Data Structures and Algorithms

Assignment 1

1. Write the recursive version and the iterative version of Fibonacci(100), and output the running times of the two programs.

2. Write functions to implement the following purposes:
   1) Construct a 3×3 matrix stored in a 2-dimensional array in main() function.
   2) Call a function to transpose the matrix with a pointer parameter as the function's parameter.
   3) Output the transposed matrix in main() function.

3. Write functions to implement the following purposes:
   1) Design a function to construct a linked list to store 10 numbers, e.g., 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9.
   2) Design a function to rearrange the above linked list in reverse order, e.g., 9, 8, 7, 6, 5, 4, 3, 2, 1 and 0. Note you are not allowed to create a new linked list in the operation.
      Call the 2 functions sequentially and output the results in main() function.

Due date: Oct. 24th.

Please submit the packaged programs and related documents (if any) with your ID and name as zip file name to INFO system.