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**Program Structures & Algorithms**

**Spring 2021**

**Assignment No. 2**

* **Task :**

--Generate Timer Class

--Implement insertion sort

--Measure time of 4 different types of array

* **Output:**

--The Timer class returns the time taken by the function in millisecs.

-- Insertion Sort sorts the array by using helper.sort method. It returns the sorted array.

-- Also, we measure the time taken by four different types of array namely: random, sorted, reverse, partial and for different size of n i.e (500,1000,2000,….34000) and print the time taken in millisecs.

* **Relationship Conclusion:**

-- The time taken is maximum for Reverse array since it has the maximum number of compares and sorts. Then comes the random array and then the partial array. The time taken by sorted array is almost 0 millisecs since it does not have any swaps as it is already sorted.

* **Graphical representation:**

Graphical user interface, application, table, Excel

Description automatically generated

* **Unit tests result:**

--Attached below is a screenshot of all the unit test case running successfully.

For

InsertionSortTest.java

TimerTest.java

BenchmarkTest.java

InsertionSort.java

A screenshot of a computer screen

Description automatically generatedGraphical user interface, text

Description automatically generatedA screenshot of a computer screen

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