



# UNIVERSIDAD NACIONAL DE INGENIERÍA

## Facultad de Ciencias

### Escuela Profesional de Ciencia de la Computación

## CUARTA PRÁCTICA CALIFICADA

Curso: **Fundamentos de Programación CC112 - A**

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Código: 20231533I

1. (make asan grupal y corroboracion de baneras con ello )

```
itscgh@itscgh:~/Desktop/PC4(FUNDA)$ make asan
mkdir -p build/asan
g++ -std=c++17 -Wall -Wextra -Wpedantic -fsanitize=address -fno-omit-frame-pointer -g -O1 ejercicio01.cpp -o build/asan/ejercicio01
mkdir -p build/asan
g++ -std=c++17 -Wall -Wextra -Wpedantic -fsanitize=address -fno-omit-frame-pointer -g -O1 ejercicio03.cpp -o build/asan/ejercicio03
mkdir -p build/asan
g++ -std=c++17 -Wall -Wextra -Wpedantic -fsanitize=address -fno-omit-frame-pointer -g -O1 ejercicio04.cpp -o build/asan/ejercicio04
itscgh@itscgh:~/Desktop/PC4(FUNDA)$ make valgrind
mkdir -p build/debug
g++ -std=c++17 -Wall -Wextra -Wpedantic -g -O0 ejercicio01.cpp -o build/debug/ejercicio01
mkdir -p build/debug
g++ -std=c++17 -Wall -Wextra -Wpedantic -g -O0 ejercicio03.cpp -o build/debug/ejercicio03
mkdir -p build/debug
g++ -std=c++17 -Wall -Wextra -Wpedantic -g -O0 ejercicio04.cpp -o build/debug/ejercicio04
valgrind --leak-check=full --show-leak-kinds=all ./build/debug/ejercicio01
==9494== Memcheck, a memory error detector
==9494== Copyright (C) 2002-2022, and GNU GPL'd, by Julian Seward et al.
==9494== Using Valgrind-3.22.0 and LibVEX; rerun with -h for copyright info
==9494== Command: ./build/debug/ejercicio01
==9494==
Polinomio 1: 1x^2 3x^0
Polinomio 2: 4x^1 5x^0
Polinomio 3: 3x^2 1x^0

Suma de los tres polinomios:
2x^2 4x^1 11x^0

Producto de los tres polinomios:
12x^5 15x^4 40x^3 50x^2 12x^1 15x^0
==9494==
==9494== HEAP SUMMARY:
==9494==   in use at exit: 0 bytes in 0 blocks
==9494==   total heap usage: 9 allocs, 9 frees, 74,860 bytes allocated
==9494==
==9494== All heap blocks were freed -- no leaks are possible
==9494==
==9494== For lists of detected and suppressed errors, rerun with: -s
==9494== ERROR SUMMARY: 0 errors from 0 contexts (suppressed: 0 from 0)
```

2.

3.

```
itscgh@itscgh: ~/Desktop/PC4(FUNDA)$ valgrind ./build/debug/ejercicio03
==8225== Memcheck, a memory error detector
==8225== Copyright (C) 2002-2022, and GNU GPL'd, by Julian Seward et al.
==8225== Using Valgrind-3.22.0 and LibVEX; rerun with -h for copyright info
==8225== Command: ./build/debug/ejercicio03
==8225==
Cuantos productos desea registrar: 4
----- PRODUCTO 1 -----
Ingresar codigo: 100
Ingresar nombre: Teclado
Ingresar precio: 10.5
Ingresar stock: 5
----- PRODUCTO 2 -----
Ingresar codigo: 101
Ingresar nombre: Mause
Ingresar precio: 21
Ingresar stock: 10
----- PRODUCTO 3 -----
Ingresar codigo: 102
Ingresar nombre: Monitor
Ingresar precio: 31.5
Ingresar stock: 10
----- PRODUCTO 4 -----
Ingresar codigo: 103
Ingresar nombre: Laptop
Ingresar precio: 3200
Ingresar stock: 5

INVENTARIO
Codigo: 100 | Nombre: Teclado | Precio: 10.5 | Stock: 5
Codigo: 101 | Nombre: Mause | Precio: 21 | Stock: 10
Codigo: 102 | Nombre: Monitor | Precio: 31.5 | Stock: 10
Codigo: 103 | Nombre: Laptop | Precio: 3200 | Stock: 5

Codigo a buscar: 102
Producto encontrado: Monitor | Precio: 31.5
==8225==
==8225== HEAP SUMMARY:
==8225==    in use at exit: 0 bytes in 0 blocks
==8225==   total heap usage: 12 allocs, 12 frees, 76,161 bytes allocated
==8225==
==8225== All heap blocks were freed -- no leaks are possible
==8225==
==8225== For lists of detected and suppressed errors, rerun with: -s
```

NUEVA CAPTURA Y REESCRITURA DEL CODIGO ( el make asan fue en conjunto entonces solo esta la evidencia en el problema 1 )

```
itscgh@itscgh:~/Desktop/PC4(FUNDA)$ valgrind ./build/debug/ejercicio03
==9686== Memcheck, a memory error detector
==9686== Copyright (C) 2002-2022, and GNU GPL'd, by Julian Seward et al.
==9686== Using Valgrind-3.22.0 and LibVEX; rerun with -h for copyright info
==9686== Command: ./build/debug/ejercicio03
==9686==
Cuantos productos desea registrar: 3
----- PRODUCTO 1 -----
Ingresar codigo: 100
Ingresar nombre: Mouse
Ingresar precio: 150
Ingresar stock: 4
----- PRODUCTO 2 -----
Ingresar codigo: 101
Ingresar nombre: Monitor
Ingresar precio: 500
Ingresar stock: 3
----- PRODUCTO 3 -----
Ingresar codigo: 102
Ingresar nombre: Laptop
Ingresar precio: 3200
Ingresar stock: 5

INVENTARIO
Codigo: 100 | Nombre: Mouse | Precio: 150 | Stock: 4
Codigo: 101 | Nombre: Monitor | Precio: 500 | Stock: 3
Codigo: 102 | Nombre: Laptop | Precio: 3200 | Stock: 5

Codigo a buscar: 101
Producto encontrado: Monitor | Precio: 500
==9686==
==9686== HEAP SUMMARY:
==9686==    in use at exit: 0 bytes in 0 blocks
==9686==   total heap usage: 10 allocs, 10 frees, 76,064 bytes allocated
==9686==
==9686== All heap blocks were freed -- no leaks are possible
==9686==
==9686== For lists of detected and suppressed errors, rerun with: -s
==9686== ERROR SUMMARY: 0 errors from 0 contexts (suppressed: 0 from 0)
```

4.

```
itscgh@itscgh:~/Desktop/PC4(FUNDA)$ valgrind ./build/debug/ejercicio04
==11644== Memcheck, a memory error detector
==11644== Copyright (C) 2002-2022, and GNU GPL'd, by Julian Seward et al.
==11644== Using Valgrind-3.22.0 and LibVEX; rerun with -h for copyright info
==11644== Command: ./build/debug/ejercicio04
==11644==
Pedido N°: 1
Cliente: Carlos Perez
Items:
- Laptop | Cant: 1 | Precio: 100
- Mouse | Cant: 2 | Precio: 200
- Teclado | Cant: 3 | Precio: 300
Total: 1400
Item mas caro: Teclado | Precio: 300
==11644==
==11644== HEAP SUMMARY:
==11644==   in use at exit: 0 bytes in 0 blocks
==11644== total heap usage: 8 allocs, 8 frees, 74,890 bytes allocated
==11644==
==11644== All heap blocks were freed -- no leaks are possible
==11644==
==11644== For lists of detected and suppressed errors, rerun with: -s
==11644== ERROR SUMMARY: 0 errors from 0 contexts (suppressed: 0 from 0)
```

REESCRITURA DE CODIGO ( el make asan fue en conjunto entonces solo esta la evidencia en el problema 1 )

```
itscgh@itscgh:~/Desktop/PC4(FUNDA)$ valgrind ./build/debug/ejercicio04
==9758== Memcheck, a memory error detector
==9758== Copyright (C) 2002-2022, and GNU GPL'd, by Julian Seward et al.
==9758== Using Valgrind-3.22.0 and LibVEX; rerun with -h for copyright info
==9758== Command: ./build/debug/ejercicio04
==9758==
Pedido N°: 1
Cliente: Carlos Perez
Items:
- Laptop | Cant: 1 | Precio: 100
- Mouse | Cant: 2 | Precio: 200
- Teclado | Cant: 3 | Precio: 300
Total: 1400
Item mas caro: Teclado | Precio: 300
==9758==
==9758== HEAP SUMMARY:
==9758==   in use at exit: 0 bytes in 0 blocks
==9758== total heap usage: 8 allocs, 8 frees, 74,890 bytes allocated
==9758==
==9758== All heap blocks were freed -- no leaks are possible
==9758==
==9758== For lists of detected and suppressed errors, rerun with: -s
==9758== ERROR SUMMARY: 0 errors from 0 contexts (suppressed: 0 from 0)
itscgh@itscgh:~/Desktop/PC4(FUNDA)$
```