

Lab 1
EC4070: Data Structures and Algorithms
Chapter 2: Divide and conquer
Duration: 3 Hour
Array and Searching

Solving problems using recursive programming
Binary search with and without recursion
Quick and merge sort

1. Write recursive codes to solve the following problems. Write them as different methods of a single program. **(20 Marks)**
 - (a) Triangular number
 - (b) Factorial
 - (c) Anagrams
 - (d) Towers of Hanoi
2. Implementation of Binary search **(30 Marks)**
 - (a) Implement the binary search in normal way using loops.
 - (b) Create and test a recursive method for binary search.
3. Implementation of Merge and quick sort. Implement both the algorithms in an efficient way. You are expected to follow your lecture notes in this section and complete all the different cases described. **(50 Marks)**