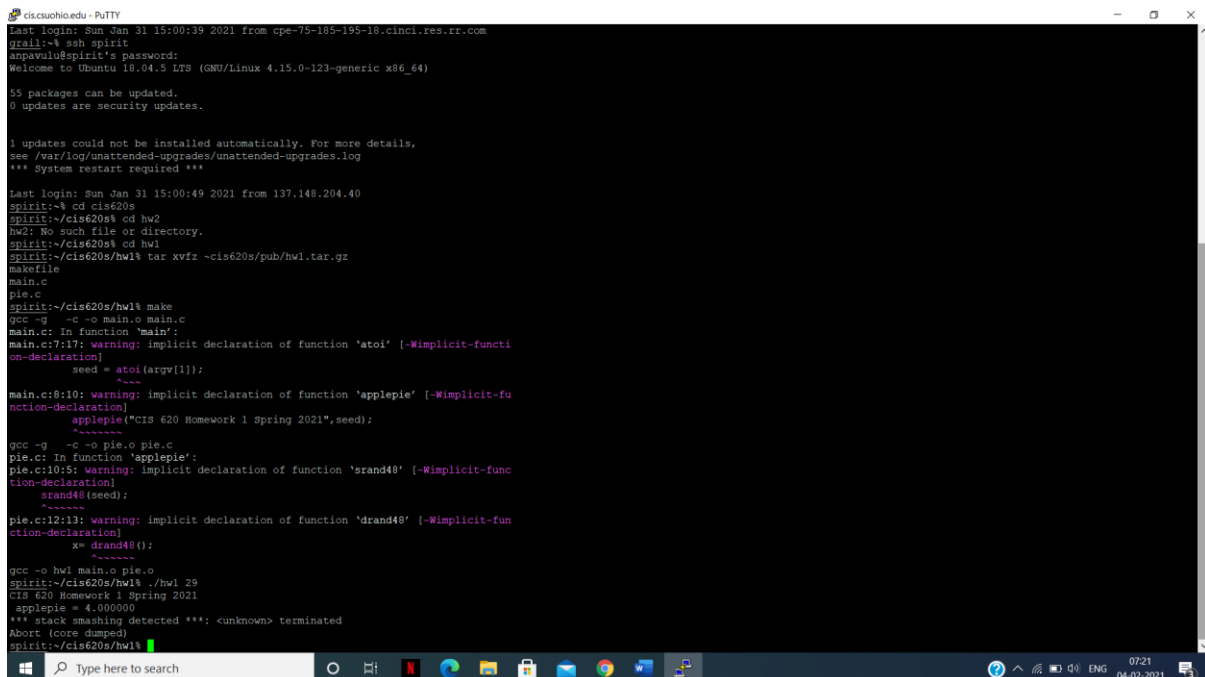




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**LOGIN ID: anpavulu**

1)By, using the command `tar xvfz ~cis620s/pub/hw1.tar.gz` extract the files into the working directory of hw1 which is located under working directory cis620s.



```
ciscuchoedu - PuTTY
Last login: Sun Jan 31 15:00:39 2021 from cpe-75-185-195-18.cinci.res.rr.com
jsrail:~ ssh spirit
angavulu8spirit's password:
Welcome to Ubuntu 18.04.5 LTS (GNU/Linux 4.15.0-123-generic x86_64)

35 packages can be updated.
0 updates are security updates.

1 updates could not be installed automatically. For more details,
see /var/log/unattended-upgrades/unattended-upgrades.log
*** system restart required ***

Last login: Sun Jan 31 15:00:49 2021 from 137.148.204.40
spirit:~% cd cis620s
spirit:~/cis620s% cd hw2
hw2: No such file or directory.
spirit:~/cis620s% cd hw1
spirit:~/cis620s/hw1% tar xvfz ~cis620s/pub/hw1.tar.gz
makefile
main.c
pie.c
spirit:~/cis620s/hw1% make
gcc -g -c -o main.o main.c
main.c: In function 'main':
main.c:7:17: warning: implicit declaration of function 'atoi' [-Wimplicit-functi
on-declaration]
      seed = atoi(argv[1]);
              ^~~~~
main.c:8:10: warning: implicit declaration of function 'applepie' [-Wimplicit-fu
nction-declaration]
      applepie("CIS 620 Homework 1 Spring 2021",seed);
      ^~~~~~
gcc -g -c -o pie.o pie.c
pie.c: In function 'applepie':
pie.c:10:5: warning: implicit declaration of function 'srand48' [-Wimplicit-func
tion-declaration]
      srand48(seed);
      ^~~~~~
pie.c:12:13: warning: implicit declaration of function 'drand48' [-Wimplicit-fun
ction-declaration]
      x= drand48();
      ^~~~~~
gcc -o hw1 main.o pie.o
spirit:~/cis620s/hw1% ./hw1 29
CIS 620 Homework 1 Spring 2021
applepie = 4.000000
*** stack smashing detected ***: <unknown> terminated
Abort (core dumped)
spirit:~/cis620s/hw1%
```

2)secondly, type make command so that kernel build and shows some warning message assigning the seed value in argv[1],and for x value by using drand(48); in pie.c file as mentioned in the screen shoot above.

Thirdly, to execute the file we need type the command

`./hw1 29` (passing seed value in argv[1])

CIS 620 Homework 1 Spring 2021

applepie = 4.000000

ERROR: \*\*\* stack smashing detected \*\*\*: <unknown> terminated

Abort (core dumped)

Here applepie =4.000000 I know core dumped it is a bug due to insufficient memory

This mean that  $\text{count}/n * 4 = \text{pie}$  count is at  $80000/80000 * 4 = \text{pie}$

Pie=4.000 it is also one bug

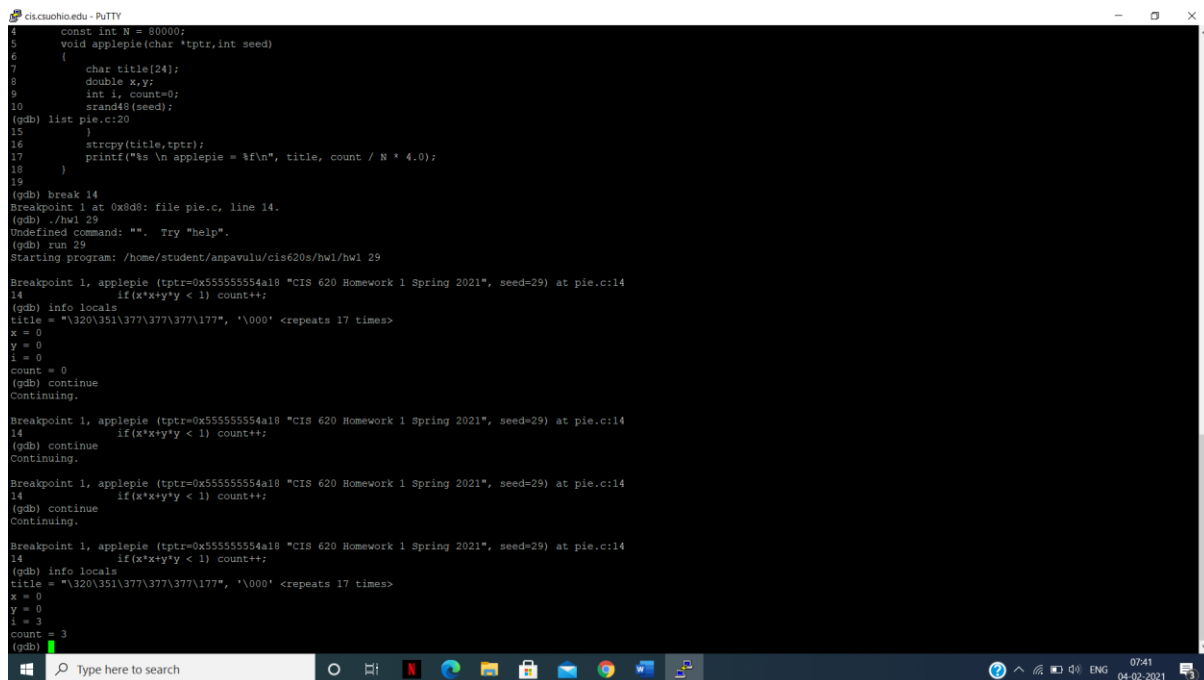
3)invoke the gdb by using the following command `gdb hw1`

Enter into the hw1 file and the list filename pie.c:1 it list all the program lines.

4) Then search for the line which we want to set the break command and the run by passing the seed value then check info locals counts before continuing and then after type continue command three times and type info locals check the count.

5) The count=0 because x and y values are not assigning any value they are at origin. So here distance calculation not taking place. When we forcefully type continue three times it iterates the count value increases. Not reasonable because I think they are not assigning any random values from drand to calculate distance from origin whether to increment count or not. We do not know where the count value gives the pie value.

6)



```
discuchio.edu - PuTTY
1  const int N = 80000;
2  void applepie(char *tptr,int seed)
3  {
4      char title[24];
5      double x,y;
6      int i, count=0;
7      srand48(seed);
8      (gdb) list pie.c:20
9      }
10      strcpy(title,tptr);
11      printf("%s \n applepie = %f\n", title, count / N * 4.0);
12  }
13  (gdb) break 14
Breakpoint 1 at 0x8d8: file pie.c, line 14.
(gdb) ./hw1 29
Undefined command: ". ". Try "help".
(gdb) run 29
Starting program: /home/student/arpavulu/cis620s/hw1/hw1 29

Breakpoint 1, applepie (tptr=0x55555554a18 "CIS 620 Homework 1 Spring 2021", seed=29) at pie.c:14
14      if(x*x+y*y < 1) count++;
(gdb) info locals
title = "\320\351\377\377\377\177", '\000' <repeats 17 times>
x = 0
y = 0
i = 0
count = 0
(gdb) continue
Continuing.

Breakpoint 1, applepie (tptr=0x55555554a18 "CIS 620 Homework 1 Spring 2021", seed=29) at pie.c:14
14      if(x*x+y*y < 1) count++;
(gdb) continue
Continuing.

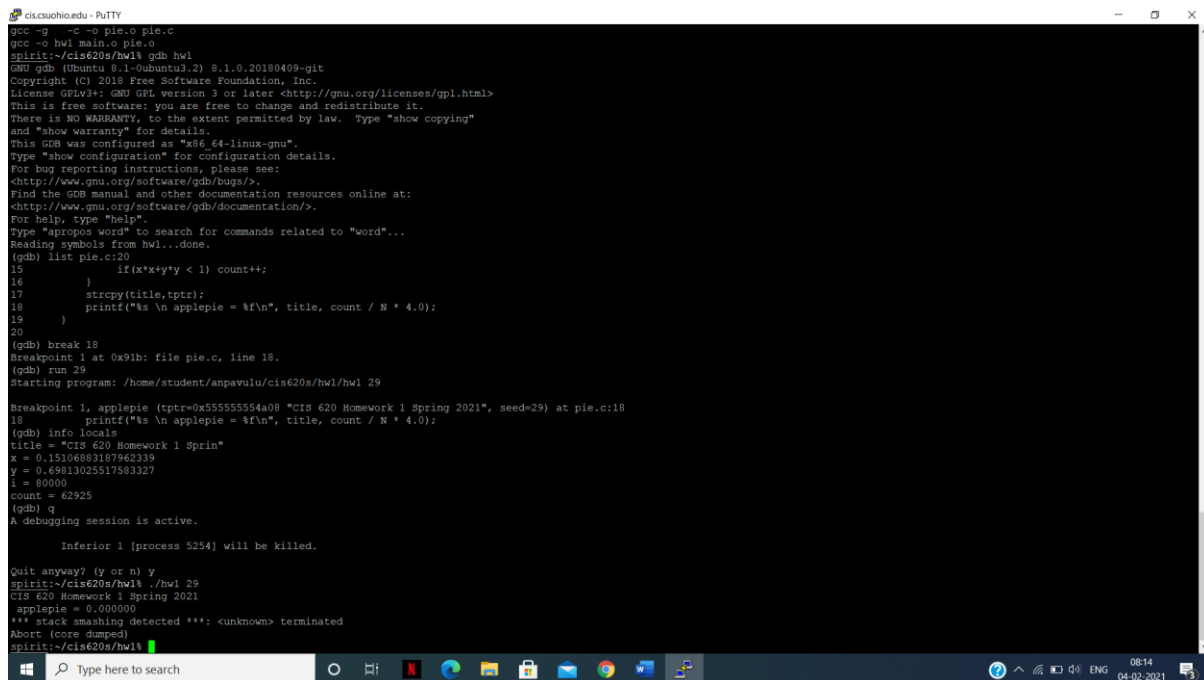
Breakpoint 1, applepie (tptr=0x55555554a18 "CIS 620 Homework 1 Spring 2021", seed=29) at pie.c:14
14      if(x*x+y*y < 1) count++;
(gdb) continue
Continuing.

Breakpoint 1, applepie (tptr=0x55555554a18 "CIS 620 Homework 1 Spring 2021", seed=29) at pie.c:14
14      if(x*x+y*y < 1) count++;
(gdb) info locals
title = "\320\351\377\377\377\177", '\000' <repeats 17 times>
x = 0
y = 0
i = 3
count = 3
(gdb)
```

7) When I check in the google x and y are under drand method for assigning values but these have a header file `stdlib.h` that why I included it and eliminates the warnings and get a reasonable count area( $x^2+y^2$ ) is less than 1 count is incremented.

Before that I want mention one task before entering clearing the first bug when I included the header file and after forgetting to build the kernel by typing make command. When I enter gdb and done all those break point it doesn't show me reasonable count for that I search whole day where I am doing mistake why not

getting the count perfectly later I found silly mistake when ever change is done we need to update the kernel by make to build it then only it reflects saved changes.



```
ciscuohio.edu - PuTTY
gcc -g -C -o pie.o pie.c
gcc -o hw1 main.o pie.o
spirit:~/cis620s/hw1$ gdb hw1
GNU gdb (Ubuntu 8.1-0ubuntu3.2) 8.1.0.20180409-git
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-linux-gnu".
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 hw1...done.
(gdb) list pie.c:20
15         if (x*x*y*y < 1) count++;
16     }
17     strcpy(title,tptr);
18     printf("%s \n applepie = %f\n", title, count / N * 4.0);
19 }
20
(gdb) break 18
Breakpoint 1 at 0x91b: file pie.c, line 18.
(gdb) run 29
Starting program: /home/student/angepalu/cis620s/hw1/hw1 29
Breakpoint 1, applepie (tptr=0x55555554a08 "CIS 620 Homework 1 Spring 2021", seed=29) at pie.c:18
18     printf("%s \n applepie = %f\n", title, count / N * 4.0);
(gdb) info locals
title = "CIS 620 Homework 1 Spring 2021"
x = 0.15104683197862329
y = 0.69813025517583327
i = 80000
count = 62925
(gdb) q
A debugging session is active.

Inferior 1 [process 5254] will be killed.

Quit anyway? (y or n) y
spirit:~/cis620s/hw1$ ./hw1 29
CIS 620 Homework 1 Spring 2021
applepie = 0.000000
*** stack smashing detected ***: <unknown> terminated
Aborted (core dumped)
spirit:~/cis620s/hw1$
```

Count=62925 N=80k

Count/N\*4=pie

62925\*/4=pie

Pie=3.14625

8) second bug printing the pie value I observed one point clearly as we are discussing the class, I came to know in printf statement there is some error.

Pie means float type variable then i change the count value has float type it worked well because int values does not print after decimal points. That to in printf it shows %f.

Fixing the second bug.

```
ciscuohio.edu - PuTTY
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 hwl...done.
(gdb) list pie.c:20
15         if(x*x*y*y < 1) count++;
16     }
17     strcpy(title,tptr);
18     printf("%s\n applepie = %f\n", title, count / N * 4.0);
19 }
20
(gdb) break 18
Breakpoint 1 at 0x91b: file pie.c, line 18.
(gdb) run 29
Starting program: /home/student/angepavulu/cis620s/hwl/hwl 29

Breakpoint 1, applepie (tptr=0x55555554a08 "CIS 620 Homework 1 Spring 2021", seed=29) at pie.c:18
18     printf("%s\n applepie = %f\n", title, count / N * 4.0);
(gdb) info locals
title = "CIS 620 Homework 1 Sprin"
x = 0.15106883187962339
y = 0.69813025517583327
i = 80000
count = 62925
(gdb) q
A debugging session is active.

    Inferior 1 [process 5254] will be killed.

Quit anyway? (y or n) y
SPIRIT:~/cis620s/hwl$ ./hwl 29
CIS 620 Homework 1 Spring 2021
applepie = 0.000000
*** stack smashing detected ***: <unknown> terminated
Abort (core dumped)
SPIRIT:~/cis620s/hwl$ nano pie.c
SPIRIT:~/cis620s/hwl$ nano pie.c
SPIRIT:~/cis620s/hwl$ make
gcc -g -c -o pie.o pie.c
gcc -o hwl main.o pie.o
SPIRIT:~/cis620s/hwl$ ./hwl 29
CIS 620 Homework 1 Spring 2021
applepie = 3.146250
*** stack smashing detected ***: <unknown> terminated
Abort (core dumped)
SPIRIT:~/cis620s/hwl$
```

9) \*\*\* stack smashing detected \*\*\*: <unknown> terminated

Abort (core dumped) this error is occurred due to memory insufficient like segmentation fault or core dumped. While I am studying 340 course professor told if you declare small amount size but passing so many values it pass core dumped or segmentation fault later increased the char title[24] to title[29] it clears the bug

10) after recompile and run the program the output of the terminal taken screenshot.

```
ciscuohio.edu - PuTTY
15         if(x*x*y*y < 1) count++;
16     }
17     strcpy(title,tptr);
18     printf("%s\n applepie = %f\n", title, count / N * 4.0);
19 }
20
(gdb) break 18
Breakpoint 1 at 0x91b: file pie.c, line 18.
(gdb) run 29
Starting program: /home/student/angepavulu/cis620s/hwl/hwl 29

Breakpoint 1, applepie (tptr=0x55555554a08 "CIS 620 Homework 1 Spring 2021", seed=29) at pie.c:18
18     printf("%s\n applepie = %f\n", title, count / N * 4.0);
(gdb) info locals
title = "CIS 620 Homework 1 Sprin"
x = 0.15106883187962339
y = 0.69813025517583327
i = 80000
count = 62925
(gdb) q
A debugging session is active.

    Inferior 1 [process 5254] will be killed.

Quit anyway? (y or n) y
SPIRIT:~/cis620s/hwl$ ./hwl 29
CIS 620 Homework 1 Spring 2021
applepie = 0.000000
*** stack smashing detected ***: <unknown> terminated
Abort (core dumped)
SPIRIT:~/cis620s/hwl$ nano pie.c
SPIRIT:~/cis620s/hwl$ nano pie.c
SPIRIT:~/cis620s/hwl$ make
gcc -g -c -o pie.o pie.c
gcc -o hwl main.o pie.o
SPIRIT:~/cis620s/hwl$ ./hwl 29
CIS 620 Homework 1 Spring 2021
applepie = 3.146250
*** stack smashing detected ***: <unknown> terminated
Abort (core dumped)
SPIRIT:~/cis620s/hwl$
SPIRIT:~/cis620s/hwl$ nano pie.c
SPIRIT:~/cis620s/hwl$ nano pie.c
SPIRIT:~/cis620s/hwl$ make
gcc -g -c -o pie.o pie.c
gcc -o hwl main.o pie.o
SPIRIT:~/cis620s/hwl$ ./hwl 29
CIS 620 Homework 1 Spring 2021
applepie = 3.146250
SPIRIT:~/cis620s/hwl$
```

