UNIX Shell Scripts

All problems have the same weight.

Problem 1
Write a script named **isearch** to allow users to input a file name and a word/pattern. Search the file for the word/pattern and display the lines that contain the word/pattern on the standard output. If the word/pattern is not found, display a message.

```
indigo 20 % isearch
Enter input file name: phone_book.txt
Enter the word to search for: from
Case-sensitive (y/n)? n
Nikola Sandic   (647) 209-7932 friend from work
ROB Oxley       (416) 723-8759 friend from university
```

If the word/pattern is not found, display a message.
```
Word 'from' not found.
```

Problem 2
Write a script named **icount** to allow users to input a file name and display on the standard output the number of lines, words or characters in the file.

```
indigo 21 % icount
Enter input file name: phone_book.txt
Count lines, words, characters or all three (l, m, c, a)? b
Invalid option
Count lines, words, characters or all three (l, m, c, a)? m
File 'phone_book.txt' contains 125 words.
```

Problem 3
Write a script named **allfiles** to allow a user to list all (ordinary) files in the current directory, one per line, but not the sub-directories in the current directory. (*Note*: command 'ls' displays all files and directories.)

```
indigo 22 % allfiles
allfiles
lab3a.c
lab3b.c
lab3b_out.txt
```

Problem 4
Write a script named **fdisplay** to allow a user to input a file name and an option to display the content of the file (**e**ntire file, entire file one **p**age at a time, **f**irst 10 lines, **l**ast 10 lines). Display the content of the file as the user specifies. If the user enters an invalid option, display an error message and ask for a correct option.

```
indigo 23 % fdisplay
Enter input file name: phone_book.txt
Enter option (e, p, f, l): a
Invalid option
Enter option (e, p, f, l): p
# File is displayed one page at a time
```

Problem 5
Write a script named **doublesp** to allow a user to input an input and an output file name.
Copy the content from the input file to the output file, adding a blank line between every
two lines of the input file (double spacing). If the output file exists, display the message
shown below. If the user answers yes then append the output to the file. If the user
answers no, exit and do nothing (i.e., do not overwrite an existing file).

```
indigo 24 % doublesp
Enter input file name: phone_book.txt
Enter output file name: outfile.txt
File 'outfile.txt' exists.
Append to it (y/n)? y
```

Problem 6
Write a script named **addlines** to allow a user to enter an input and an output file name.
Copy the content from the input file to the output file, line by line, adding a line number at
the beginning of each copied line. Add a space after the colon before copying the line.

If the output file exists, display a message as above. If the user answers yes then append
the output to the file. If the user answers no, exit and do nothing.

```
indigo 25 % addlines
Enter input file name: phone_book.txt
Enter output file name: outfile.txt

indigo 26 % cat outfile.txt
1: Ray Szeto        (416) 564-6786  friend
2: alex johnson     (416) 555-1234  family doctor
3: Tom Podstawka    (647) 579-3854  dentist
…
```

Notes
- An input file must exist and be readable before being read from.
- An existing output file must be writable before being written to.
- Assume that all inputs from the user are case-insensitive, except file names. (Unix file
  names are case-sensitive, so we keep the same convention.) For example, the user may
  enter either 'y' or 'Y'.
- Assume that all input files are text files containing no back slash characters.

- See file `unix_output.txt` for more examples.
- Do not use any text processing utility such as "sed" or "awk".
- Make sure to use the same error messages or confirmation messages as specified, because the automatic grading script will use "grep" to look for these messages.
- Make sure to name the submitted files (scripts) exactly as specified, because the automatic grading script will to look for those exact file names.
- Submit only the Unix scripts. Do not submit output files.

Sample Error Messages

```
Enter input file name: yourfile.txt
File 'yourfile.txt' does not exist.

Enter input file name: ourfile.txt
File 'ourfile.txt' is not readable.

Enter output file name: hisfile.txt
File 'hisfile.txt' is not writable.

Enter output file name: outfile.txt
File 'outfile.txt' exists.
Append to it (y/n)? n
```

In the above examples, simply exit the script upon a file error, or an answer 'n' or 'N'.