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**Program Structures & Algorithms**

**Spring 2021**

**Assignment No. 2**

* **Task:**  insertion sort algorithm, find out the relationship between time complexity and different sizes of array.
* **Output:** 
  + Output log
    - /INFO6205/Python/test/test\_util/output.log
  + Data points
    - /INFO6205/Python/test/test\_util/data\_full\_random.txt
    - /INFO6205/Python/test/test\_util/data\_ordered.txt
    - /INFO6205/Python/test/test\_util/data\_reverse\_ordered.txt
    - /INFO6205/Python/test/test\_util/data\_partial\_ordered.txt
* **Relationship Conclusion:**

When the array is ordered, the time complexity is smallest. When the array is reversed from the ordered one, the time complexity is largest.

* **Evidence to support the conclusion:**

In the reverse ordered situation, we need to compare and swap each number. So its time complexity is largest.

* **Graphical representation:**

1 ordered

**图表, 散点图

描述已自动生成**

2 Reverse ordered:

图表, 折线图

描述已自动生成

3 Partial ordered:

图表, 折线图

描述已自动生成

4 Full random:

图表, 散点图

描述已自动生成

* **Unit tests result:**文本

  描述已自动生成图形用户界面, 文本

  描述已自动生成图形用户界面, 文本

  描述已自动生成文本

  描述已自动生成