Cs352 — Homework #1

Due Time: 09/xx/03 (9:00PM)

Turnin ID: $cs352\_assg1$

Turnin files: lsize FindExample CalculateSum.c

(PS: You may turnin your files by UNIX command "turnin $cs352\_assg1$ lsize FindExample Calculate.cpp" to turnin all 3 files at once. You may also turnin each file one at a time by "turnin $cs352\_assg1$ $file\_you\_want\_to\_turnin$". Later turnin file will overwrite the old file which has the same filename. So if you turnin the same file multiple times, we only receive the last version you turned in. To see a list of the files you turned in, you may use the command "turnin -ls $cs352\_assg1$". For help information about turnin program, please use the command "turnin -h". If you still have questions about turnin, please either stop by TA's office hours or email TA's.)

1. Write a script files named *lsize* that lists the largest 5 files in the directory (do NOT print the contents of the files), sorted by their size. You might want to use pipe, and the unix utility *sort*. The script file should use the command *ls* to obtain the size of the file.

   Answer:

   ```
   ls  -lr  |sort -rn +4|head -5
   ```

2. Compare the ressult of the sctipt you wrote for the previous section to the result of the command *du* | *sort*.

3. Use the command *find* and write a script named *FindExample* that create a file named *ExecutableSize* in the home directory. This file (ExecutableSizes) contains a line describing the full path (including the name) and the number of words, character and lines, of all the files that were modified in the last 10 days, their name starts with the character 'a', and in one of the subdirectory of the directory which which *FindExample* was executed (other files should be ignored).

   Answer:

   ```
   find . -name "a*" -ctime -10 -exec wc {} \; > ~/ExecutableSizes
   ```

4. Create a .c file named *CalculateSum.c* whose first line is *#define N 100*. The program in the file should print the value of the sum

$$1 + \frac{1}{2} + \frac{1}{3} + \ldots + \frac{1}{N} .$$

The precision of your result should be 3 digits after the decimal point (for example, if your result is 12.34567, you should print out 12.346). To make your output more good-looking, please also print a '\n' right after the number you print out.

(PS: All C programs should be compiled with "gcc" with "-Wall" option on lectura. Your program should compile with no warnings with "-Wall" option. Any warning will result in points off. A sample command to compile your program is "gcc -Wall CalculateSum.c".)

Answer:

```
#include<stdio.h>
#define N 100

int main()
{
  int i;
  float sum = 0;

  // Adding 1/i to sum 100 times
  for(i = 1; i <= N; i++)
    {
      // Need to type cast 1/i to float
      // Otherwise it will be 0 because i is int
      sum += (float) 1/i;
    }
  printf(``%.3f\n'', sum);

  // Returning 0 because main has return type int
  // and expects an integer to be returned
  return(0);
}
```