec. In momentul in care rulati aceasta comanda, va opriti asupra urmatorului cod. Analizati-l si raspundeti intrebarilor de mai jos. Pentru fiecare raspuns in parte, veti preciza si instructiunile care v-au ajutat in rezolvare.

```
000011ad <f>:
    11b1: 55                    push   %ebp
    11b2: 89 e5                 mov    %esp,%ebp
    11b4: 83 ec 10              sub    $0x10,%esp
    11bc: 05 20 2e 00 00        add    $0x2e20,%eax
    11c1: c7 45 f8 00 00 00 00  movl   $0x0,-0x8(%ebp)
    11c8: c7 45 fc 00 00 00 00  movl   $0x0,-0x4(%ebp)
    11cf: eb 2e                 jmp    11ff <f+0x52>
    11d1: 8b 45 f8              mov    -0x8(%ebp),%eax
    11d4: 8d 14 85 00 00 00 00  lea    0x0(,%eax,4),%edx
    11db: 8b 45 08              mov    0x8(%ebp),%eax
    11de: 01 d0                 add    %edx,%eax
    11e0: 8b 10                 mov    (%eax),%edx
    11e2: 8b 45 f8              mov    -0x8(%ebp),%eax
    11e5: 8d 0c 85 00 00 00 00  lea    0x0(,%eax,4),%ecx
    11ec: 8b 45 08              mov    0x8(%ebp),%eax
    11ef: 01 c8                 add    %ecx,%eax
    11f1: 8b 00                 mov    (%eax),%eax
    11f3: 0f af c2              imul   %edx,%eax
    11f6: 2b 45 10              sub    0x10(%ebp),%eax
    11f9: 01 45 fc              add    %eax,-0x4(%ebp)
    11fc: d1 65 f8              shll   -0x8(%ebp)
    11ff: 8b 45 f8              mov    -0x8(%ebp),%eax
    1202: 8d 14 85 00 00 00 00  lea    0x0(,%eax,4),%edx
    1209: 8b 45 08              mov    0x8(%ebp),%eax
    120c: 01 d0                 add    %edx,%eax
    120e: 8b 00                 mov    (%eax),%eax
    1210: 85 c0                 test   %eax,%eax
    1212: 75 bd                 jne    11d1 <f+0x24>
    1214: 8b 45 fc              mov    -0x4(%ebp),%eax
    1218: c3                    ret
```

```
g00 <g>:
g01:    pushl   %ebp
g02:    movl    %esp, %ebp
g03:    subl    $20, %esp
g04:    movl    $0, -8(%ebp)
g05:    movl    $0, -4(%ebp)
g06:    jmp     .L9
    .L10:
g07:    movl    12(%ebp), %eax   = arg 2
g08:    subl    -4(%ebp), %eax
g09:    movl    -4(%ebp), %edx   = 0
g0A:    leal    0(,%edx,4), %ecx
g0B:    movl    8(%ebp), %edx
g0C:    addl    %ecx, %edx
g0D:    pushl   $2
g0E:    pushl   %eax
g0F:    pushl   %edx
g10:    call    f
g11:    addl    $12, %esp
g12:    movl    %eax, -20(%ebp)
g13:    fildl   -20(%ebp)
g14:    fdivs   16(%ebp)
g15:    fstps   -20(%ebp)
g16:    cvttss2sil      -20(%ebp), %eax
g17:    movl    %eax, -12(%ebp)
g18:    movl    -12(%ebp), %eax
g19:    addl    %eax, -8(%ebp)
g1A:    addl    $1, -4(%ebp)
    .L9:
g1B:    movl    -4(%ebp), %eax   = 0
g1C:    cmpl    12(%ebp), %eax
g1D:    jl      .L10
g1E:    fildl   -8(%ebp)
g1F:    ret
```

a. (0.75p) Cate argumente primeste procedura f si cum ati identificat acest numar de argumente?

La linia 11f6 putem observa 0x10(%ebp), adică 16(%ebp)
Pe stiva avem <r.a.> la 4(%ebp), arg1 la 8(%ebp),
arg2 la 12(%ebp) și arg3 la 16(%ebp). Deci
funcția f are 3 argumente.

b. (0.75p) Ce tip de date returneaza procedura f si cum ati identificat acest tip?