1. Write a program to sort a list of n elements using the merge sort method and determine

the time required to sort the elements. Repeat the experiment for different values of n

and different nature of data (random data, sorted data, reversely sorted data) in the list.

n is the user input and n integers can be generated randomly. Finally plot a graph of the

time taken versus n.

2. Write a program that uses a divide-and-conquer algorithm/user defined function for the

exponentiation problem of computing an where a > 0 and n is a positive integer.