CPE 100 Introduction to Computer Programming
International Sections August 2020
Laboratory Exercise 8

Objective

This lab is intended to give you practice creating a program that reads and writes text files.

Instructions

Write a program called **testlines.c**. This program should *ask the user for the name of an input file*. It should get the file name from the user and save it in a string variable. Then it should try to open that file. If the open process does not succeed, the program should print an error message and exit. Otherwise, it should open three output text files: **numbers.out**, **upper.out**, and **lower.out**.

If the open command succeeds on all three output files, the program should begin reading the input file, one line at a time. For each line that it reads, it should do the following:

> If the first character in the line is a digit, write the whole line to **numbers.out**
> Else if the first character in the line is upper case, write the line to **upper.out**
> Else if the first character in the line is lower case, write the line to **lower.out**
> Otherwise, just skip this line.

When you have read all the lines in the input file, close the input file. Close all three of the output files. Exit the program.

Thus, each run of the program will create three output files (unless the process of opening the input file fails). It is possible that some of the files could be empty.

Test your program on the following input files:

> **testfile.dat** - This is a very short file with examples of all the possible types of lines
> **testfile2.dat** - Another short file. Should produce three empty files.
> **labinstructions.txt** - The instructions from Lab 8, saved in text format
> **dracula.txt** - The full text of the book Dracula by Bram Stoker (over 16,000 lines)

You can assume that no line will be more than 256 characters long.

Example

Suppose the input file has the following contents:

```
This is a sample file
I love CPE100
2 be or not 2b
yadda yadda yadda
    Where are you going?
? what is going on?
```

The contents of the three output files will be as follows:

numbers.out
```
2 be or not 2b
```

upper.out
```
This is a sample file
I love CPE100
```

lower.out
```
yadda yadda yadda
```

Hints:

1. You will need four **FILE*** variables for this program, one for the input file and three for the output files.
2. Don't forget to check that the file open operations succeed in all cases.
3. Test your program by giving it the name of an input file that does not exist, to make sure that your error handling works correctly.
4. You do not need to remove the newline ('\n') at the end of the lines you read, but do not add another newline when you write the lines.

Upload 1) your source file **testlines.c**; 2) the three output files you get from processing the input file **dracula.txt** (4 files total).