Design and Analysis of Algorithms (DAA-432)

Lab exercise 1

Problem statement: You are given a huge input files. Design and analyse at least two algorithms on two different scenarios to sort the data. The results should be written in corresponding output files. You may choose any two of the following scenarios. The analysis should be accompanied by appropriate GNU plot figures.

Scn No.	Mem lim	Data type
1	1 MB	Bool
2	1 MB	Integer
3	1 MB	Double
4	1 MB	String
5	10 MB	Bool
6	10 MB	Integer
7	10 MB	Double
8	10 MB	String
9	100 MB	Bool
10	100 MB	Integer
11	100 MB	Double
12	100 MB	String
13	1 GB	Bool
14	1 GB	Integer
15	1 GB	Double
16	1 GB	String
17	10 GB	Bool
18	10 GB	Integer
19	10 GB	Double
20	10 GB	String

The input file names indicate the approximate size of the file in KB and also the data (_bool, _int, _double, _str) and in the form of pow_dataType.dat. Hence 3_bool.dat is 10^3 KB of bool data and 7_double.dat is 10^9 KB of doubles. Each line of the file has one entry and hence 1_bool.dat has *approximately* 1000 lines. The files to be considered for are 0_type.dat to 7_type.dat. Hence, input files for string would be 0_str.dat, 1_str.dat, ..., 7_str.dat. The input data may not necessarily be considered to be random. Shown below are first two lines of sample input files:

`0_bool.dat`	`0`	`0_str.dat`	`Hello World!`
	`1`		`Here is $45.67`
`0_int.dat`	`52212`	`0_double.dat`	`-123124.45346739923`
	`-234212`		`0.0000000006230`