

(Due: Sep. 12)

In this warm-up homework, you are asked to use the ddd debugger on Linux to debug the following program (main.c and pie.c) :

```
/* file pie.c */
#include <stdlib.h>
const int M = 70000;
double cherrypie(int seed)
{
    double x,y,z;
    int i, count=0;
    srand48(seed);
    for(i=0; i<M; i++ ) {
        x= drand48();
        y= drand48();
        if(x*x+y*y < 1.0) count++;
    }
    wt del z = count / M * 4.0 ;
    return( z );
}
```

```
/* file main.c */
#include <stdio.h>
#include <stdlib.h>

void main(int argc, char **argv)
{
    int seed;
    double pi;

    if (argc < 2 ) { printf("need a seed!\n"); }
    else {
        seed = atoi(argv[1]);
        pi = cherrypie(seed);
        printf("Monte Carlo pi = %f\n", pi);
    }
}
```

Follow the procedure below:

1. Login a Linux workstation in FH133E. Type `tar xvfz ~cis620s/pub/hw1.tar.gz` to uncompress and extract files (i.e. main.c pie.c makefile) to your working directory.
2. Type `make` to compile the program. Run the executable file `getpi` along with a seed value ((e.g. 7) and check the output result.

3. Invoke the ddd with the executable file getpi. Type `list pie.c:1` to list the file pie.c.
4. Set a breakpoint at the return statement. Run the program with an input integer value (e.g. 7). Type `info locals` to view the local variables after the breakpoint is reached. Take a screenshot of the ddd window and save the image to a file.
5. What is the value of count? Is it reasonable? What is the value of z? Is it reasonable?
6. Fix the bug in pie.c. Recompile and then run the program with ddd. If the result is still not correct, debug/fix the code in main.c with ddd.
7. Recompile and then run the correct program with ddd. Take a screenshot of the ddd window and save it to a file.
8. Print the two screenshot files.

Submit the two screenshots with detailed explanations about the bugs you found. The cover page should contain your name, login id, and your photo which must be taken by using the iMac in FH128.