

CS21 Assignment #7

Given that you have an exam on Thursday, 3/30, I am going to accept this assignment until end of day Monday, 4/3. **HOWEVER, the concepts on this assignment WILL be covered on the exam.**

Please use the given name for your scripts! Be sure to review the reminders at the end of this assignment!

1. (linenumbers.py) Write a program that asks the user for the name of the file. The program should write the contents of this input file to an output file. In the output file, each line should be preceded with a line number followed by a colon. The output file will have the same name as the input filename, preceded by "ln" (for linenumbers). Be sure to use Try/except to catch all exceptions.

For example, when prompted, if the user specifies "sampleprogram.py" and that file contains:

```
#Jackie Horton
#CS21
#Sample program

print('This is a sample program')
print('Do you remember when this seemed hard?')
print('Python is Cool!')
```

Your program will produce the file named `ln_sampleprogram.py` and it will contain:

```
1: #Jackie Horton
2: #CS21
3: #Sample program
4:
5: print('This is a sample program')
6: print('Do you remember when this seemed hard?')
7: print('Python is Cool!')
```

2. (kinetic.py) Complete Programming Exercise #14 from Chapter 5 (yes, the previous chapter). Add exception handling to ensure incorrect/invalid user input does not crash your program.

3. (grades.py) `grades.txt` contains an unknown number of grades (one per line). Your program will create an output file named `grades_out.txt`. The output file will contain a letter grade for each numeric grade in the input file, followed by a histogram of grades using asterisks. Be sure to catch all exceptions (file does not exist, invalid data) and display an appropriate (different) message for each exception type. If an exception occurs, report it and end your program gracefully.

For example, if `grades.txt` contains:

```
56.5
78
92
77.5
88
85
68
79
92
```

Then grades_out.txt would contain:

F
C
A
C
B
B
D
C
A

A: **
B: **
C: ***
D: *
F: *

Reminders (not following will result in point deductions):

If a function's task doesn't include output to the user, do not do it!

All programs should have a `main()` function

Use constants! No magic numbers! No global variables!

It is expected that you will complete the same process of development that we use in class. When you reach the point of having an algorithm (pseudocode), this will become the comments of your program as a starting point for writing code. Comment first, then code!

Be sure to include comments at the top of the program that include your name, class and a short description of the program.

Each function should begin with a comment describing the task the function will perform.

Be sure all output is formatted. Unless otherwise, specified, displays non-integer values with 2 digits after the decimal point.

Any work you submit for this assignment should be authored entirely by yourself. Assistance is permitted from the instructor or teaching assistants only. All submitted programming assignments are subject to originality verification through software designed and used for the Measure Of Software Similarity (MOSS).