C Programming

Project

Deadline: 1.30 PM 28 November 2005

1. Write a program with a menu to select from functions that will:

   (a) Enter an array of 6 numbers that are between -128 and $+127$. Output the largest number and the smallest number in binary. *(5 marks)*

   (b) Allow you to enter your name (in any case) and display your first name in lower case and family name in upper case. *(5 marks)*

   (c) Enter a list of six names in alphabetical order and reverse alphabetical order. *(5 marks)*

   (d) Quit the program. *(5 marks)*

   (e) Place an icon on the desktop to run your program from. To do this, locate the executable of your program using Windows Explorer then right-click on the file and then send to the disktop. Note that although you can do this with TCLITE, the .exe file cannnot be executed outside of the TCLITE IDE. *(10 marks)*

2. Hand in a flow chart or pseudocode to show your planning *(5 marks)*

3. Use functions, with at least one function that returns a value used by your program, and at least one function that accepts and uses a parameter. *(10 marks)*

4. Correctly indent your program. *(5 marks)*

   Total: *(50 marks)*

5. Hand in whatever work you have completed by the deadline, even if it is not completed.

6. You may use the following program as a template for your project. The program is available from http://nicku.org/c-programming/exercises/project/progs/menu.cpp

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```
#include <stdio.h>
#include <stdlib.h>
#include <ctype.h>

void display_menu( void )
{
        printf( "Type in the appropriate number and press enter\n"
            "1 Converting numbers to binary\n"
            "2 Perform the quincy SHNORKS operation\n"
            "3 sort 6 names\n"
```

```
                              "4 quit\n\n" );
}

void num_to_bin( void )
{
        printf( "the binary program\n" );
}

void quincy_SHNORKS( void )
{
        printf( "the quincy SHNORKS program\n" );
}

void sort_names( void )
{
        printf( "the sorting program\n" );
}

void quit( void )
{
        exit( 1 );
}

void unknown( char c )
{
        if ( isprint( c ) )
                fprintf( stderr, "Unknown menu choice \"%c\"\n", c );
        else
                fprintf( stderr,
            "Unknown menu choice: character with ASCII value \"%d\"\n", c );

}

int menu( void )
{
        char choice;
        while ( 1 ) {
                display_menu();
                scanf( " %c", &choice );
                switch ( choice ) {
                        case '1':
                                num_to_bin();
                                break;
                        case '2':
                                quincy_SHNORKS();
                                break;
                        case '3':
                                sort_names();
                                break;
                        case '4':
                        case 'q':
                        case 'Q':
                                quit();
```

```
                                break;
                    default:
                            unknown( choice );
                            break;
                }
        }
}

int main( void )
{
        menu();
        return 0;
}
```