Computer Science 304
Computer Organization
Fall 2018
Assignment 2 – Accumulator I

Due: midnight, Thursday, 10/4/2018

For this project, you will write a program in C that displays values in various base representations based on the current value of the program's accumulator. The program's execution is based on the following menu:

```
**************************************
* Accumulator:                       *
*   Hex     :  0000                  *
*   Octal   :  000000                *
*   Decimal :  0                     *
**************************************

Please select one of the following options:

O  Octal Mode
H  Hexidecimal Mode
D  Decimal Mode

C  Clear Accumulator
S  Set Accumulator

Q  Quit

Option:
```

Note that the value of the accumulator in various base representations is always displayed when the menu is displayed. The option can be entered in either upper or lower case (note that the option should be received as a string; the character option will be located at position 0). If an invalid option is entered, the program should state that an invalid option has been entered and redisplay the menu. This behavior should be repeated until the Quit option (Q) is selected.

The O, H, and D modes allow the user to change the base for which values are entered from the user in setting the accumulator (default is decimal). When a valid mode is selected, the program should print the new mode (e.g., "Mode is Octal").

The C option resets the accumulator to 0. Note that the initial value of the accumulator should be set to 0 when the program begins.

The S option allows the user to enter a value for the accumulator based on the mode. For octal, hexadecimal, and decimal, standard conversion characters can be used in scanf.

Your code must be modular and use functions, switch statements, character arrays, printf, and scanf (not getchar). Note that all input should be echo printed. Create the following functions, no more and no less, with the given interfaces to implement the program:

```
short get_operand (char mode)          // read in numeric value in mode; return value
void print_acc (short acc)             // print out accumulator values
char print_menu (void)                 // print menu and get option
int main (void)                        // main menu loop; execute option or call
                                       //  appropriate function
```

All code should be submitted in a single source file named `acc.c`.

Your program can be compiled with the command:

```
gcc acc.c –o acc
```

..and run with the command:

```
./acc < test.txt
```