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**Program Structures & Algorithms  
  
Fall 2021**

**Assignment No. 2**

* Implement Timer class, implement insertion sort, and use the timer class to test the insertion sort on ordered, reverse ordered, partial ordered and random array with different length.
* Unsurprisingly, reverse ordered array takes the longest time since the it uses the “compare and swap” algorithm mostly, then comes the partial ordered array since it’s partial ordered, less “compare and swap” and finally the ordered array since it has the least “compare and swap”. The random array gives us an approximate average time of insertion sort to sort the array since everything is random, and it should represent a general situation.
* I get this conclusion based on the graph show below\

1.Output (Snapshot of Code output in the terminal)

Text

Description automatically generated

2.Graphical Representation (Observations from experiments should be tabulated and analyzed by plotting graphs(usually in excel) to arrive on the relationship conclusion)

3.Unit tests result:(Snapshot of successful unit)

Graphical user interface, text, application, email

Description automatically generated

Graphical user interface, text, application, email

Description automatically generated

Text

Description automatically generated