Lab 09/24

1. **(A)** Write a program that allows the user to enter a length of time in seconds. The program should then output the number of hours, minutes, and seconds that corresponds to that number of seconds.

   For example, if the user inputs 50390 total seconds then the program should output 13 hours, 59 minutes, and 50 seconds.

   (B) Write a program that reads in a temperature in degrees Fahrenheit and prints the corresponding temperature in degrees Celsius. The conversion formula is

   $$C = \frac{5}{9}(F-32)$$

   The following is a sample run of the program

   ```
   Program to convert Fahrenheit to Celsius.
   Fahrenheit temperature?    212
   Celsius equivalent: 100
   ```

Input/Output Example:

```
(A)
Please input enter a length of time in seconds: 76543
76543 seconds = 21 hours, 15 minutes, 43 seconds.

(B)
Program to convert Fahrenheit to Celsius.
Fahrenheit temperature?  123
Celsius equivalent: 50.555557
```

2. (A) If a five-digit number is input through the keyboard:

(a). Write a program to calculate the sum of its digits.

(b). Write a program to print a new number by adding one to each of its digits. For example, if the input number 12391, then the output should be displayed as 23502.

(B) A Fibonacci number is a member of a set in which each number is the sum of the previous two numbers. (The Fibonacci series describes a form of a spiral.) The series begins:

0, 1, 1, 2, 3, 5, 8, 13, 21, …

Write a program that calculate and prints the next three numbers in the Fibonacci series. You are to use only three variables: fib1, fib2, and fib3.

Input/Output Example:

```
(A)
Please input a five-digit number:
75613

--- (a) ---
Sum of digits of 75613 is 22
--- (b) ---
After adding one to each of its digits of 75613 is 86724.

(B)
The Fibonacci series:
0 1 1 2 3 5 8 13 21 34 55 89 ......
```

3. Please write a program to let user input one integer number (0~127) and then print out the binary representation of that number. You only can use **one variable** in this problem!

Input/Output Example:

```
Input: 127
Output: 1111111
```

```
Input: 35
Output: 0100011
```

4. Find out the errors of the following codes and correct them in part (A). Point out and explain the errors when you demonstrate the result to TA. The errors may appear not only in main function but also elsewhere. Complete the codes in part (B) to print out the reverse order of a five-digit number. You should print the answer as one number, not print each digit separately. And you only can use **one variable** in part (B).

```
#inculde”sdtio.h”

int mian(void)
(
        // Part (A)
        float r
        float area
        double Math PI=3.14159
        int 1w 1h w2 2h

        Printf(‘Please input the radius:');
        Scanf("%d\n,r");
        area==Math PI*r^2
        Printf("The area of circle is %d\n\n",&area);

        Printf""Please input the width and height:";
        Scanf("%d%d\n,1w 1h ");
        Printf("The area of a rectangle is %d\n, 1w*1h");
        printf("The circumference is %d\n\n, 2*(1w+1h)")

        printf(''Plaese input two integers w and h: '');
        scanf("%d,%d\n",w2 2h);
        printf("w/h = %d ..... %d", w2/2h w2%2h);


        // Part (B)
        int n;
        printf("Input a number: ");
        scanf("%d", &n);
        printf("%d\n", ……);    // complete this line


        return 0;
)
```

Input/Output Example:

```
Please input the radius: 12.3
The area of circle is 475.291168

Please input the width and height: 12 34
The area of a rectangle is 408
The circumference is 92

Plaese input two integers w and h: 98 15
w/h = 6 ..... 8

Input a number: 32767
Output: 76723
```