

Description

For the lab assignment, you need to implement a program that takes pre-defined test data and uses that data to test several functions. The functions you will write are essentially string versions of some of the Standard C Library's character functions.

The `main()` function in your program should:

1. Test whether the string `ALPHATEST1` is indeed all alphabetic or not.
2. Test whether each of the strings `UPPERTEST1` and `UPPERTEST2` are all upper case or not. If a string is upper case, the program should print a message to that effect. If not, the program should convert the string to upper case and print the newly upper-cased string.

Test Strings

```
#define ALPHATEST1 "abcd67890efghijk123z"
```

```
#define UPPERTEST1 "AbCDefghijKLMNOpqrSTUVwxyZ"
```

```
#define UPPERTEST2 "ABCDEFGHIJKLMNOPQRSTUVWXYZ"
```

Functions You Must Write

You may write any functions you wish to implement this program, in **addition** to the following functions. However, you **must** implement the following functions, and they must be prototyped as shown:

- **int IsAlpha(char * s)** – This function returns 1 if all of the characters in the string *s* are alphabetic characters. Otherwise, it returns 0.
- **int IsLower(char * s)** – This function returns 1 if all of the characters in the string *s* are uppercase. Otherwise, it returns 0.
- **void ToLower(char * s)** – This function takes a string and converts it to the lowercase equivalent.
- **int main(void)** – You must write a main that will test the strings given as shown.

Bonus

For the optional bonus, you can write a new function that removes all non-numeric characters from the string defined as `ALPHATEST1`. If you implement the bonus, you must print the version of `ALPHATEST1` that your function produced and that now has only numeric characters in it. The prototype for this function should be:

- **void ToDigits(char * s)** – This function modifies the given string so that all of the non-numeric characters in it are removed.

Sample Output

```
JimR@JimRarea51:~$ compile x-lab8.c
```

```
JimR@JimRarea51:~$ ./a.out
```

ALPHATEST1 is not all alpha

The upper case version of UPPERTEST1 is: ABCDEFGHIJKLMNOPQRSTUVWXYZ

UPPERTEST2 is all upper case: ABCDEFGHIJKLMNOPQRSTUVWXYZ

BONUS: ALPHATEST1 with only digits is: 67890123

Guidelines for Grading Lab 7

40 Points Possible (+5 bonus points)

General

*If your program does not compile, or produce any input/output (I/O) because most of the source code is commented out then your lab will receive a grade of **NO POINTS**. For partial credit your C program must not only compile but also produce some valid I/O that meets the lab specifications.*

5 points: Header and general coding style.

5 points: Output matches the sample output correctly.

6 points: `IsAlpha()` function work correctly and matches the given prototype.

6 points: `IsUpper()` function works correctly and matches the given prototype.

13 points: `ToUpper()` function works correctly and matches the given prototype.

5 points: `main()` function works as specified.

BONUS (5 points)

5 points: `ToDigits()` function works, matches the given prototype, and removes non-numeric characters in the given string leaving only numeric characters.