Problem 1:

a) Write a program that converts an integer from a digit-by-digit representation into an integer

  g. ‘2’, ‘3’ => 23

b) Write a program that converts an integer into a digit-by-digit representation

  eg. 23 => ‘2’, ‘3’

c) Write the program that converts an integer provided its representation in base 10 digit-by-digit in base 2. The output is required also digit by digit. Assume that the integer is not greater than 255.

  e.g. ‘2’, ‘3’ => ‘0’, ‘0’, ‘0’, ‘1’, ‘0’, ‘1’, ‘1’, ‘1’

d) Write the program that would make the conversion between an integer number written in base 2 and represented (string) as a series of 1s and 0s and its value expressed in base 10.

  e.g. ‘0’, ‘0’, ‘0’, ‘1’, ‘0’, ‘1’, ‘1’, ‘1’ => 23

e) Write the program that would make the conversion between a base 2 representation of an integer and its base 16 representation

  e.g. 0101 1010 => 5A

f) Write the program that would make the conversion between a base 16 representation of an integer and its base 12 representation

  e.g. B3 => 1011 0011

g) Transform the code such as there will be six functions with the following prototypes. Use type int for base 10 representation and type string for representations in base 2 and 16. Write the main() function to test them.

  char* convert_int_into_string(int no_10);
  int convert_string_into_int(char no[]);
  char* convert_base10_into_base2(int no_10);
  int convert_base2_into_base10(char* no_2);
  char* convert_base2_into_base16(char* no_2);
  char* convert_base16_into_base2(char* no_16);
Problem 2:

a) Generate the Fibonacci’s series of numbers. Use the following algorithm:

Starting with the 0th element Fib[0] = 0 and the 1st element Fib[1] = 1, the following numbers are computed as follows:

- The 2nd number: Fib[2] = Fib[0] + Fib[1] = 0 + 1 = 1

and so on…

b) Re-write the code using functions.

c) Make the modifications of the code such as the Fibonacci’s series generation could be repeated if the user wants this.

d) Request user input for the superior limit of the series (maximum number of elements to be generated).

e) Write the main() function to test your functions.