Program Structures and Algorithms

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Name : Anirudh Voruganti

NUID : 001092732

**Task:**

Implement Part 1 for 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 by Arrays.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

**Part 1:**

1. repeat

A screenshot of a computer program

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1. getClock

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1. toMillisecs

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**Part 2**

**Insertion Sort**

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**Part 3:**

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**Tests :**

***Part 1***

**Benchmark Test**

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Timer Test:

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**Insertion Sort test:**

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**Observations :**

1. **Reverse Sorted Array :**

Order of growth is quadratic

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1. **Ordered Array :**

Order of growth is linear

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1. **Randomly Sorted Array**

Order of growth is quadratic

**A graph and chart on a sheet of paper

Description automatically generated**

1. **Partial Sorted Array :**

Order of growth is quadratic

A graph and chart on a white sheet

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**Conclusion:**

Ordered Array > Partially Ordered Array > Randomly Ordered Array > Reverse Ordered Array

A chart with numbers and lines

Description automatically generated with medium confidence