Assignment No. 3

Aim: Use of divide and conquer strategies to exploit distributed/parallel/concurrent processing of the above to identify objects,morph-isms, overloading in functions (if any), and functional relations and any other dependencies (as per requirements).

Divide and Conquer Strategies:

In computer science, divide and conquer is an algorithm design paradigm based on multi-branched recursion. A divide and conquer algorithm works by recursively breaking down a problem into two or more sub-problems of the same or related type, until these become simple enough to be solved directly. The solutions to the sub-problems are then combined to give a solution to the original problem. Divide-and-conquer is probably the best-known general algorithm design technique. Though its fame may have something to do with its catchy name, it is well deserved Quite a few very efficient algorithms are specific implementations of this general strategy.

Divide and conquer algorithms work according to the following general plan:
1. A problem is divided into several sub-problems of the same type, ideally of about equal size.
2. The sub-problems are solved (typically recursively, though sometimes a different algorithm is employed, especially when sub-problems become small enough).
3. If necessary, the solutions to the sub-problems are combined to get a solution to the original problem.

Morph-isms:
1. Set Theory:
System S is denoted as collection of following set:
S = {Ip, Op, Su}
2. Objects:

Mapping Functions f(x)	X	Y
F2(Ip1) Ý Op1	Ip1	Op1
F3(Ip1) Ý Op2	Ip2	Op2
F4(Op2) Ý Op3	Op2	Op3
F6(Ip2) Ý Su	Op2	Su

Inputs:
(a) Input1: Ip1 = {Username, Password}
(b) Input2 : Ip2= {File Selection}

Outputs:
(a) Output1 : Op1 = {Incoming file notification}
(b) Output2 : Op2 = {File receiving operation}
(c) Output3 : Op3 = {Successful write of file in memory}

Functional Dependency Graph:
(a) Function 1 = F1 = Collect username and password
(b) Function 2 = F2 = Select file
(c) Function 3 = F3 = Load file in byte array
(d) Function 4 = F4 = Start transmission
(e) Function 5 = F5 = Start file receiving
(f) Function 6 = F6 = View output

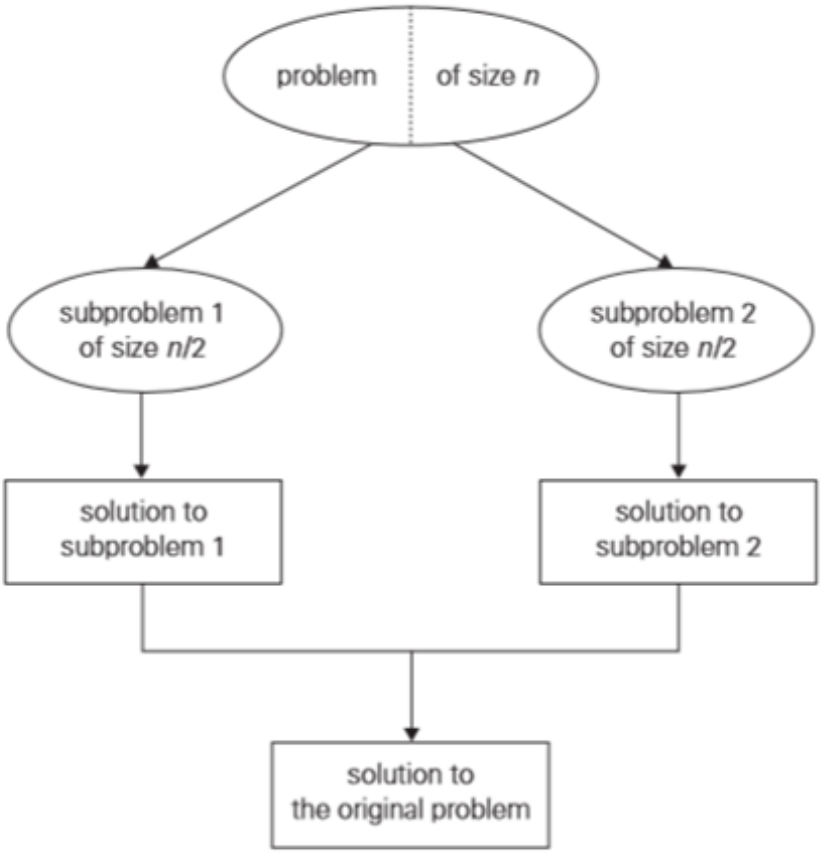

Figure 1: Divide and Conquer Strategies