Program Structures & Algorithms  
Spring 2022  
Assignment No. 2

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•**Task :**

(Part 1) You are to implement three (3) methods (repeat, getClock, and toMillisecs) of a class called Timer.

(Part 2) Implement InsertionSort(in the InsertionSort class) by simply looking up the insertion code used byArrays.sort.

(Part 3) Implement a main program (or you could do it via your own unit tests) to actually run the following benchmarks: measure the running times of this sort, using four different initial array ordering situations: random, ordered, partially-ordered and reverse-ordered.

•**Output screenshot:**

**(Part1)**

A screenshot of a computer

Description automatically generated

Graphical user interface, text

Description automatically generated

**(Part 2)**

Text

Description automatically generated

**•Relationship Conclusion:**

From the benchmark runs we can conclude that:

* Already ordered array takes the lowest time to perform Insertion sort.
* Array in the reverse order takes the maximum amount of time to sort.
* Random ordered array is the second largest time to sort.
* Partially ordered array takes third largest time to sort.
* We can see that as the array size doubles the time to sort becomes quadruple.

**•Evidence / Graph:**

Graphical user interface, chart, application, line chart

Description automatically generated