



Carátula para entrega de prácticas

Facultad de Ingeniería

Laboratorio de docencia

Laboratorios de computación Salas A y B

Profesor: Alejandro Esteban Pimentel Alarcon

Asignatura: Fundamentos de Programación

Grupo: 135

No de Práctica(s): 10

Integrante(s): Godínez Juárez Alondra Itati
Colonia Montero Sonia

*No. de Equipo de
cómputo empleado:*

No. de Lista o Brigada: 6153
7455

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Observaciones:

CALIFICACIÓN: _____

Depuración de programas

Introducción. En la presente práctica nos adentraremos a las funciones que tiene la variante del comando de gcc: gdb.

Objetivo. Aprender las técnicas básicas de depuración de programas en C para revisar de manera precisa el flujo de ejecución de un programa y el valor de las variables; en su caso, corregir posibles errores.

GNU Compiler Collection

Tiene como objetivo mejorar el compilador usado en todos los sistemas GNU, incluyendo la variante GNU/Linux. El desarrollo de GCC usa un entorno de desarrollo abierto y soporta muchas plataformas con el fin de fomentar el uso de un compilador-optimizador de clase global, que pueda atraer muchos equipos de desarrollo, y asegure que GCC y los sistemas GNU funcionen en diferentes arquitecturas, diferentes entornos, y para extender y mejorar las características de GCC.

GDB o GNU Debugger es el depurador estándar para el compilador GNU.

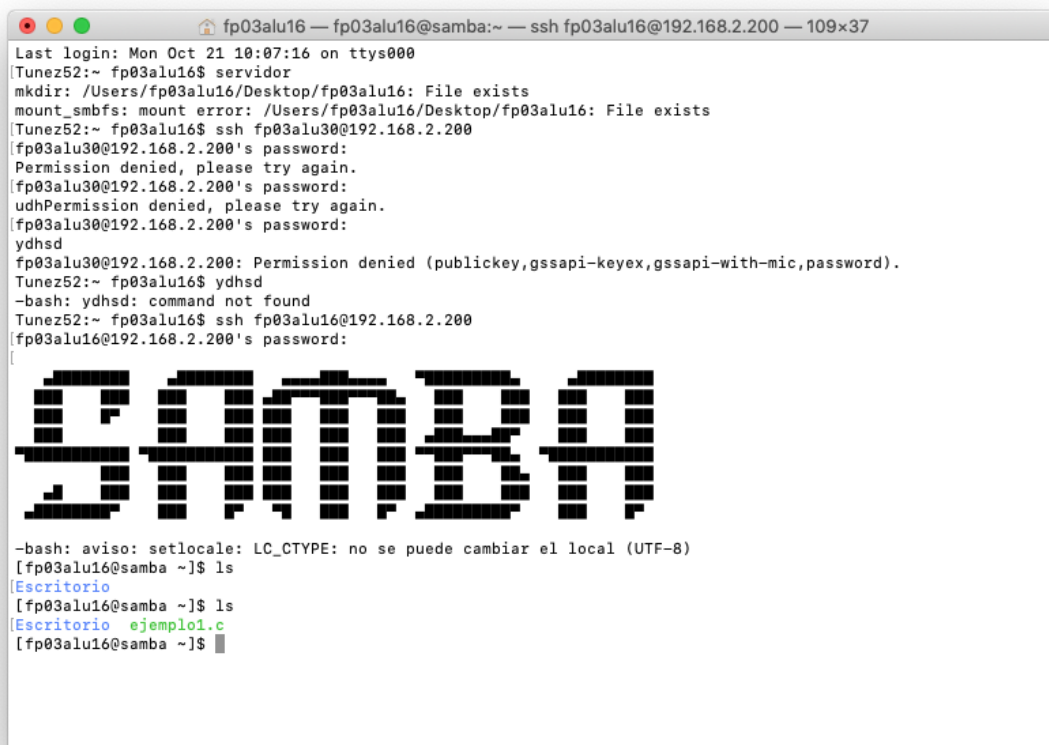
GDB ofrece la posibilidad de trazar y modificar la ejecución de un programa. El usuario puede controlar y alterar los valores de las variables internas del programa.

GDB no contiene su propia interfaz gráfica de usuario y por defecto se controla mediante una interfaz de línea de comandos. Existen diversos *front-ends* que han sido diseñados para GDB, como Data Display Debugger, GDBtk/Insight y el «modo GUD» en Emacs.

Como primera actividad analizamos las funciones de entrar al servidor y utilizar gdb para ver el error de y corregir un programa; en este caso nuestro archivo se llamó: ejemplo1.c

Probamos los comandos de:

Start(), run(), list(), quit(q), break(), print(p), display()



```
Last login: Mon Oct 21 10:07:16 on ttys000
[Tunez52:~ fp03alu16$ servidor
mkdir: /Users/fp03alu16/Desktop/fp03alu16: File exists
mount_smbfs: mount error: /Users/fp03alu16/Desktop/fp03alu16: File exists
[Tunez52:~ fp03alu16$ ssh fp03alu30@192.168.2.200
fp03alu30@192.168.2.200's password:
Permission denied, please try again.
fp03alu30@192.168.2.200's password:
udhPermission denied, please try again.
fp03alu30@192.168.2.200's password:
ydhsh
fp03alu30@192.168.2.200: Permission denied (publickey,gssapi-keyex,gssapi-with-mic,password).
Tunez52:~ fp03alu16$ ydhsh
-bash: ydhsh: command not found
Tunez52:~ fp03alu16$ ssh fp03alu16@192.168.2.200
fp03alu16@192.168.2.200's password:
[
Samba
-bash: aviso: setlocale: LC_CTYPE: no se puede cambiar el local (UTF-8)
fp03alu16@samba ~]$ ls
[Escritorio
fp03alu16@samba ~]$ ls
[Escritorio ejemplo1.c
fp03alu16@samba ~]$
```

```
fp03alu16 — fp03alu16@samba:~ — ssh fp03alu16@192.168.2.200 — 109x37
License GPLv3+: GNU GPL version 3 or later <http://gnu.org/licenses/gpl.html>
This is free software: you are free to change and redistribute it.
There is NO WARRANTY, to the extent permitted by law.  Type "show copying"
and "show warranty" for details.
This GDB was configured as "x86_64-redhat-linux-gnu".
For bug reporting instructions, please see:
<http://www.gnu.org/software/gdb/bugs/>...
Reading symbols from /users/fp03/fp03alu16/ejemplo1...done.
(gdb) run
Starting program: /users/fp03/fp03alu16/ejemplo1
Primer texto solo
Luego podemos poner un entero: 10
También podemos poner un caracter: B
Un numero real: 89.80

Program received signal SIGSEGV, Segmentation fault.
0x0000000040060c in main (argc=19, argv=0x110000010) at ejemplo1.c:21
21      lista[i] = i;
Missing separate debuginfos, use: debuginfo-install glibc-2.15-37.fc17.x86_64
(gdb) list
16      printf("También podemos poner un caracter: %c\n", caracter);
17      printf("Un numero real: %.2f\n", numeroReal);
18
19      // Podemos llenar la lista con valores
20      for(int i = numero ; i >= numero ; i++){
21          lista[i] = i;
22      }
23
24      // Y ahora podemos hacer calculos con la lista
25      for(int i = numero ; i >= numero ; i++){
(gdb) quit
A debugging session is active.

        Inferior 1 [process 27897] will be killed.

Quit anyway? (y or n) y
[fp03alu16@samba ~]$
```

```
fp03alu16 — fp03alu16@samba:~ — ssh fp03alu16@192.168.2.200 — 109x37
ejemplo1.c
1      #include <stdio.h>
2
3      int main(int argc, char * argv[]) {
4
5          // Asignamos variables
6          int numero = 10;
7          int lista[numero];
8          char caracter = 'B';
9          float numeroReal = 89.8;
10         long int suma = 0;
11         double promedio;
12
13         // Mostramos texto y valores
14         printf("Primer texto solo\n");
15         printf("Luego podemos poner un entero: %i\n", numero);
16         printf("También podemos poner un caracter: %c\n", caracter);
17         printf("Un numero real: %.2f\n", numeroReal);
18
19         // Podemos llenar la lista con valores
20         for(int i = numero ; i >= numero ; i++){
21             lista[i] = i;
22         }
}

child process 27992 In: main                               Line: 7      PC: 0x400549
(gdb) start
Temporary breakpoint 1 at 0x400542: file ejemplo1.c, line 6.
Starting program: /users/fp03/fp03alu16/ejemplo1

Temporary breakpoint 1, main (argc=1, argv=0x7ffffffe398) at ejemplo1.c:6
Missing separate debuginfos, use: debuginfo-install glibc-2.15-37.fc17.x86_64
(gdb) 3
3
Un defi
(gdb) next
next
```

```

For bug reporting instructions, please see:
<http://www.gnu.org/software/gdb/bugs/>...
Reading symbols from /users/fp03/fp03alu16/ejemplo1...done.
(gdb) break 20
Breakpoint 1 at 0x4005f7: file ejemplo1.c, line 20.
(gdb) run
Starting program: /users/fp03/fp03alu16/ejemplo1
Primer texto solo
Luego podemos poner un entero: 10
También podemos poner un caracter: B
Un numero real: 89.80

Breakpoint 1, main (argc=1, argv=0x7ffffffe398) at ejemplo1.c:20
20      for(int i = numero ; i >= numero ; i++){
Missing separate debuginfos, use: debuginfo-install glibc-2.15-37.fc17.x86_64
(gdb)

```

```

fp03alu16 — fp03alu16@samba:~ — ssh fp03alu16@192.168.2.200 — 109x37
ejemplo1.c
13      // Mostramos texto y valores
14      printf("Primer texto solo\n");
15      printf("Luego podemos poner un entero: %i\n", numero);
16      printf("También podemos poner un caracter: %c\n", caracter);
17      printf("Un numero real: %.2f\n", numeroReal);
18
19      // Podemos llenar la lista con valores
B-> 20      for(int i = numero ; i >= numero ; i++){
21          lista[i] = i;
22      }
23
24      // Y ahora podemos hacer calculos con la lista
25      for(int i = numero ; i >= numero ; i++){
26          suma += lista[i];
27      }
28      promedio = suma / numero;
29      printf("La suma es: %li\n", suma);
30      printf("El promedio es: %lf\n", promedio);
31
32      return 0;
33  }
34

child process 28022 In: main
(gdb) p i
$1 = 10
(gdb) print lista
$2 = {-163754450, 0, 4195102, 0, -1, 0, -7536, 32767, -7520, 32767}
(gdb)

```

```
fp03alu16 — fp03alu16@samba:~ — ssh fp03alu16@192.168.2.200 — 109x37
ejemplo1.c
13 // Mostramos texto y valores
14 printf("Primero texto solo\n");
15 printf("Luego podemos poner un entero: %i\n", numero);
16 printf("También podemos poner un caracter: %c\n", caracter);
17 printf("Un numero real: %.2f\n", numeroReal);
18
19 // Podemos llenar la lista con valores
20 for(int i = numero ; i >= numero ; i++){
21     lista[i] = i;
22 }
23
24 // Y ahora podemos hacer calculos con la lista
25 for(int i = numero ; i >= numero ; i++){
26     suma += lista[i];
27 }
28 promedio = suma / numero;
29 printf("La suma es: %li\n", suma);
30 printf("El promedio es: %lf\n", promedio);
31
32 return 0;
33
34

child process 28022 In: main Line: 20 PC: 0x40060f
(gdb) p i
$1 = 10
(gdb) print lista
$2 = {-163754450, 0, 4195102, 0, -1, 0, -7536, 32767, -7520, 32767}
(gdb) display i
1: i = 10
(gdb) display lista
2: lista = {-163754450, 0, 4195102, 0, -1, 0, -7536, 32767, -7520, 32767}
(gdb)
```

```
fp03alu16 — fp03alu16@samba:~ — ssh fp03alu16@192.168.3.200 — 80x24
ejemplo1.c
9 float numeroReal = 89.8;
10 long int suma = 0;
11 double promedio;
12
13 // Mostramos texto y valores
> 14 printf("Primero texto solo\n");
15 printf("Luego podemos poner un entero: %i\n", numero);
16 printf("También podemos poner un caracter: %c\n", caracter);
17 printf("Un numero real: %.2f\n", numeroReal);
18
19 // Podemos llenar la lista con valores
20 for(int i = numero ; i >= numero ; i++){
21     lista[i] = i;
22 }

child process 30462 In: main Line: 14 PC: 0x4005ad

Temporary breakpoint 2 at 0x400542: file ejemplo1.c, line 6.
Starting program: /users/fp03/fp03alu16/ejemplo1

Temporary breakpoint 2, main (argc=1, argv=0x7fffffff398) at ejemplo1.c:6
(gdb) next
(gdb) n
(gdb)
```

```
fp03alu16 — fp03alu16@samba:~ — ssh fp03alu16@192.168.3.200 — 80x24
ejemplo1.c
15     printf("Luego podemos poner un entero: %i\n", numero);
16     printf("También podemos poner un caracter: %c\n", caracter
17     printf("Un numero real: %.2f\n", numeroReal);
18
19     // Podemos llenar la lista con valores
20     for(int i = numero ; i >= numero ; i++){
> 21         lista[i] = i;
22     }
23
24     // Y ahora podemos hacer calculos con la lista
25     for(int i = numero ; i >= numero ; i++){
26         suma += lista[i];
27     }
Un numero real: 89.80 un caracter: B
child process 30462 In: main Line: 21 PC: 0x4005ff

Temporary breakpoint 2, main (argc=1, argv=0x7fffffffe398) at ejemplo1.c:6
(gdb) next
(gdb) n
(gdb) ok
Undefined command: "ok". Try "help".
(gdb) n
(gdb) █
```

- Actividad 1. Utilizar GDB para encontrar la utilidad del programa y describir su funcionalidad.

```

fp03alu16 — fp03alu16@samba:~ — ssh fp03alu16@192.168.3.200 — 80x50
This is free software: you are free to change and redistribute it.
There is NO WARRANTY, to the extent permitted by law. Type "show copying"
and "show warranty" for details.
This GDB was configured as "x86_64-redhat-linux-gnu".
For bug reporting instructions, please see:
<http://www.gnu.org/software/gdb/bugs/>...
Reading symbols from /users/fp03/fp03alu16/ejemplo1...done.
(gdb) break 20
Breakpoint 1 at 0x4005f7: file ejemplo1.c, line 20.
(gdb) run
Starting program: /users/fp03/fp03alu16/ejemplo1
Primero texto solo
Luego podemos poner un entero: 10
También podemos poner un caracter: B
Un numero real: 89.80

Breakpoint 1, main (argc=1, argv=0x7ffffffe398) at ejemplo1.c:20
20     for(int i = numero ; i >= numero ; i++){
Missing separate debuginfos, use: debuginfo-install glibc-2.15-37.fc17.x86_64
[fp03alu16@samba ~]$ gcc -g -std=c99 actividad1.c -o actividad1
[fp03alu16@samba ~]$ gdb ./actividad1
GNU gdb (GDB) Fedora (7.4.50.20120120-42.fc17)
Copyright (C) 2012 Free Software Foundation, Inc.
License GPLv3+: GNU GPL version 3 or later <http://gnu.org/licenses/gpl.html>
This is free software: you are free to change and redistribute it.
There is NO WARRANTY, to the extent permitted by law. Type "show copying"
and "show warranty" for details.
This GDB was configured as "x86_64-redhat-linux-gnu".
For bug reporting instructions, please see:
<http://www.gnu.org/software/gdb/bugs/>...
Reading symbols from /users/fp03/fp03alu16/actividad1...done.
(gdb) run
Starting program: /users/fp03/fp03alu16/actividad1
Ingresa un número: 1

El resultado es: 1
[Inferior 1 (process 30668) exited with code 024]
Missing separate debuginfos, use: debuginfo-install glibc-2.15-37.fc17.x86_64
(gdb) list
1      #include <stdio.h>
2
3      void main()
4      {
5          int N, CONT, AS;
6          AS=0;
7          CONT=1;
8          printf("Ingresa un número: ");
9          scanf("%i",&N);
10         while(CONT<=N)
(gdb)

```

```

$ gdb ./actividad1
GNU gdb (GDB) (Cygwin 8.1.1-1) 8.1.1
Copyright (C) 2018 Free Software Foundation, Inc.
License GPLv3+: GNU GPL version 3 or later <http://gnu.org/licenses/gpl.html>
This is free software: you are free to change and redistribute it.
There is NO WARRANTY, to the extent permitted by law. Type "show copying"
and "show warranty" for details.
This GDB was configured as "x86_64-pc-cygwin".
Type "show configuration" for configuration details.
For bug reporting instructions, please see:
<http://www.gnu.org/software/gdb/bugs/>.
Find the GDB manual and other documentation resources online at:
<http://www.gnu.org/software/gdb/documentation/>.
For help, type "help".
Type "apropos word" to search for commands related to "word"...
Reading symbols from ./actividad1...done.
(gdb) run
Starting program: /home/hugo morones/actividad1
[New Thread 6152.0x4b5c]
[New Thread 6152.0x4254]
Ingresa un número: 9

El resultado es: 25
[Inferior 1 (process 6152) exited with code 025]
(gdb) list
1      #include <stdio.h>
2
3      void main()
4      {
5          int N, CONT, AS;
6          AS=0;
7          CONT=1;
8          printf("Ingresa un número: ");
9          scanf("%i",&N);
10         while(CONT<=N)
(gdb)

```



```
actividad1.c
4 {
5     int N, CONT, AS;
6     AS=0;
7     CONT=1;
8     printf("Ingresa un número: ");
9     scanf("%i",&N);
10    while(CONT<=N)
11    {
12        AS=(AS+CONT);
13        CONT=(CONT+2);
14    }
15    printf("\nEl resultado es: %i\n", AS);
16 }
```

Active Thread 17908.0x172c In: main L6 PC: 0x10040108d
(gdb) start
Temporary breakpoint 1 at 0x10040108d: file actividad1.c, line 6.
Starting program: /home/hugo morones/actividad1
[New Thread 17908.0x172c]
[New Thread 17908.0x50d8]

Thread 1 "actividad1" hit Temporary breakpoint 1, main () at actividad1.c:6
(gdb) |

```
4 {
5     int N, CONT, AS;
6     AS=0;
7     CONT=1;
8     printf("Ingresa un número: ");
9     scanf("%i",&N);
9     scanf("%i",&N);
10    while(CONT<=N)
12        AS=(AS+CONT);
12        AS=(AS+CONT);
13        CONT=(CONT+2);
15    printf("\nEl resultado es: %i\n", AS);
16 }
```

Active Thread 17908.0x172c In: main L9 PC: 0x1004010a7
[New Thread 17908.0x172c] 13 c2
Thread 1 "actividad1" hit Temporary breakpoint 1, main () at actividad1.c:6
(gdb) n
[New Thread 17908.0x3bb4]
[New Thread 17908.0x2798]
Ingresa un número: 9
(gdb) next
(gdb) n
(gdb) |

```
actividad1.c
4 {
5     int N, CONT, AS;
6     AS=0;
7     CONT=1;
8     printf("Ingresa un número: ");
9     scanf("%i",&N);
10    while(CONT<=N)
11    {
12        AS=(AS+CONT);
13        CONT=(CONT+2);
14    }
15    printf("\nEl resultado es: %i\n", AS);
16 }
```

Native Thread 17908.0x172c In: main L6 PC: 0x10040108d
(gdb) start
Temporary breakpoint 1 at 0x10040108d: file actividad1.c, line 6.
Starting program: /home/hugo morones/actividad1
[New Thread 17908.0x172c]
[New Thread 17908.0x50d8]

Thread 1 "actividad1" hit Temporary breakpoint 1, main () at actividad1.c:6
(gdb) |


```

4      {
5          int N, CONT, AS;
6          AS=0;
7          CONT=1;
8          printf("Ingresa un número: ");
> 9          scanf("%i",&N);
9          scanf("%i",&N);
10         while(CONT<=N)
11             AS=(AS+CONT);
12             AS=(AS+CONT);
> 13         CONT=(CONT+2);
15         printf("\nEl resultado es: %i\n", AS);
16     }

```

native Thread 17908.0x172c In: main L9 PC: 0x1004010a7
[New Thread 17908.0x172c]
Thread 1 "actividad1" hit Temporary breakpoint 1, main () at actividad1.c:6
(gdb) n
[New Thread 17908.0x3bb4]
[New Thread 17908.0x2798]
Ingresa un número: 9
(gdb) next
(gdb) n
(gdb) |

- Actividad 2. Utilizar GDB para encontrar la utilidad del programa y describir su funcionalidad.
Se observa un error de sintaxis, que al corregirlo el programa corre con normalidad.

```

$ gdb ./actividad2
GNU gdb (GDB) (Cygwin 8.1.1-1) 8.1.1
Copyright (C) 2018 Free Software Foundation, Inc.
License GPLv3+: GNU GPL version 3 or later <http://gnu.org/licenses/gpl.html>
This is free software: you are free to change and redistribute it.
There is NO WARRANTY, to the extent permitted by law. Type "show copying"
and "show warranty" for details.
This GDB was configured as "x86_64-pc-cygwin".
Type "show configuration" for configuration details.
For bug reporting instructions, please see:
<http://www.gnu.org/software/gdb/bugs/>.
Find the GDB manual and other documentation resources online at:
<http://www.gnu.org/software/gdb/documentation/>.
For help, type "help".
Type "apropos word" to search for commands related to "word"...
Reading symbols from ./actividad2...done.
(gdb) run
Starting program: /home/hugo morones/actividad2
[New Thread 16544.0x3814]
[New Thread 16544.0x416c]
Ingresa cuántos términos calcular de la serie: X^K/K!
N= 6
[Inferior 1 (process 16544) exited with code 0300000000005]
(gdb) list
1      #include <stdio.h>
2      #include <math.h>
3
4      void main()
5      {
6          int K, AP, N;
7          double X, AS;
8          printf("Ingresa cuántos términos calcular de la serie: X^K/K!");
9          printf("\nN=");
10         scanf("%i",&N);
(gdb)

```

```

actividad2.c
8+
5 {
6     int K, AP, N;
7     double X, AS;
8     printf("Ingrese cuántos términos calcular de la serie: X^K/K!");
9     printf("\nN=");
10    scanf("%i", &N);
11    printf("X=");
12    scanf("%lf", &X);
13    K=0;
14    AP=1;
15    AS=0;
16    while(K<=N)
17    {
18        AS=AS+pow(X,K)/AP;
19        K=K+1;
20        AP=AP*K;
21    }
22    printf("Resultado=%le", AS);
23 }
24
25
26
27
28
29
30
31
32
33
34
35

```

```

native No process in:
N=8
[Thread 7812.0x384c exited with code 3221225477]
[Thread 7812.0x4c38 exited with code 3221225477]
[Thread 7812.0x4c1c exited with code 3221225477]
The program is not being run.
(gdb) p i
No symbol "i" in current context.
(gdb) print list
No symbol "list" in current context.
(gdb) print lista
No symbol "lista" in current context.
(gdb) p i
No symbol "i" in current context.
(gdb) display lista
No symbol "lista" in current context.
(gdb) |

```

```

actividad2.c
8+
5 {
6     int K, AP, N;
7     double X, AS;
8     printf("Ingrese cuántos términos calcular de la serie: X^K/K!");
9     printf("\nN=");
10    scanf("%i", &N);
11    printf("X=");
12    scanf("%lf", &X);
13    K=0;
14    AP=1;
15    AS=0;
16    while(K<=N)
17    {
18        AS=AS+pow(X,K)/AP;
19        K=K+1;
20        AP=AP*K;
21    }
22    printf("Resultado=%le", AS);
23 }
24
25
26
27
28
29
30
31
32
33
34
35

```

```

native Thread 14928.0x11f0 In: main
(gdb) start
Temporary breakpoint 1 at 0x10040108d: file actividad2.c, line 8.
Starting program: /home/hugo morones/actividad2
[New Thread 14928.0x11f0]
[New Thread 14928.0x3eb8]

Thread 1 "actividad2" hit Temporary breakpoint 1, main () at actividad2.c:8
(gdb)

```

- Actividad 3. Utilizar GDB para encontrar la utilidad del programa y describir su funcionalidad.

En el mismo caso, al corregir el error corre el programa

```
$ ./actividad3
Ingrese un número:
5
El factorial de -1 es 0.

hugo morones@LAPTOP-FGPEUFLH ~
$ gcc -g actividad3.c -o actividad3

hugo morones@LAPTOP-FGPEUFLH ~
$ gdb ./actividad3
GNU gdb (GDB) (Cygwin 8.1.1-1) 8.1.1
Copyright (C) 2018 Free Software Foundation, Inc.
License GPLv3+: GNU GPL version 3 or later <http://gnu.org/licenses/gpl.html>
This is free software: you are free to change and redistribute it.
There is NO WARRANTY, to the extent permitted by law. Type "show copying"
and "show warranty" for details.
This GDB was configured as "x86_64-pc-cygwin".
Type "show configuration" for configuration details.
For bug reporting instructions, please see:
<http://www.gnu.org/software/gdb/bugs/>.
Find the GDB manual and other documentation resources online at:
<http://www.gnu.org/software/gdb/documentation/>.
For help, type "help".
Type "apropos word" to search for commands related to "word"...
Reading symbols from ./actividad3...done.
(gdb) run
Starting program: /home/hugo morones/actividad3
[New Thread 11428.0x2210]
[New Thread 11428.0x51a4]
Ingrese un número:
6
```

```
8
El factorial de -1 es 0.

hugo morones@LAPTOP-FGPEUFLH ~
$ ./actividad3
Ingrese un número:
5
El factorial de -1 es 0.

hugo morones@LAPTOP-FGPEUFLH ~
$ gcc -g actividad3.c -o actividad3

hugo morones@LAPTOP-FGPEUFLH ~
$ gdb ./actividad3
GNU gdb (GDB) (Cygwin 8.1.1-1) 8.1.1
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Type "show configuration" for configuration details.
For bug reporting instructions, please see:
<http://www.gnu.org/software/gdb/bugs/>.
Find the GDB manual and other documentation resources online at:
<http://www.gnu.org/software/gdb/documentation/>.
For help, type "help".
Type "apropos word" to search for commands related to "word"...
Reading symbols from ./actividad3...done.
(gdb) run
Starting program: /home/hugo morones/actividad3
[New Thread 11428.0x2210]
[New Thread 11428.0x51a4]
Ingrese un número:
6
El factorial de -1 es 0.
[Thread 11428.0x51a4 exited with code 0]
[Inferior 1 (process 11428) exited normally]
(gdb) list
1      #include <stdio.h>
2
3      int main()
4      {
5          int numero;
6
7          printf("Ingrese un número:\n");
8          scanf("%i",&numero);
9
10         long int resultado = 1;
(gdb)
```

```

actividad3.c
4      {
5          int numero;
6
7          printf("Ingrese un número:\n");
8          scanf("%i",&numero);
9
10         long int resultado = 1;
11         while(numero>=0){
12             numero--;
13             resultado *= numero;
14         }
15
16         printf("El factorial de %i es %li.\n", numero, resultado);
17
18         return 0;
19     }
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
Native Thread 15104.0x1958 In: main
(gdb) start
Temporary breakpoint 1 at 0x10040108d: file actividad3.c, line 7.
Starting program: /home/hugo morones/actividad3
[New Thread 15104.0x1958]
[New Thread 15104.0x4720]
Thread 1 "actividad3" hit Temporary breakpoint 1, main () at actividad3.c:7
(gdb) |

```

```

E~
4      {      printf("Ingrese un número:\n");
5          int numero;scanf("%i",&numero);
6
70         printf("Ingrese un número:\n");
8         scanf("%i",&numero);
92         numero--;
10        long int resultado = 1;mero;
11        while(numero>=0){
12            numero--;
13            resultado *= numero;i.\n", numero, resultado);
14        }
15        return 0;
16        printf("El factorial de %i es %li.\n", numero, resultado);
17
18        return 0;
19    }
20
21
22
23
24
25
26
27
28
29
30
31
32
Native Thread 16572.0x48b8 In: main
(gdb) start
Temporary breakpoint 1 at 0x10040108d: file actividad3.c, line 7.
Starting program:
[New Thread 16572.0x4008]
[New Thread 16572.0x4b04]
(gdb) n
0x0000000018004a816 in _cygwin_exit_return () from /usr/bin/cygwin1.dll
Single stepping until exit from function _cygwin_exit_return,
which has no line number information.
[Thread 16572.0x4404 exited with code 0]
[Thread 16572.0x4b04 exited with code 0]
[Inferior 1 (process 16572) exited normally]
(gdb) n
The program is not being run.
The program is not being run.
(gdb) |

```

```

E-
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For help, type "help".
Type "apropos word" to search for commands related to "word"...
Reading symbols from actividad3...done.
(gdb)
hugo_morones@LAPTOP-FGPEUFLH ~
$ gdb actividad3
GNU gdb (GDB) (Cygwin 8.1.1-1) 8.1.1
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For help, type "help".
Type "apropos word" to search for commands related to "word"...
Reading symbols from actividad3...done.
(gdb)
hugo_morones@LAPTOP-FGPEUFLH ~
$ gdb actividad3
GNU gdb (GDB) (Cygwin 8.1.1-1) 8.1.1
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<http://www.gnu.org/software/gdb/documentation/>.
For help, type "help".
Type "apropos word" to search for commands related to "word"...
Reading symbols from actividad3...done.
(gdb) break 8
Breakpoint 1 at 0x100401099: file actividad3.c, line 8.
(gdb) run

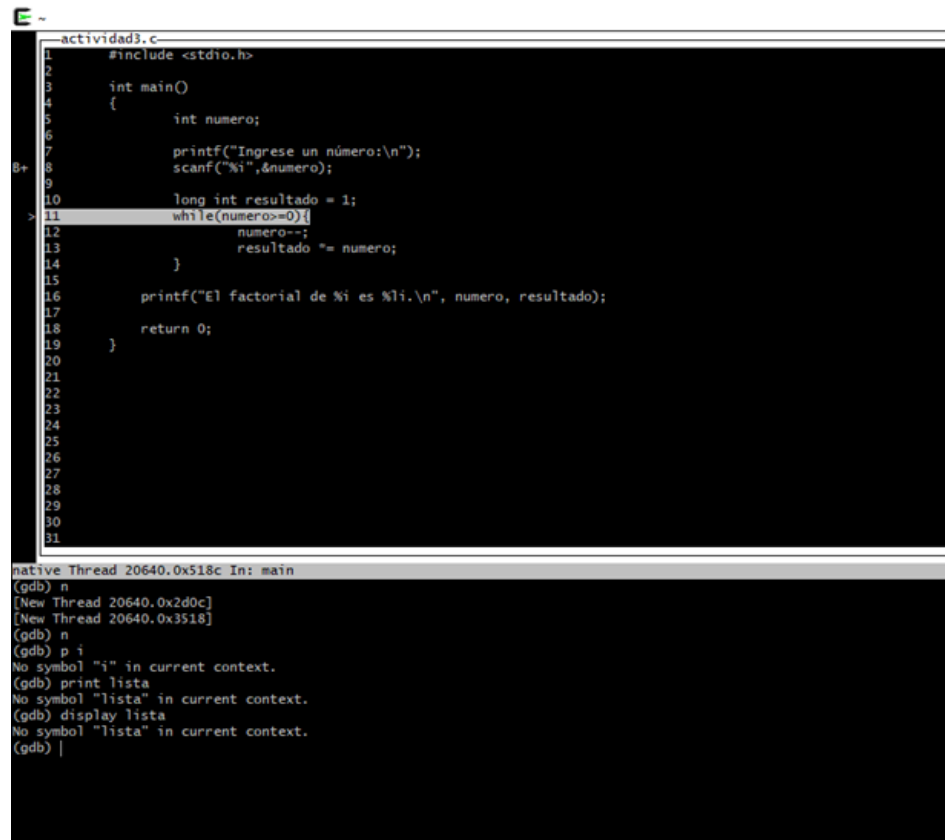
```

```

E-
For help, type "help".
Type "apropos word" to search for commands related to "word"...
Reading symbols from actividad3...done.
(gdb)
hugo_morones@LAPTOP-FGPEUFLH ~
$ gdb actividad3
GNU gdb (GDB) (Cygwin 8.1.1-1) 8.1.1
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For help, type "help".
Type "apropos word" to search for commands related to "word"...
Reading symbols from actividad3...done.
(gdb)
hugo_morones@LAPTOP-FGPEUFLH ~
$ gdb actividad3
GNU gdb (GDB) (Cygwin 8.1.1-1) 8.1.1
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<http://www.gnu.org/software/gdb/documentation/>.
For help, type "help".
Type "apropos word" to search for commands related to "word"...
Reading symbols from actividad3...done.
(gdb) break 8
Breakpoint 1 at 0x100401099: file actividad3.c, line 8.
(gdb) run
Starting program: /home/hugo_morones/actividad3
[New Thread 20640.0x518c]
[New Thread 20640.0x3320]
Ingrese un número:

Thread 1 "actividad3" hit Breakpoint 1, main () at actividad3.c:8
8      scanf("%i",&numero);
(gdb) |

```



```
actividad3.c
1  #include <stdio.h>
2
3  int main()
4  {
5      int numero;
6
7      printf("Ingrese un número:\n");
8      scanf("%i",&numero);
9
10     long int resultado = 1;
11     while(numero>=0){
12         numero--;
13         resultado *= numero;
14     }
15
16     printf("El factorial de %i es %li.\n", numero, resultado);
17
18     return 0;
19 }
20
21
22
23
24
25
26
27
28
29
30
31

Native Thread 20640.0x518c In: main
(gdb) n
[New Thread 20640.0x2d0c]
[New Thread 20640.0x3518]
(gdb) n
(gdb) p i
No symbol "i" in current context.
(gdb) print lista
No symbol "lista" in current context.
(gdb) display lista
No symbol "lista" in current context.
(gdb) |
```

Conclusión. A lo largo de la práctica trabajamos y vimos el editor GDB y sus funciones que son una de las muchas aplicaciones que podemos ocupar para compilar y en tal caso, corregir nuestro programa en c. No está de más ver las diferentes opciones que se nos presentan en este mercado de programar.